



Community Wildfire Resiliency Plan 2025

*Regional District of Central Kootenay
Electoral Area G and Village of Salmo*

May 2025

REGISTERED PROFESSIONAL SIGN AND SEAL

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I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work.	
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TABLE OF CONTENTS

Registered Professional Sign and Seal	I
Table of Contents	II
List of Tables	IV
List of Figures	V
List of Maps	VI
Acknowledgements.....	VII
Executive Summary.....	VIII
Frequently Used Acronyms.....	XV
SECTION 1: Introduction	1
1.1 Plan Purpose and Goals	1
1.2 Plan Development Summary	2
SECTION 2: Relationship to Other Plans and Legislation	2
2.1 Local Authority Emergency Plan.....	2
2.2 Linkages to CWPPs/CWRPs.....	3
2.3 Local Plans and Bylaws	3
2.4 Higher-Level Plans and Legislation	10
SECTION 3: Community Description	12
3.1 Area of Interest and Wildland-Urban Interface.....	12
3.2 Community Description.....	15
3.3 Values at Risk.....	20
3.3.1 Critical Infrastructure	20
3.3.2 Electrical Power	21
3.3.3 Water and Sewage	22
3.3.4 Hazardous Values.....	23
3.3.5 Cultural Values	23
3.3.6 High Environmental Values	24
3.3.7 Other Resource Values.....	26

SECTION 4:	Wildfire Risk Assessment	28
4.1	Wildfire Environment	28
4.1.1	Topography	29
4.1.2	Fuel	31
4.1.3	Weather	35
4.2	Wildfire History.....	38
4.2.1	Historic Fire Regime	38
4.2.2	Historical Wildfire Occurrences.....	40
4.2.3	Wildfire Response	44
4.3	Risk Framework and Risk Class Maps	44
4.3.1	Provincial Strategic Threat Analysis	44
4.4	Local Wildfire Risk Assessment.....	47
4.4.1	Wildfire Threat Class Analysis	47
4.4.2	WUI Risk Class Analysis	48
4.5	Hazard, Risk, and Vulnerability Assessment.....	51
SECTION 5:	FireSmart Principles	52
5.1	Community Overview	52
5.2	Education.....	53
5.3	Legislation, Planning and Development Considerations	54
5.4	Cross-Training and Fire Department Resources	56
5.5	Interagency Cooperation	58
5.6	Emergency Planning	58
5.7	Vegetation Management and Other FireSmart Activities	60
SECTION 6:	FireSmart Roadmap and CWRP Action Plan	72
6.1	FireSmart Roadmap	72
6.2	Tracking, Reporting, and Updates	73
	Appendix A: Review of 2017 CWPP Recommendations.....	74
	Appendix B: Local Wildfire Risk Process	81
	Appendix B-1: Fuel Typing Methodology and Limitations	81
	Appendix B-2: Wildfire Threat Assessment Plots	82
	Appendix B-3: Fire Risk Threat Assessment Methodology	84
	Appendix B-4: Proximity of Fuel to the Community	87

Appendix C: Wildfire Risk Assessment – Worksheets and Photos 89

Appendix D: Maps 89

LIST OF TABLES

Table 1: Regional District of Central Kootenay Electoral Area G and Salmo - Community Wildfire Resiliency Plan Action Items X

Table 2: Summary of Electoral Area G Official Community Plan and its relationship to this CWRP. 4

Table 3. Summary of the Village of Salmo Official Community Plan and its relationship to this CWRP. 5

Table 4: Summary of local bylaws and their relationship to the CWRP. 7

Table 5: Higher level plans and legislation relevant to the plan area..... 11

Table 6: Land ownership within Electoral Area G’s WUI. 13

Table 7: Socio-economic statistics for Electoral Area G as per the 2021 census..... 15

Table 8. Socio-economic statistics for the Village of Salmo as per the 2021 census.¹³ 16

Table 9. Critical Infrastructure and community assets within Electoral Area G. 20

Table 10. Summary of water systems in the WUI..... 23

Table 11. Hazardous infrastructure identified within Electoral Area G..... 23

Table 12: Species and Ecosystems at Risk in the WUI – BC Conservation Data Center..... 24

Table 13: Slope Percentage and Fire Behaviour Implications..... 30

Table 14: Slope Position of Value and Fire Behaviour Implications..... 30

Table 15: Fuel types in Electoral Area G’s WUI..... 32

Table 16. Biogeoclimatic Zone and associated Natural Disturbance Types (NDTs) of Electoral Area G’s WUI. 38

Table 17: Wildfire threat summary for Electoral Area G’s Eligible WUI 48

Table 18: WUI risk class ratings within the Eligible WUI of the Electoral Area G 49

Table 19: FireSmart vulnerability and resilience factors by neighbourhood..... 52

Table 20. Capacity, training, and resources of fire departments in Electoral Area G. 56

Table 21. Prescribed and completed treatment units in the plan area..... 62

Table 22: Summary of Proposed Fuel Treatment Units..... 64

Table 23. Summary of WUI Threat Assessment Worksheets (2020)..... 82

Table 24: Components of Fire Threat Analysis 85

Table 25. Proximity to the Interface. 88

LIST OF FIGURES

Figure 1. Google Earth image of Salmo (looking north).....	17
Figure 2. Google Earth image of the Ross Spur-Erie corridor, looking east along Highway 3 towards Salmo.	17
Figure 3. Google Earth image of Ymir, looking NNW.....	18
Figure 4. Google Earth image of Hall and Porto Rico, looking south towards Ymir.	19
Figure 5. Google Earth image of Nelway, looking north to Rosebud Lake and Salmo.	19
Figure 6. Graphic display of the fire behaviour triangle, and a subset of characteristics within each component.....	29
Figure 7. The average number of days by Fire Danger Class for the past 14 years, based on data from the BC Wildfire Services Pend Oreille weather station.....	36
Figure 8. Average daily (right) and monthly (left) ISI values during the fire season (April to October) for the Pend Orielle weather station.	37
Figure 9. Image of the Six Mile Creek wildfire (N71011) in August 2022. Source: BC Wildfire Services.	40
Figure 10. Historic wildfires over 100 ha in size from 1920 to 2020.	41
Figure 11. Historic wildfire ignitions from 1950 -2020 by ignition source.....	42
Figure 12. Screenshot of the Village of Salmo’s Schedule K: Natural Hazard Development Permit Areas map. Shaded areas are steep slopes; green highlighted areas are wildfire interface areas.	55
Figure 13: FireSmart Home Ignition Zone.....	60
Figure 14. Graphic representation of the FireSmart Roadmap concept.	72

LIST OF MAPS

Map 1: CWRP Area of Interest (AOI) and Eligible Wildland Urban Interface (WUI) for Electoral Area G and Salmo.	14
Map 2: Values at Risk in the WUI.....	27
Map 3. Updated fuel types in Electoral Area G’s WUI.....	34
Map 4. Biogeoclimatic zones and associated Natural Disturbance Types (NDTs)in the WUI.	39
Map 5: Historical fire perimeters and fire ignitions in the WUI.	43
Map 6. Provincial Strategic Threat Analysis (PSTA) Fire Threat Rating and WUI Risk Class Rating.	46
Map 7: Local wildfire threat assessment within the WUI.....	50
Map 8: Overview map of prescribed, completed and proposed fuel treatment units within the WUI.....	71

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EXECUTIVE SUMMARY

In October 2024, B.A. Blackwell and Associates Ltd. was approached by the Regional District of Central Kootenay (RDCK) to assist with updating their existing 2017 Community Wildfire Protection Plan (CWPP) for Electoral Area G and the Village of Salmo to the newest Community Wildfire Resiliency Plan (CWRP) format. A CWRP is both a localized risk assessment and an action plan to improve wildfire resiliency within Electoral Area G and Salmo's Wildland-Urban Interface (WUI). This update accounts for changes that have occurred since the development of the last plan and takes advantage of the newest community wildfire planning framework in BC. The CWRP has a strong focus on the [seven FireSmart™ disciplines](#)¹ and on interagency collaboration.

The Area of Interest (AOI) of this CWRP encompasses the 1-km Wildland Urban Interface (WUI) around Salmo and the surrounding communities of Ross Spur, Meadows, Erie, Ymir, Porto Rico, Hall Siding and Nelway. Recommendations made within this plan are directed at the RDCK and Village of Salmo, although some recommendations involve collaboration or partnership with other local governments, agencies, or organizations.

The RDCK has a mature and successful regional FireSmart program that also includes the Village of Salmo. In addition to identifying areas of possible expansion and improvement, this plan serves to recognize all the progress made to date since the last CWPP was completed. Across the RDCK between 2018 and 2023, 1699 FireSmart Home Assessments have been completed, 29 neighbourhoods have received FireSmart recognition, \$96,000 of mitigation work has been completed under a FireSmart rebate program, and \$77,738 of Neighbourhood Champion grants has been distributed.² Specifically in Electoral Area G and Salmo, there has been 136 FireSmart Assessments and 19 rebates awarded. Although Salmo and Ymir are good candidates for the FireSmart Neighbourhood Program, no communities in Electoral Area G are currently recognized. This suggests that the RDCK could focus on building more local FireSmart leadership in the plan area through FireSmart training for fire department members (Action Item #16) or community workshops (Action Item #2).

Since the last CWPP was completed for the area, the RDCK has also explored implementing a Wildfire Hazard Development Permit Area (DPA) policy. Although the RDCK has opted not to implement a Wildfire Hazard DPA in Electoral Area G at this time, development concerns have been partially addressed through the RDCK Bare Land FireSmart assessment program, offered throughout the region to residents who are planning to build on undeveloped lots. This free, voluntary assessment educates residents on FireSmart principles and advises best practices regarding construction, lot preparation, and landscaping. The Village of Salmo has a Wildfire DPA in place that applies to limited areas on the edge of the municipality. Action Item # suggest a review of DPA boundaries.

¹ Education, Legislation and Planning, Development Considerations, Interagency Cooperation, Cross-training, Emergency Planning, and Vegetation Management

²Urban Systems. 2023. *Wildfire Development Permit Area Summary Report*.

The RDCK, Village of Salmo and its residents are well-versed in emergency preparedness and response. Flooding and wildfires frequently affect the Central Kootenays, and the 2024 wildfire season in particular had widespread impacts in the region, though outside of Electoral Area G. This CWRP recognizes the importance of continuing a strong emergency management program, including tabletop exercises (Action Item #) and the importance of expanding interagency cooperation at both regional and subregional levels. Although Electoral Area G and Salmo are represented in the Regional Wildfire Planning Table, there is currently no local FireSmart Committee in the plan area (Action Item #20).

Communities in Electoral Area G are all in a provincially defined Wildland Urban Interface (WUI) Risk Class polygon that has a Risk Class of 1 (Salmo and Nelway), which reflects the highest wildfire risk rating. The Provincial Strategic Threat Analysis assigns a moderate or higher threat rating to much of the surrounding area. *As the scope of this plan was limited to that of an update, fieldwork focused only on verifying treatment units proposed in 2017, proposing additions or reductions to them, or creating new standalone treatment units, rather than updating fuel types and collecting wildfire threat assessments to support a local wildfire threat reassessment.*

The local threat assessment (completed in 2017 for the 2 km WUI and clipped to the 1 km Eligible WUI for this plan update) tells a consistent story – substantial portions (43%) of the plan area have a high or extreme fire behaviour threat due to a combination of topography, fire weather, and fuel type. Local BCWS representatives also highlighted concerns with the buildup of fuel in the plan area, due to a relative lack of large fires in the Salmo area over the last 100 years. However, it was also noted that steep topography and high-speed wind events are more significant drivers of fire behavior in the plan area than fuel type.

It is beyond the scope of the CWRP to analyze local threat on private land, which covers approximately 50% of the WUI. This highlights the need to implement risk mitigation programs on both public and private land if community resilience is to be achieved. Since the last CWPP, fuel treatments have been completed around Ymir and Nelway, with additional areas prescribed around the Salmo Ski Hill and Whitewater Resort. However, there is more work to do (Action Item #26). *Although detailed field reconnaissance was not in the scope of this plan update, 28 potential fuel treatment units (PTUs) on public land identified in the 2017 plan were visited and re-prioritized, clipping boundaries to the 1-km Eligible WUI where appropriate. These units should be seen as wildfire risk reduction (WRR) focus areas that will require further assessment by the appropriate land manager prior to prescription development, or may be best managed by a licensee with WRR as one objective.*

A total of 32 CWRP action items are presented in Table 1 below. Ultimately, these items should be considered as a toolbox of options to help increase the wildfire resiliency of communities in Electoral Area G and the Village of Salmo. The RDCK and Salmo will have to further prioritize implementation based on resources, strengths, constraints, and availability of funding, and regularly update the prioritization and course of actions over the lifetime of this plan.

Table 1: Regional District of Central Kootenay Electoral Area G and Salmo - Community Wildfire Resiliency Plan Action Items

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
Education - Section 5.2							
Residents							
#1 FireSmart Staff	High	Continue to apply for funding to employ and train Wildfire Mitigation Specialists (WMS)/Local FireSmart Representatives (LFR) and a FireSmart Coordinator across the RDCK.	A FireSmart Coordinator is a fundamental component of a FireSmart program and a requirement for CRI funding. The CFRC noted that even with 6 WMS in the RDCK, there is sometimes a backup of requested home assessments, so hiring more WMS may be required as the program grows in popularity.	RDCK FireSmart	1 year and annually	Sufficient staff capacity is maintained to support the program	CRI FCFS for FireSmart staff
#2 FireSmart Events	High	Continue to promote FireSmart to residents at community events (e.g. farmers markets) and through workshops using printed and digital FireSmart BC resources. Consider a FireSmart Community Preparedness Day or combined Emergency Preparedness Day. Include local first responders if possible.	Community events are a great opportunity to increase awareness of FireSmart programming and FireSmart BC resources present a unified message.	RDCK FireSmart	1 year and annually	Continued uptake of the RDCK FireSmart program in Electoral Area G and Salmo (e.g. number of home assessments completed)	CRI FCFS funding - FireSmart staff time; resources for Education events (banners, brochures, promo items)
#3 FireSmart Advertising	High	Continue the RDCK FireSmart media campaign through social (i.e., Facebook, Twitter, Instagram), radio, and/or print media avenues. Keep track of which avenues receive the most engagement so that funds can be best directed and keep abreast of new outlets. Review material annually and update graphics and language to match any changes in the FireSmart BC program. Consider asking community associations to post on their websites or Facebook groups.	Successfully engaging a community in FireSmart will rely on more than one communication avenue. Keeping material 'fresh' and up to date is important for authoritative messaging.	RDCK FireSmart	Annually	Funding is allocated each year to FireSmart communication in local/social media	CRI FCFS – FireSmart staff and costs
#4 FireSmart in Schools	Moderate	Promote FireSmart in School District 8 schools (Salmo) using the FireSmart Education Kit and other resources. Invite local first responders or forestry staff if possible.	Engaging local students in FireSmart may increase uptake with all residents. There are no schools in Electoral Area G outside of Salmo.	RDCK FireSmart / Village of Salmo / School District 8	Annually	One FireSmart lesson delivered each year (minimum).	CRI FCFS
#5 Home Assessments	High	Continue to offer and promote the free FireSmart Home Assessment Program and especially the rebate program to residents.	FireSmart Home Assessments are a foundational part of FireSmart Education for a community and allow for in-person connection between residents and FireSmart staff. Rebate programs incentivize on-the-ground mitigation. The program has been popular to date, with many assessments completed but fewer rebates awarded.	RDCK FireSmart	Annually	The number of home assessments completed and rebates awarded increases annually	CRI FCFS
#6 Regional Park Signage	Low	Consider installing seasonal FireSmart signage at regional parks (Rosebud) – consider a QR code that links to the RDCK FireSmart website.	Signage in parks presents a good opportunity for public education on FireSmart and wildfire prevention – whether the parks have fuel management projects planned or not.	RDCK FireSmart / Parks	5 years (signs installed)	Signage in parks is considered	CRI FCFS – staff time and sign costs
Administrative							
#7 Share CWRP Online	Moderate	Like other CWPPs, make this plan available on the RDCK and Village of Salmo websites and communicate its completion to residents.	Plan implementation will be most successful with buy-in from the public, as significant action on private land is required.	RDCK FireSmart	1 year	Plan is available online	CRI FCFS – staff time
#8 Annual Progress Report	Moderate	Consider releasing an annual RDCK FireSmart report to elected officials and the public that tracks community-specific uptake in various FireSmart initiatives	As the program grows, reporting allows the RDCK FireSmart program to track challenges and successes, further promote the program, and tailor outreach methods to achieve the most uptake.	RDCK FireSmart	Annual	An annual report is published.	CRI FCFS – staff time

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#9 Update Website(s)	Moderate	Coordinate FireSmart information on the RDCK website – a link to the RDCK FireSmart page should be provided on the Emergency Preparedness > Wildfires page in addition to where it is currently on the Fire Services > Fire Prevention page. Continue to update the FireSmart webpages for both the RDCK and the Village of Salmo with the most recent FireSmart graphics and language.	FireSmart information should be easy to find online and be up to date (program names and graphics change frequently).	RDCK FireSmart, Village of Salmo	1 year and annually	FireSmart webpages are reviewed annually	CRI FCFS – staff time
Legislation, Planning and Development - Section 5.3							
#10 Critical Infrastructure	High	Continue to conduct FireSmart Critical Infrastructure Assessments for public works and community/government buildings. Conduct FireSmart mitigation as soon as possible (vegetation management, material upgrades). Encourage community hall societies and water utilities to follow suit.	Protecting water systems and community infrastructure is critical to wildfire response and recovery. Assessments have already been completed for the Ymir fire hall (RDCK) and for multiple buildings in Salmo.	RDCK FireSmart, Village of Salmo (Community Groups)	Ongoing	Number of assessments completed and mitigation hours/investment	CRI FCFS – publicly-owned only
#11 Bare Land Program	Moderate	Continue to offer the voluntary Bare Land FireSmart assessment program (for undeveloped land where residents are planning to build). Ensure that the program is promoted through the planning department as well.	The free bare land assessment by Wildfire Mitigation Specialist is an excellent educational tool to regulate construction and landscaping without a Wildfire Hazard DPA.	RDCK FireSmart (Development)	Ongoing	Number of assessments completed	CRI FCFS – staff time
#12 Review RDCK Wildfire DPA	Low	After the implementation of a Wildfire DPA in Electoral Area I (RDCK 'pilot), the RDCK should review its applicability in any part of Electoral Area G.	A Wildfire Hazard DPA remains a good tool to regulate development, and lessons learned from Area I may make for more buy-in / smoother roll out in other areas. The Village of Salmo already has a Wildfire Hazard DPA.	RDCK FireSmart (Planning/Development)	3 years	A Wildfire DPA in Electoral Area G is reconsidered prior to the next CWRP	CRI FCFS – staff time
#13 Review Salmo Wildfire DPA	Moderate	Salmo should review their Wildfire Hazard DPA to ensure that it provides sufficient clarity and covers enough area to achieve the desired outcome of residents in the interface complying with FireSmart principles.	The limited extent of Salmo's Wildfire DPA does not take into account spotting risk – the distance embers could fall in an interface wildfire event. A larger DPA with potentially relaxed guidelines (e.g. focus only on rated roofing and the Immediate Zone) may improve community resilience.	Village of Salmo Planning/Development	2 years	The Wildfire DPA in the Village of Salmo is reviewed	CRI FCFS – staff time
#14 Schedule CWRP Updates	High	Schedule regular updates of this Community Wildfire Resiliency Plan: target every 5 years. Apply for enough funding so that the Eligible WUI can be reassessed.	A current and acceptable CWRP is required for funding under the CRI FCFS program. Even if this plan is 'updated' (<5 years old), the budget should reflect the large plan area and the need for field work and spatial analysis throughout the Eligible WUI.	RDCK FireSmart (Consultant)	5 years	Area G and the Village of Salmo maintains a current and acceptable CWRP.	CRI FCFS funding
Cross Training & Fire Department Resources - Section 5.4							
Training							
#15 Fire Department training	High	Support fire departments to train all members in SPP-WFF1 (Wildland Firefighter – Level 1) or S-100/1-185 and work towards training members in WSPP-115 (Structural Protection Unit Deployment) or other courses as capacity permits. Local weekend courses are a good option for volunteer departments.	SPP-WFF-1 is specific for structural fire fighters who respond to wildland fires in their service area. Neither Salmo (Village of Salmo) or Ymir (RDCK) fire departments currently have all their members trained in SPP-WFF1.	RDCK / Village of Salmo (Fire Departments)	Annually	All local firefighters are trained in SPP-WFF1 and some members are trained in WSPP-115, and refresh the course annually	Compensation for course instructor/facilitation of spring training courses; CRI FCFS funding
#16 FireSmart training	Moderate	Encourage FireSmart training within local fire departments: FireSmart 101, Local FireSmart Representative (LFR), and Wildfire Mitigation Specialists (WMS). This may be encompassed by the Advanced FireSmart Program for RDCK fire chiefs and fire services staff started in 2023.	Fire department members are often also community leaders. FireSmart training can help achieve public education objectives, coordinate messaging across a fire department, and expand the reach of a FireSmart program, especially if additional local WMS are needed (see Recc. #1). Consider compensation for member time.	RDCK / Village of Salmo (Fire Departments)	Annually	Target 1 WMS and 1-2 LFRs specific to Area G	CRI FCFS funding

Item	Priority	Recommendation	Rationale	Lead	Timeframe	Metric for Success	Funding Source
				(Involved)			
#17 Cross Training	High	Look for ways to support Ymir VFD in regularly holding a practical cross-training event with BCWS, involving an interface fire or possibly a structural protection scenario.	Practical training is essential for fire departments, and BCWS cross-training enhances the abilities of crews to work together on an interface fire. Ymir VFD expressed interest in such an event; Salmo Fire Department has BCWS come to their hall about every 3 years.	RDCK / Ymir VFD / BCWS	Annually	All fire department members participate in a practical training event annually; with BCWS every 3 years	Staff and volunteer time
Water/Other							
#18 Response Map	High	Work with local fire departments to build an RDCK dataset of natural and artificial water sources and access points for fire suppression. Share this information with BCWS, all mutual aid fire response partners, and update over time. Include with other key fire response information, like roads, trails, and gates, on a map.	Water sources in the plan area are known by firefighters but in Ymir are not mapped. Salmo Fire Department uses the Whos Responding App. In an interface wildfire scenario, it would be helpful if all local information was consolidated so it could be easily shared with BCWS response personnel and mutual aid partners, as well as included in the pre-planning of emergency community water delivery systems. Consider digital (e.g. KMZ).	RDCK (Ymir VFD) (Salmo Fire Department)	2 years and ongoing	A digital file or PDF response map is produced and shared	Incremental staff time; funding possible
#19 Water Supply	Moderate	Assist the Ymir VFD in identifying and implementation possible mitigation solutions for water supply outside of hydrated area	Ymir VFD expressed concerns with the availability of /access to drafting sites in Wildhorse Road and Hall Siding. The siting of water tanks and or standpipe installation may mitigate some issues.	RDCK Emergency Services, Ymir VFD	3 years and ongoing	Adequacy of water supply for fire suppression is reviewed	Incremental staff time; funding possible
Interagency Cooperation - Section 5.5							
#20 FireSmart Committees	High	Continue to engage the regional Wildfire Planning Table to plan, to plan, implement, and coordinate FireSmart initiatives, including fuel management treatments. Support a local (Salmo area) FireSmart and Resiliency Committee (CFRC) if it is formed.	Both regional and sub-regional FireSmart Committees are valuable. The current Planning Table is working well and the RDCK should look for opportunities to support a sub-regional committee.	RDCK FireSmart	Ongoing	CFRC FireSmart meeting takes place at least annually.	At least 8 hours per meeting to prepare, participate and debrief. CRI FCFS
Emergency Planning - Section 5.6							
#21 Tabletop Exercises	Moderate	As part of the RDCK Emergency Program (Salmo is included), continue to hold annual tabletop emergency exercises with emergency management partners.	Tabletop exercises provide an opportunity to identify weak spots in a plan and collaborate. The RDCK already has experience with wildfire evacuations, but tabletop exercises are still valuable.	RDCK Emergency Management (RCMP; SAR; BCWS; Fire Departments)	3 years	Exercise (potentially involving a fire in Area G) is completed	CRI FCFS Emergency Planning. Possibly CEPF / Columbia Basin Trust
#22 Promote Voyent Alert	Moderate	RDCK should continue to promote the Voyent Alert! System to residents and visitors.	Clear, consistent, concise, and quick communication during an emergency event and evacuation are integral to the prevention of loss of life. This was identified as an issue during WUI fire disasters in Lahaina, Maui, USA and Fort McMurray, Alberta.	RDCK Emergency Management	Ongoing	Continued uptake of the Voyent Alert! System (can track downloads from app providers).	RDCK staff time
#23 Secondary Power Sources	High	Purchase or encourage the purchase of back-up generators for any publicly or society-owned critical infrastructure that does not have one yet.	Back-up generators for pumphouses, treatment plants, and community buildings (especially those designated as emergency shelters) would facilitate both emergency response (water supply for suppression) and rapid community return and recovery following a fire. The Salmo water and sewer systems and the fire hall have backup power; the Ymir water system and fire hall do not.	RDCK Emergency Management	2 years	All fire halls and water systems have back up power	Staff time and equipment cost

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#24 Pre-incident Plan	Moderate	The RDCK should consider requesting one or more Structure Protection Community Assessments through the BCWS Provincial Structure Protection Coordination office.	Small, intermixed communities would benefit from these. Assessments have been completed for Ymir and Salmo.	RDCK (BCWS) (OFC) (Fire Departments)	5 years	A Structure Protection Community Assessment is completed	Can be requested through the Structure Protection Coordination office. There may also be funding through the Fire Chief's Association of BC or the Office of the Fire Commissioner
#25 Promote Good Civic Addressing	Moderate	Continue to promote the installation of visible and reflective addresses throughout Electoral Area G and the Village of Salmo. Consider including a link to purchase recommended signage on the RDCK Emergency Management webpage.	The CFRC noted that address visibility was poor. Reflective signs help emergency responders find properties during response or evacuation events. Consider selling signs as a fire department fundraiser (e.g. Riondel VFD in Area A) and/or offering free delivery and installation along with a FireSmart Home Assessment.	RDCK FireSmart / Village of Salmo	2 years	Most properties have visible addresses	Promotion campaign; consider selling signs as a fundraiser
Vegetation Management - Section 5.7							
Fuel Management Treatments							
#26 Fuel Management on Public Land	High	Work with land manager(s) as part of the Regional Wildfire Planning Table to have existing fuel treatment units maintained as necessary and to recce, prescribe, and implement additional Potential Fuel Treatment Units (PTUs), starting with those identified as High priority.	Some strategic areas of Crown land have already been implemented but there are more areas to treat. Monitoring (as part of the next CWRP update) and maintenance should be conducted as necessary and additional areas treated. BCWS supports Crown land treatments around communities in the area.	Ministry of Forests (RDCK)	5 years	Previously treated areas are maintained in a lower hazard state and additional treatments are completed.	CRI (FCFS, WRR) or CBT
#27 Pilot Map	Moderate	Annually update and look for ways to improve the pilot mapping tool that was recently developed by the Regional Wildfire Planning Table to consolidate and track fuel treatments.	A regional fuel treatment dashboard is a valuable tool that integrates information on fuel treatments across multiple funding agencies in a user-friendly format.	RDCK / Planning Table	Annual	A useful regional fuel treatment dashboard is maintained.	Funding may be available.
#28 Support Fuel Treatment on Private Land	Moderate	Engage with the Ministry of Forests to discuss a strategy to enable owners of large forested properties to undertake meaningfully-sized fuel treatments. A strategy could involve education, free guidance and potentially an incentive program. Look to Washington State Department of Natural Resources' Small Forest Landowner Regulation Assistance Program for a possible framework.	Even the most dedicated residents will likely have difficulty (time, cost) undertaking fuel treatments beyond the 30 m Home Ignition Zone. However, effectively reducing wildfire risk from structures-out will involve forest treatments on private land on a broad scale. Residents may benefit from a program that helps them plan and undertake such treatments in compliance with local and provincial legislation, and in a cost-effective and possibly income generating manner.	RDCK (Ministry of Forests)	4 years	Meetings take place	Incremental staff hours; possibly part of ongoing interagency communications
#29 Interpretive Signage	Moderate	As part of fuel treatment implementation, the RDCK should consider developing interpretive signage to demonstrate pre- and post-fuel treatment forest stands conditions.	Some areas close to communities have been treated – for example, at the end of Quartz Creek Drive in Ymir. Interpretive signage could include text explaining the purpose of the fuel management treatment, connection to the CWRP, and FireSmart practices residents nearby can take to reduce wildfire hazards around their yards and homes.	RDCK FireSmart	5 years	Signage installed during implementation phases.	CRI FCFS
Residential and Community FireSmart							
#30 Contractors List	Moderate	Continue to provide a FireSmart Contractors list on the RDCK FireSmart website and offer the RDCK FireSmart Contractors Info Session for applicants.	Connecting residents with contractors who are qualified to complete FireSmart mitigation work (contractors for the home, landscapers, or arborists and forest fuel mitigation) removes a barrier to mitigation action.	RDCK FireSmart	Ongoing	A useful list of qualified contractors is provided online	CRI FCFS- FireSmart staff

Item	Priority	Recommendation	Rationale	Lead	Timeframe	Metric for Success	Funding Source
				(Involved)			
#31 Free Yard Waste Disposal	Moderate	Expand regional district-led options for the disposal of yard waste. Currently, this includes having tipping fees waived (May and October) for yard waste at the Central (Salmo) transfer station.	Having to pay tipping fees may be a barrier for residents who wish to conduct FireSmart landscaping, especially during the fire season when burn bans are in place.	RDCK FireSmart	Annual	Free yard waste disposal continues and is also offered at the Ymir transfer station.	CRI FCFS funding is available for tipping fee coverage
#32 Neighbourhood Recognition	High	Continue to promote the FireSmart Canada Neighbourhood Recognition Program, including offering support from local Wildfire Mitigation Specialist(s) or Local FireSmart Representatives (LFRs) for Neighbourhood Assessments and Plans. Continue offering the Neighborhood Champion Grant.	The RDCK provides step-by-step information online for interested neighbourhoods. No communities in the plan area are currently recognized, although Salmo and Ymir are both good candidates. The Neighborhood Champion Grant provides a valuable incentive for program participation and has received good uptake in other Electoral Areas.	RDCK FireSmart	2 years	A neighbourhood in Area G receives recognition.	CRI FCFS- FireSmart staff; FireSmart Champion Grant

FREQUENTLY USED ACRONYMS

AOI	Area of Interest
BC	British Columbia
BCWS	British Columbia Wildfire Service
BEC	Biogeoclimatic Ecosystem Classification
CFDRS	Canadian Forest Fire Danger Rating System
CRI	Community Resiliency Investment
CWPP	Community Wildfire Protection Plan
CWRP	Community Wildfire Resiliency Plan
DPA	Development Permit Area
EA	Electoral Area
FBP	Fire Behavior Prediction System
FCFS	FireSmart Community Funding and Supports: Stream 1 of the UBCM CRI Program
FNESS	First Nations Emergency Services Society
HIZ	Home Ignition Zone
MOF	Ministry of Forests
MOTI	Ministry of Transportation and Infrastructure
NDT	Natural Disturbance Type
PSTA	Provincial Strategic Threat Assessment
RDCK	Regional District Central Kootenay
UBCM	Union of British Columbia Municipalities
WRR	Wildfire Risk Reduction (Crown Land WRR refers to Stream 2 of the UBCM Community Resiliency Investment Program, administered by the Ministry of Forests)
WTA	Wildfire Threat Assessment
WUI	Wildland Urban Interface

SECTION 1: INTRODUCTION

In October 2024, B.A. Blackwell and Associates Ltd. was retained by the Regional District Central Kootenay (RDCK) to update the previous 2017 RDCK CWPP for Electoral Area G and Salmo to the Community Wildfire Resiliency Plan (CWRP) template. This plan replaces the previous 2017 RDCK CWPP for Electoral Area G and Salmo. A CWRP has its roots in the Community Wildfire Protection Plan (CWPP) framework, which was originally established in BC in response to the series of devastating wildfires in 2003. Since then, many communities in BC have continued to face an ever-increasing threat of wildfire, as the 2017, 2018, and 2023 fire seasons proved to be three of the most historically damaging seasons on record.

CWRPs are currently being developed at many jurisdictional and geographic scales and are individually tailored to address the needs of different communities in response to their size, their capacity, and the unique threats that they face. Despite these differences, the goals of a CWRP remain the same and are founded in the seven FireSmart disciplines: Education, Legislation & Planning, Development Considerations, Interagency Cooperation, Cross-Training, Emergency Planning and Vegetation Management.

CWRPs are funded in BC by the Union of BC Municipalities (UBCM) under the Community Resiliency Investment (CRI) FireSmart Community Funding and Supports (FCFS) Program. As per funding requirements, this CWRP is completed according to the 2023 CRI template.

1.1 PLAN PURPOSE AND GOALS

This plan accounts for FireSmart program changes that have occurred since the 2017 CWPP and takes advantage of the most recent community wildfire planning framework in BC. This CWRP:

- Re-identifies the interface wildfire risk around communities by clipping the 2017 CWPP wildfire threat layer (completed to a 2-km WUI) to the newer 1-km Eligible WUI,
- Re-identifies the interface fuel types around communities by clipping the 2017 CWPP fuel type layer (completed to a 2-km WUI) to the newer 1-km Eligible WUI,
- Re-visits fuel treatment units proposed in 2017, proposing additions or reductions to them,
- Proposes new fuel treatment units, and
- Updates RDCK's FireSmart program for Electoral Area G and Salmo.

This CWRP is intended to serve as a framework to guide the implementation of specific actions and strategies to:

- 1) Increase the efficacy of fire suppression and safety of emergency responders,
- 2) Reduce potential impacts and losses to property and critical infrastructure from wildfire, and
- 3) Reduce potential wildfire behavior and threat within the community.

To help guide and accomplish the above strategies, this CWRP will provide the RDCK with:

- 1) An assessment of values at risk and potential consequences from wildfire,
- 2) Maps of fuel types and recommended areas for fuel treatments (2017 fuel types and revised or additional fuel treatment areas),
- 3) An assessment of emergency response capacity, and
- 4) Options and strategies to reduce wildfire risk through the seven FireSmart disciplines.

1.2 PLAN DEVELOPMENT SUMMARY

The CWRP development process consisted of five general phases:

- 1) Formation of the plan-level Community FireSmart Resiliency Committee. Consultation with the CFRC and information sharing occurred throughout.
- 2) Review of relevant plans and legislation regarding emergency response and wildfire (Section 2)
- 3) Description of the community and identification of values at risk (Section 3)
- 4) Assessment of the local wildfire risk (Section 4)
- 5) Analysis and action plan for each of the seven FireSmart disciplines (Section 5)

SECTION 2: RELATIONSHIP TO OTHER PLANS AND LEGISLATION

Wildfires can affect all aspects of a community. As a result, numerous RDCK plans, and neighboring jurisdictions relate to this CWRP. This section reviews all relevant plans, policies, bylaws, guidelines and provincial legislation to identify sections within that are relevant to community wildfire planning and response.

2.1 LOCAL AUTHORITY EMERGENCY PLAN

Emergency preparedness and response planning in BC is guided by the Emergency and Disaster Management Act (EDMA), which replaced the Emergency Program Act in November 2023.³ This Act defines the various roles and administrative duties of the province and local governments regarding the implementation of higher-level emergency planning; the processes of declaring a state of emergency; and the coordination of post-disaster relief. The Act emphasizes the four phases of emergency management: mitigation, preparation, response, and recovery.

Emergency planning in Electoral Area G and Salmo is provided under the RDCK Emergency Management Program. The RDCK Emergency Management Program encompasses all 11 Electoral Areas in the RDCK as well as the participating municipalities of Kaslo, Nakusp, New Denver, Salmo, Slocan and Silverton. The RDCK Emergency Response and Recovery Plan (2015)⁴ outlines structural and organizational requirements for coordinated response and recovery from emergencies in the RDCK, including decision-making tools

³ More information can be found at [Modernized emergency management legislation - Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/socdev/emergency-preparedness-response-recovery/modernized-emergency-management-legislation-province-of-british-columbia)

⁴https://rdck.ca/wp-content/uploads/2024/11/2015-04-31_RDCK_Emergency_Response_Recovery_Plan%20V22.pdf

for evacuation or shelter in place; emergency operation centers (EOC) levels and activation protocols; hazard and evacuation planning; fire planning including industrial, wildfire and structural fires; and recovery planning. Section 3.10 specifically deals with interface fires/wildfires, indicating that interface fires will be managed using unified command with the Ministry of Forests and local fire department(s) and other local fire departments, where applicable. The Plan is reviewed annually.

The RDCK Emergency Management Program conducts tabletop exercises yearly with staff (and responds to emergencies involving evacuations almost yearly). Emergency preparedness initiatives are further described in Section 5.6.

2.2 LINKAGES TO CWPPS/CWRPS

Regional District of Central Kootenay Area G & Salmo Community Wildfire Protection Plan Update – 2017⁵

Beginning in 2017, B.A. Blackwell & Associates developed a Community Wildfire Protection Plan update for the Regional District of Central Kootenay Area G and the Village of Salmo. The scope of this plan was a two-kilometer buffer around all residences and critical infrastructure based on structure density criteria. A tabularized review of the 2017 recommendations and their implementation status is presented in Appendix A.

Listed below are jurisdictions adjacent to Electoral Area G and Salmo that have been involved in community wildfire planning. *Strategic opportunities exist between these plans and should be considered.*

- RDCK Electoral Area A CWRP 2024 – concurrently in development.⁶
- RDCK Electoral Area B CWRP 2024 – concurrently in development.⁶
- RDCK Electoral Area C CWRP 2024 – concurrently in development.⁶
- RDCK Electoral Area D CWRP 2023 – recently completed.⁶
- RDCK Electoral Area E CWRP 2023 – recently completed.⁶
- City of Nelson CWRP 2021 – recently completed.⁶

2.3 LOCAL PLANS AND BYLAWS

The sections and policies of the Electoral Area G Comprehensive Land Use Bylaw No. 2452, 2018⁷ and the Village of Salmo Official Community Plan Bylaw No. 687, 2020⁸ listed in Table 2 and Table 3 and are directly relevant to proactive wildfire resilience in the plan area. Both jurisdiction's OCPs were reviewed as part of this CWRP to address any gaps or limitations that inadequately address fire hazards or risk mitigation.

⁵<https://rdck.ca/wp-content/uploads/2024/11/Area%20G%20and%20Salmo%20CWPP%202019.pdf>

⁶ By B.A. Blackwell & Associates Ltd and Cathro Consulting Ltd.

⁷ Salmo River Valley – Electoral Area G Comprehensive Land Use Bylaw No. 2452, 2018 (Consolidated to June 2024).

⁸ Sustainable Salmo - Official Community Plan Bylaw No. 687, 2020

No gaps with OCP language as it related to wildfire risk reduction were identified for either the RDCK or the Village of Salmo (see also Section 5.3).

Table 2: Summary of Electoral Area G Official Community Plan and its relationship to this CWRP.

Section [Salmo River Valley Electoral Area G Land Use Bylaw No. 2452,2018] ⁹	Relevant Policies
3.0 Residential	<p>General Objectives: <i>c. susceptibility to natural hazards including but not limited to flooding, slope instability or wildfire risk;</i></p>
5.0 Community Services	<p>Community Services Objectives: <i>10. Investigate and support the expansion of fire protection services to all communities within the Plan area.</i> <i>11. Ensure that land use decisions accommodate emergency response through provision of adequate access to developments and facilities for fire protection services and emergency first response where such services are provided.</i></p>
10.0 Hazard Lands Fire Management	<p>Fire Management Objectives <i>9. Reduce wildfire hazards and risk, particularly in and around communities and other high value areas.</i></p> <p>Fire Management Policies <i>10. Supports protection of access to water sources such as hydrants, standpipes, lakes, and streams to remain free of obstructions for fire protection purposes.</i> <i>11. Encourages local volunteer fire departments to work with the RDCK to keep up to date with emergency preparedness and with the identification of increased risk as a result of natural or man-made events.</i> <i>12. Encourages voluntary efforts to reduce fire risk to existing buildings and new developments through educational materials and appropriate Fire Smart programs.</i> <i>13. Supports the development and implementation of Community Wildfire Protection Plans and associated adjacent forest management strategies in areas of high to moderate wildfire risk.</i> <i>14. Will evaluate opportunities to assist in Interface Fire Fuel Reduction treatment.</i> <i>15. Will evaluate land development proposals with consideration to hazard mitigation, need for and ability to provide for year-round access and emergency and protective services.</i> <i>16. Will undertake on-going efforts to identify areas for safe refuge from wildfire events, evacuation routes, supply of water for fire suppression activities and the location of critical infrastructure and community assets as identified on Schedule A.2.</i></p>

⁹ https://www.rdck.ca/assets/Government/Bylaws/Land~Use-Planning/2452-G-CLUB_Consolidated_2957.pdf

Section [Salmo River Valley Electoral Area G Land Use Bylaw No. 2452,2018] ⁹	Relevant Policies
<p>15.0 Community Specific Policies</p>	<p>Rosebud Lake/Nelway 43. Encourages investigation into the establishment of a community-based fire department to support fire protection and first response within the area.</p>
<p>16.0 WATERCOURSE DEVELOPMENT PERMIT (WDP) AREA</p>	<p>14. [Exemption] Land alterations involving emergency measures to prevent or reduce immediate threats to life or property including: c. the removal of trees, shrubs or landscaping that has been deemed necessary for the purposes of wildfire mitigation measures as identified through a professional wildfire risk assessment, where such trees, shrubs or landscaping is replaced or compensated for elsewhere within the WDPA;</p>

Table 3. Summary of the Village of Salmo Official Community Plan and its relationship to this CWRP.

Section [Salmo Official Community Plan Bylaw No. 687 ,2020] ¹⁰	Section	Relevant Policies
<p>3.0 Natural Environment</p>	<p>3.1.1</p>	<p>b) Recognize and plan for the possible impacts of climate change on the Village and surrounding region, including drought and the increased risk of flood and wildfire; (d) Reduce the risk of wildfire through awareness, prevention, regulation, and other mitigation measures;</p>
	<p>3.1.2</p>	<p>(c) To manage the trees and vegetation cover on Village-owned properties in order to minimize wildfire risk (d) Continue to promote the measures outlined in provincial and federal programs, such as WaterSmart, FireSmart, WildSafe and BearSmart;</p>

¹⁰ <https://salmo.ca/wp-content/uploads/2023/03/OCP-Sustainable-Salmo-2020-Final-1.pdf>

Section [Salmo Official Community Plan Bylaw No. 687 ,2020] ¹⁰	Section	Relevant Policies
Natural Hazards & Flood Plain Management Permit Objectives	6.6.	<p><i>(a) Minimize the risks to residents and property posed by the natural hazards of floods, steep slopes, and interface forest fires (see Schedule K: Natural Hazards Development Permit Areas);</i></p> <p><i>(h) Should the Village acquire any properties through tax sale that are on a high-risk flood path or in the wildfire interface zone, remove existing development and undertake natural hazard prevention measures as applicable to the property;</i></p> <p><i>(i) Work with the RDCK to develop and implement community wildfire management plans for Salmo and area;</i></p>
	6.8.3	<p><i>(b) Minimize injury, loss of life, and damage to property and structures in areas identified as being at risk of slope instability and wildfire;</i></p>
6.9 DPA 5 – Wildfire Risk Permit Area		<p>The objective of DPA 5 is to protect the property located within that interface area and thus to protect the Town from wildfire spreading from this fringe area.</p>
		<p>The Villages Wildfire Interface Hazard Policies are as follows:</p>
	6.9.1	<p>(a) Continue to encourage property owners to use the “BC Homeowners FireSmart Manual”, and other information from the BC Forest Service;</p>
	6.9.2	<p>(b) Encourage property owners to consider FireSmart building materials when renovating existing buildings and to follow recommendations in the FireSmart Home Partners program;</p>
	6.9.3	<p>(c) Continue to use development permits, building regulations and public education as tools to ensure that developments incorporate fireguards, defensible space and appropriate fire-resistant building materials in wildfire interface areas;</p>
	6.9.4	<p>(d) Reduce the risk of wildfire by following the BC FireSmart program to promote awareness, prevention, regulation, and other mitigation measures;</p>
6.9.5	<p>(e) Continue to work in cooperation with the Fire Department and the RDCK’s Emergency Management team to achieve an integrated Wildfire Protection Plan;</p>	
	<p>(f) Work with the RDCK and property owners in Area G and the Village to consider</p>	
	<p>(g) To protect future development from natural events such as wildfire by periodically reviewing Wildfire Interface design guidelines to ensure they continue to provide the necessary guidelines for construction within the wildfire interface areas;</p>	
7.0 Infrastructure	7.1.13	<p>(d) When preparing a land use regulation bylaw, and when considering amendments to the land use regulation bylaw and in designing or amending other bylaws, fire safety and firefighting efficiency will be encouraged through such provisions as:</p> <p>i. Ensuring that no building is approved where the height would exceed the limit imposed by the effective two-story capacity of the Village’s firefighting equipment;</p>

Section [Salmo Official Community Plan Bylaw No. 687 ,2020] ¹⁰	Section	Relevant Policies
		<ul style="list-style-type: none"> ii. Promoting the FireSmart program and building practices iii. Reducing the length of cul-de-sacs or ensuring the provision of emergency access roads; iv. Providing for adequate side-yard and rear-yard setbacks to permit access for firefighting equipment and to prevent the spread of fire.
	7.2.2	(b) Promote fire safety and efficient fire fighting by: <ul style="list-style-type: none"> i. ensuring that no building is approved whose height exceeds the limit of the Village’s firefighting equipment; and ii. adopting side-yard and rear-yard setbacks that permit access for fire-fighting equipment and that prevent the spread of fire.

The local bylaws listed in Table 4 are directly relevant to proactive wildfire resilience in Electoral Area G & Salmo. These bylaws were reviewed as part of the CWRP to address any gaps or limitations that inadequately address fire hazards or risk mitigation.

Table 4: Summary of local bylaws and their relationship to the CWRP.

Bylaws	Section	Description and Relevant Policies
Village of Salmo Fire Prevention Bylaw No.719 (2020)		<ul style="list-style-type: none"> - Establishes fire safety regulations to protect people and property, including the adoption of the BC Fire Code, rules for fire prevention, open burning restrictions, and enforcement measures. It outlines responsibilities for property owners, penalties for violations, and the authority of the Fire Department to inspect, regulate, and respond to fire hazards. - Campfires are permitted within municipal boundaries under most conditions
Village of Salmo Emergency Measures Bylaw No. 643 (1996)	4.4.e 4.4.g	e. Cause the evacuation of persons and removal of livestock, animals and personal property from any part of the municipality that is or may be affected by an emergency or a disaster and make arrangements for the adequate care and protection of those persons, livestock, animals and property g. Cause the demolition or removal of any trees, structures or crops if the demolition or removal is considered to be necessary or appropriate in order to prevent, respond to or alleviate the effects of an emergency or disaster; <ul style="list-style-type: none"> - Assigns ICS structure in the community of Salmo for an emergency or disaster
Building Bylaw No. 2200 (2010)	18.4	Fire stopping components must be in place before insulation and exterior sheathing are installed. <ul style="list-style-type: none"> - Addresses need for fire protection in new construction.

Bylaws	Section	Description and Relevant Policies
		<p>- To mandate materials and landscaping beyond the BC Building Code and established bylaws, Development Permit Areas can be implemented (see Section 5.3)</p>
<p>Emergency Management Regulatory Use Bylaw No. 2210 (amended by Bylaw No. 2758 in 2021)</p>	<p>5.1</p>	<p>Outlines administrative structure and roles of Emergency Program</p> <p>- Provides structure and guidelines in times of emergency.</p>
	<p>Amended Bylaw No. 2758</p>	<p>Adds “mitigation” into the description of the Emergency Program and Emergency Management Plan</p> <p>- RDCK to develop, coordinate and manage emergency mitigation, preparedness, response, and recovery. This would include from wildfires.</p>
<p>Manufactured Home Parks Bylaw No. 1082 (1995)</p>	<p>8.8.3</p>	<p>Fires shall be made only in stoves, incinerators, or other structures designed for that purpose.</p> <p>- Limits fire ignition and propagation risks in structures made largely from ignitable and combustible materials.</p>
	<p>8.8.4</p>	<p>If no approved fire hydrant is available to provide protection, a minimum of one (1) stagnant water supply at a minimum of 15,539 litres (6000 lgal) shall be provided on site in order to be accessed in case of emergency for fire protection purposes on properties serviced by Fire Protection.</p> <p>- Increases assurance of useful water supply systems in the event of a fire to responding fire departments.</p>
<p>Parks Regulation – Consolidated Bylaw No. 2173</p>	<p>22</p>	<p>No person shall start or maintain a fire in a park, except in facilities provided at a park for that purpose.</p> <p>- Limits fire ignition and propagation risks.</p>
	<p>23</p>	<p>No person shall use any vegetation within a park to start or maintain a fire in a park, except firewood that is either brought on-site or provided by a campground operator for fire purposes</p> <p>- Limits fire ignition and propagation risks.</p>
	<p>24</p>	<p>No person shall leave a fire in a park unattended.</p> <p>- Limits fire ignition and propagation risks.</p>
	<p>25</p>	<p>No person shall burn any unsuitable materials including but not limited to organic yard waste, household waste, plastic, rubber, flammable or combustible liquid, or any treated lumber or construction debris, or toxic waste.</p> <p>- Limits fire ignition and propagation risks.</p>

Bylaws	Section	Description and Relevant Policies
	52	<p>No person shall possess or discharge Fireworks, firecrackers or explosive materials of any kind in a park, except for an event authorized by a park use permit.</p> <p><i>- Limits fire ignition and propagation risks.</i></p>
<p>Resource Recovery Facilities Regulatory Bylaw No. 2905</p>	8 (15)	<p>No person other than the Site Operator or Service Personnel or their representative shall start any fires at any Resource Recovery Facility.</p> <p><i>- Limits fire ignition and propagation risks.</i></p>
<p>Volunteer Fire Service Regulation Bylaw No. 2769</p>	4.1	<p>Jurisdiction of each Fire Department, and the powers granted to each Fire Department and its Fire Chief and Members under this Bylaw, is restricted to the boundaries of the Fire Department's particular Fire Protection Service set out in its establishment bylaw. A Fire Department shall not respond to any Incident under this Bylaw outside of the boundaries of its Fire Protection Service Area except as specified in Section 4(2)(a) to (f) of this Bylaw.</p> <p><i>- Outlines jurisdictional limits of fire departments, which may impact rural communities with no immediate fire service (see Section 5.6).</i></p>
	4.2	<p>Apparatus and Fire Department Equipment shall not be taken beyond the geographical limits of the jurisdiction for reasons other than repair, maintenance, or training unless: (a) a written agreement, approved by the Regional District, authorizes the supply of Members, Apparatus, Fire Department Equipment, Fire Protection Services and Associated Services to another jurisdiction; or (b) under the authority of the CAO, the Regional Fire Chief, or the Emergency Operations Center Director; or (c) in connection with a request for assistance by a the Office of the Fire Commissioner, or a Federal or Provincial emergency response Agency; or (d) in connection with an Incident near the boundaries of the Fire Service Protection Area which, if left untended, may threaten the Fire Service Protection Area or other such Service area; or (e) In the event of a Federal or Provincial State of Emergency; or (f) Under the provision of a bylaw for Associated Services.</p> <p><i>- Outlines jurisdictional limits of fire departments, which may impact rural communities with no immediate fire service (see Section 5.6).</i></p>
	9.4	<p>No person shall grow shrubs, hedges, plants or trees to obstruct the visibility or use of a fire hydrant, standpipe or sprinkler connection.</p> <p><i>- Provides linkage to FireSmart activities and property preparedness.</i></p>
	10.1	<p>Where this bylaw applies within a municipality the Regional District is authorized to enforce municipal open burning regulations.</p> <p><i>- Limits fire ignition and propagation risks.</i></p>

Bylaws	Section	Description and Relevant Policies
	12.2	The Occupier of a Public Building in which any of the Alarm System, Fire Protection Equipment, or emergency power system is not operating must institute and maintain a Fire Watch until those systems or equipment are operational. <i>- Limits fire ignition and propagation risks.</i>
Water Bylaw No. 2894	10.4.1	All fire hydrants and standpipes directly connected to Regional District Water Mains are the property of the Regional District. <i>- Outlines RDCK ownership and responsibility relating to water sources.</i>
	11.6.2 (f)	Notwithstanding the prohibitions in this Section, the Manager may authorize in writing the discharge of Regional District supplied water for the purposes of training programs for fire fighters. <i>- Supports training opportunities for local fire fighters (see Section 5.4).</i>

2.4 HIGHER-LEVEL PLANS AND LEGISLATION

Table 5 lists higher-level plans and legislation that are relevant to wildfire planning and risk mitigation within Electoral Area G and Salmo. These plans help guide where and how activities like resource extraction occur on the landscape, which can affect both wildfire threat and consequence. Depending on the location of any proposed fuel management treatments, fuel management prescriptions and prescribed / cultural burn plans may need to address these plans as they relate to on-the-ground restrictions and policies for forest modification.

To date there has been no Wildfire Urban Interface Wildfire Risk Reduction (WUI WRR) Plan completed for the plan area. WUI WRR plans are led by the Ministry of Forests Crown Land WRR program. They are the next generation of Tactical Plan and serve as the primary wildfire risk reduction planning mechanism for Crown land in the interface.¹¹

¹¹ https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/wildfire-status/prevention/fire-fuel-management/fuels-management/wui_wrr_plan_development_standard_and_guidance_document.pdf

Table 5: Higher level plans and legislation relevant to the plan area

Plan/Legislation	Description and Relationship to CWRP
<p>The Forest and Range Practices Act & Government Action Regulations (GARs)</p>	<p>The Forest and Range Practices Act integrates wildfire considerations into forest management by mandating proactive planning, authorizing necessary fire control actions, and promoting collaboration with Indigenous communities to enhance forest resilience against wildfires.</p> <p>Multiple GARs overlap the WUI. These include:</p> <ul style="list-style-type: none"> - <i>Non-legal Old Growth Management Areas</i> - <i>Ungulate Winter Range partial-harvest</i> - <i>Significant fish streams and rivers</i> - <i>Community watersheds</i> - <i>Regionally significant visual areas</i>
<p>BC Provincial Open Burning Smoke Control Regulation</p>	<p>The Open Burning Smoke Control Regulation came into effect in September 2019 and governs open burning relating to land clearing, forestry operations and silviculture, wildlife habitat enhancement, and community wildfire risk reduction.</p> <ul style="list-style-type: none"> - <i>The majority of the wildland-urban interface is within a High Smoke Sensitivity Zone.</i>
<p>Kootenay Boundary Higher Level Plan</p>	<p>The Kootenay Boundary Land Use Plan Implementation Strategy was completed in 1997 and was discussed in the previous CWPP.</p> <p><i>Legal, spatially defined objectives for ‘Connectivity Corridors’, and ‘Water Intakes Used for Human Consumption’ apply within the AOI. A non-legal objective for fire-maintained ecosystem restoration also applies - this provision targets NDT4 ecosystems, which are present in the WUI (see Section 4.2.1).</i></p> <p>It must be noted that many of the KBHLP (Kootenay Boundary Higher Level Plan) objectives have been replaced with other legislation such as Government Actions Regulation (GAR) for special management of certain forest values including caribou habitat.</p>
<p>Wildfire Act and Regulation</p>	<p>Dedicated to wildfire management in BC. Key objective of the legislation is to specify responsibilities and obligations with respect to fire use, prevention, control and rehabilitation.</p>
<p>Parks Act</p>	<p>The Parks Act protects parks from wildfires through regulations, emergency responses, and collaboration with fire management efforts. Inclusive in this act, is an outline of authorities to prohibit or control the use of fire within Parks.</p>
<p>BC Parks and Protected Areas Management Plans and Strategic Statements</p>	<p>Outlines management objectives for a park / protected area and any special considerations. Would provide strategic direction for proposed</p>

Plan/Legislation	Description and Relationship to CWRP
	<p>activities in park, including fuel management. Management plans are available for parks in the WUI:</p> <p>Erie Creek Provincial Park Purpose Statement and Zoning Plan (2003)</p> <ul style="list-style-type: none"> - Protect a mature cedar hemlock forest and black cottonwood ecosystem
<p>The Forest Act</p>	<p>Establishes the framework for managing forest resources, including provisions that can influence wildfire management. Key aspects include:</p> <ul style="list-style-type: none"> - Provincial Forest and Wilderness Areas: The Act allows for the designation of Provincial forests and wilderness areas, facilitating coordinated management strategies that can include wildfire prevention and response measures. - Timber Supply Areas and Allowable Annual Cut: By designating timber supply areas and determining allowable annual cuts, the Act ensures sustainable forest harvesting, which can reduce fuel loads and mitigate wildfire risks. - Removal of Dead or Damaged Timber: The Act provides mechanisms for the timely removal of dead or damaged timber, such as that affected by insect infestations, to prevent significant value loss and minimize wildfire hazards. - Prohibited Timber Cutting: Unauthorized cutting, removal, or destruction of Crown timber is prohibited under the Act, helping to maintain forest health and reduce activities that could increase wildfire risks.
<p>Emergency and Disaster Management Act</p>	<p>The Act provides the necessary legal authority and organizational structure to effectively manage emergencies and disasters, inclusive of wildfire risks through mitigation, preparedness, response, and recovery efforts</p>

SECTION 3: COMMUNITY DESCRIPTION

This section defines the planning area for this CWRP and provides general demographic information about Electoral Area G and Salmo. An understanding of population trends, land use patterns, and values at risk can help effectively direct FireSmart outreach and risk mitigation activities.

3.1 AREA OF INTEREST AND WILDLAND-URBAN INTERFACE

The Area of Interest (AOI) for this CWRP is defined by the boundaries of Electoral Area G, including the Village of Salmo. Only a portion of this is within the Wildland-Urban Interface (WUI). The WUI is defined by FireSmart Canada as the zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. For the FireSmart Community Funding and Supports (FCFS) program, the 'Eligible WUI' is considered as the area 1 km from a structure density class greater than six structures per square kilometer. This is a departure from the 2017 CWPP, which used a 2-km buffer on

the same structure density class. BC Wildfire Service generates WUI spatial layers and WUI Risk Class maps to assist with initiatives related to wildfire risk reduction, including the CRI FCFS program.¹²

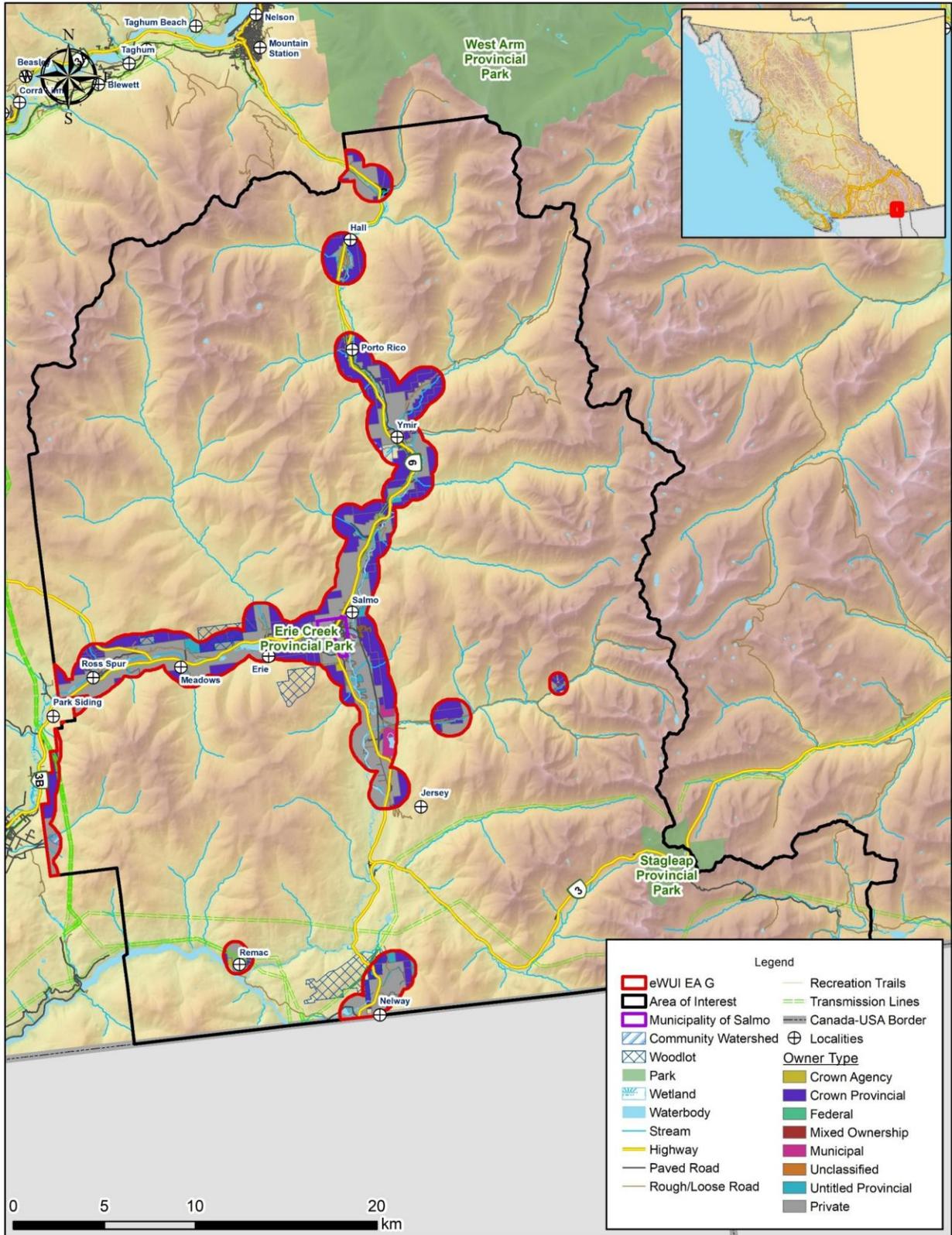
The Eligible WUI was clipped to the boundaries of Electoral Area G, which encompasses the Village of Salmo and forms the Area of Interest (AOI) for the CWRP. Field work, GIS analysis, and the recommendations for this CWRP cover only this one kilometer ‘Eligible WUI’ which covers a total of 13,579 hectares. If development results in new areas exceeding the interface structure density threshold of six structures per square kilometer, the Eligible WUI will grow over time. Note that any parts of this plan’s Eligible WUI that are ‘new’ since 2017 will not contain any CWRP spatial data (fuel type, local fire threat, or proposed treatment units) due to the limitations of this update.

Map 1 shows an overview of the wildland urban interface (WUI) in Electoral Area G and Salmo, with an approximate breakdown of land ownership type by area listed in Table 6. A large portion of the WUI consists of private land, accounting for approximately 49% of the total land area. This predominance of privately-owned land highlights the importance of proactive FireSmart practices by property owners. Most of the remaining area is Crown land, emphasizing the need for collaborative efforts among land users to address wildfire risk across the jurisdiction.

Table 6: Land ownership within Electoral Area G’s WUI.

Land Ownership	Area (Ha)	Percent of WUI (%)
Crown Agency	195	1%
Crown Provincial	6339	47%
Federal	1	0%
Mixed Ownership	0	0%
Municipal	38	0%
Municipal - RDCK	169	1%
Untitled Provincial	227	2%
Private/Unclassified	6609	49%
TOTAL	13,579	100%

¹² [Wildland Urban Interface Risk Class Maps - Province of British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/safety/wildfire/wildland-urban-interface-risk-class-maps)
Regional District of Central Kootenay – Electoral Area G + Salmo Community
Wildfire Resiliency Plan



Map 1: CWRP Area of Interest (AOI) and Eligible Wildland Urban Interface (WUI) for Electoral Area G and Salmo.

3.2 COMMUNITY DESCRIPTION

Electoral Area G is in the southwestern corner of the RDCK, south of Nelson and east of Castlegar. It includes the Village of Salmo and the unincorporated communities of Ross Spur, Meadows, Erie, Ymir, Porto Rico, Hall Siding, and Nelway. Salmo is the largest population centre. Electoral Area G is nestled in the Selkirk Mountains, separated from the Creston Valley by the Nelson Range and from Nelson by the Bonnington Range. The Salmo River flows south through the area, emptying into the Pend Oreille River near the Canada-US border.

Community access is via Highway 3, which runs roughly west-east through Castlegar, Salmo and Creston; Highway 6, which follows the Salmo River from Nelway to Nelson; and Highway 3B, which connects Trail to Highway 3 in Ross Spur, west of Salmo. The Regional District of Kootenay Boundary abuts the plan area to the west. Electoral Area G shares a border with Washington and part of Idaho (United States) to the south.

The plan area is within the BC Wildfire Service (BCWS) Southeast Fire Centre and Arrow and Kootenay Lake Fire Zones. Structural firefighting services are coordinated by the RDCK and the Village of Salmo, with volunteer fire departments located in Ymir and Salmo. The Ymir Fire Department provides protection throughout much of the Highway 6 corridor from Ymir to Nelson (about 25 km). Likewise, the Salmo Fire Protection Area extends along Highway 3 approximately 10 km south and west of town. The RDCK has a contract with the Regional District Kootenay Boundary to provide fire protection to Ross Spur. Medical care and ambulance service is available in Salmo, with hospitals outside the plan area in Trail, Castlegar, and Nelson. Salmo also has an RCMP detachment. There are RDCK-operated transfer stations in Salmo and in Ymir; the nearest landfill is west of the plan area in Ootischenia, just south of Castlegar.

Table 6 provides an overview of relevant census and socio-economic data, offering valuable insights into the demographics and characteristics of the plan area. Population in the plan area is stable, with negligible population change recorded by Statistics Canada between 2016 and 2021.¹³ Like most of the RDCK, the area outside of the municipal boundaries of Salmo is low density and rural. As of 2021, there were a total of 740 private dwellings in the Electoral Area and 570 in the Village of Salmo, with a permanent occupancy rate of 70-80%. A high rate of permanent residents presents an ideal opportunity for proactive FireSmart education. This education can have a lasting impact within the community, empowering residents to apply FireSmart principles effectively.

Table 7: Socio-economic statistics for Electoral Area G as per the 2021 census¹³

Metric	Value
Population	
Total Population	1,650
Population Density (people/km ²)	1.1

¹³ 2021 Canadian Census Data.

Metric	Value
Population percentage change between 2016 and 2021	+1.7%
Number of people <14 years old (% of total population for the area)	16.1%
Number of people 15-64 years old (% of total population for the area)	66.1%
Number of people >65 years old (% of total population for the area)	17.9%
Median Age (years)	43.5
Housing	
Total private dwellings (year)	740
Private dwellings permanently occupied	79.9%
Ownership	85.8%
Income and Employment	
Median Total Income of Households	\$58,800

Table 8. Socio-economic statistics for the Village of Salmo as per the 2021 census.¹³

Metric	Value
Population	
Total Population	1,140
Population Density (people/km ²)	466.4
Population percentage change between 2016 and 2021	-0.1%
Number of people <14 years old (% of total population for the area)	14.0%
Number of people 15-64 years old (% of total population for the area)	57.9%
Number of people >65 years old (% of total population for the area)	27.6%
Median Age (years)	47.6
Housing	
Total private dwellings (year)	570
Private dwellings permanently occupied	71.9%
Ownership	70.2%
Income and Employment	
Median Total Income of Households (2020)	\$50,000



Figure 1. Google Earth image of Salmo (looking north).

Salmo

The Village of Salmo, population 1,140, is located at the intersection of Highway 6 and Highway 3. Development within municipal boundaries is relatively dense; residential neighbourhoods and a small downtown area back onto forested slopes behind down and flat cleared or forested land at valley bottom. The Salmo Fire Department provides structural and interface fire protection to the community, as well as to properties in rural Salmo north, south, and west of the Village. Water and sewer are also provided by the municipality.

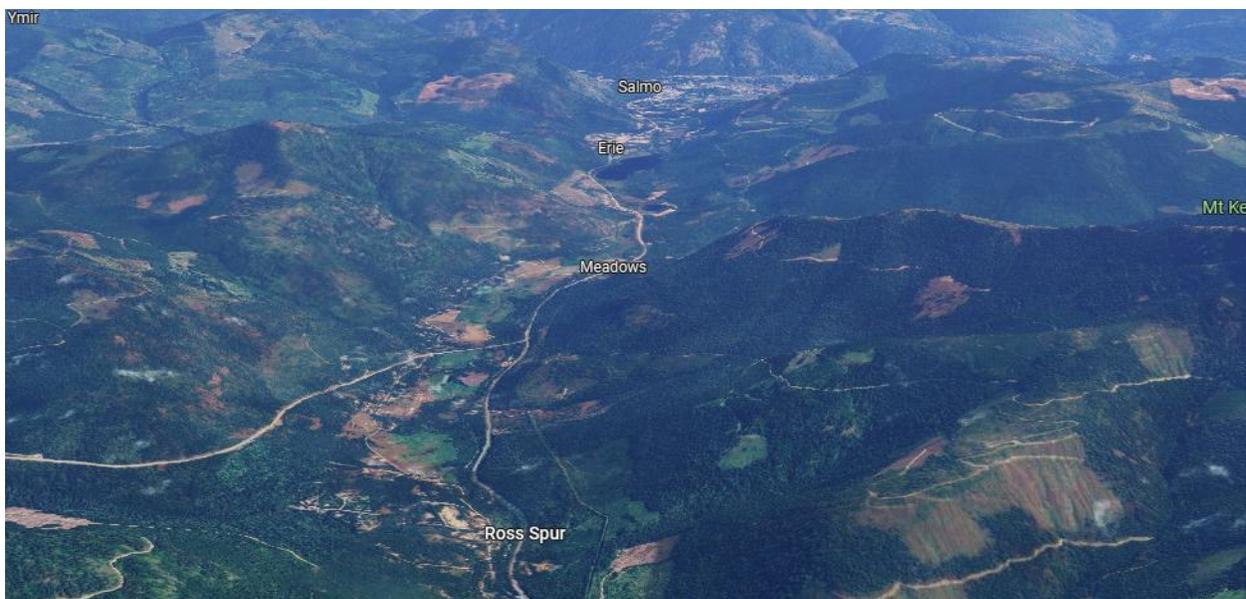


Figure 2. Google Earth image of the Ross Spur-Erie corridor, looking east along Highway 3 towards Salmo.

Ross Spur – Erie

West of Salmo, several small communities are spread along Highway 3. Ross Spur and Meadows are 10-15 km west of Salmo at the far edge of Electoral Area G, near the junction of Highway 3 and Highway 3B. Properties are mainly rural residential, with some agricultural lots and light industrial development. Just west of Salmo is Erie, where Erie Creek meets the Salmo River. Fire protection in Meadow, Erie, and part of Ross Spur is provided by the Salmo Fire Department. The portion of Ross Spur is protected under contract by the Regional District Kootenay Boundary.



Figure 3. Google Earth image of Ymir, looking NNW

Ymir

Ymir is a small community approximately 13 km north of Salmo on Highway 6. As of the 2021 census the population was 214. There is a relatively dense community center with small residential lots and some commercial amenities. Drinking water is provided by an RDCK-operated system on Quartz Creek that also includes fire hydrants. Fire protection is provided by the Ymir Volunteer Fire Department.



Figure 4. Google Earth image of Hall and Porto Rico, looking south towards Ymir.

Porto Rico / Hall Siding

Porto Rico and Hall Siding are on Highway 6 north of Ymir. Both neighbourhoods have intermix properties on residential roads paralleling Highway 6, as well as some light industrial development beside the highway. There are a small number of agricultural properties in Hall. Fire protection is provided by the Ymir Volunteer Fire Department.

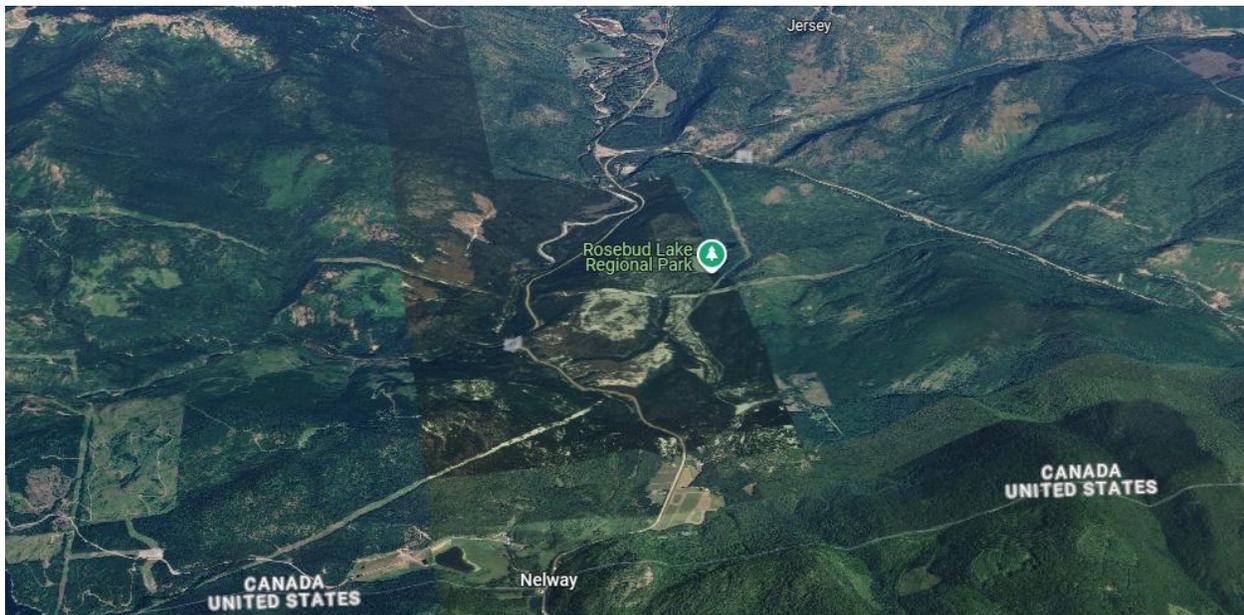


Figure 5. Google Earth image of Nelway, looking north to Rosebud Lake and Salmo.

Nelway

Nelway is located just north of the Canada-US border on Highway 6. The Salmo River flows west into the Pend Oreille River just north of Nelway. Most properties are rural residential with some larger farms and ranches. Rosebud Lake Regional Park just north of Nelway is a large, RDCK-operated park that provides waterfront access and wildlife habitat protection. Nelway is outside of any structural fire protection areas.

3.3 VALUES AT RISK

Values at risk are the human, natural, or cultural resources that could be negatively impacted by wildfire. Protection of these values during a wildfire event is an important consideration for effective emergency response. Pre-identifying critical infrastructure and values at risk before an emergency event can ensure that essential services can be protected and/or restored quickly.

3.3.1 CRITICAL INFRASTRUCTURE

Critical infrastructure includes buildings and structures that are essential to the health, safety, security, or economic wellbeing of the community and the effective functioning of government.¹⁴ Table 9 (and displayed on Map 2) lists critical infrastructure in the plan area as identified by the RDCK.¹⁵ The assets operated by the RDCK are the Ymir water system, fire hall, and Salmo & Area Recreation Centre. The Village of Salmo operates a water system, sewer system, and fire hall. Water and electric systems are discussed in more detail in Sections 3.3.2 and 3.3.3. FireSmart Critical Infrastructure Assessments have been conducted on both fire halls in the plan area. The CFRC stated that all critical infrastructure in the Village of Salmo had a FireSmart assessment within the last 5 years.

Table 9. Critical Infrastructure and community assets within Electoral Area G.

Name	Type	Jurisdiction	Location	Comment
<i>Critical Infrastructure</i>				
Ambulance Station	Emergency Response	Salmo (Village)	Salmo	
Salmo Fire Hall	Emergency Response	Village of Salmo – Salmo Fire Department	Salmo	Backup generator – natural gas
Salmo Village Office	Emergency Response / Administration	Village of Salmo	Salmo	
Ymir Fire Hall	Emergency Response	Regional District of Central Kootenay -	Ymir	FireSmart assessment

¹⁴ FireSmart BC. Community Wildfire Resiliency Plan Instruction Guide 2023. November 2023. LGPS_CRI_FCFS2023CWRPIInstructionGuideV1.pdf

¹⁵ RDCK maintains a comprehensive database of critical infrastructure GIS point data and was provided as part of this Plan's development.

Name	Type	Jurisdiction	Location	Comment
		Ymir Volunteer Fire Department		completed, mitigation pending
Communication Tower	Telecommunication	Crown Provincial	Electoral Area G	
Water Distribution System	Water	Salmo (Village)	Salmo	Backup generators – natural gas (pump stations at 2 wells)
Sewer System	Water	Salmo (Village)	Salmo	Backup generator – natural gas (lift station)
Quartz Creek Intake	Water	Regional District of Central Kootenay – Ymir Water System	Ymir	
Reservoir	Water	Regional District of Central Kootenay – Ymir Water System	Ymir	
Water Treatment Plant	Water	Regional District of Central Kootenay – Ymir Water System	Ymir	
Community Assets				
Salmo Elementary School	Community	School District 8	Salmo	
Salmo Secondary School	Community	School District 8	Salmo	
Salmo Valley Recreation And Youth Center	Community	Regional District of Central Kootenay	Salmo	
Ymir Arts & Museum Society	Community	Ymir Arts & Museum Society	Ymir	
Ymir Community Hall	Community	Ymir Community Association	Ymir	Secondary power source planned

3.3.2 ELECTRICAL POWER

Wildfires have the potential to impact electrical service by causing disruption in network distribution through direct or indirect processes. For example, heat from flames or fallen trees associated with a fire event may cause power outages. It is important to note that even distant wildfires can result in electrical system disruption, and communities should be prepared for this possibility. For nearly a week in September 2022, the town of Jasper, AB, was running entirely off of a temporary generator system due

to wildfire-damaged transmission lines kilometers north of town. It took ATCO, the power authority in the region, approximately 10 days to fully restore power to the town.¹⁶

FortisBC provides electrical service in the plan area through a network of transmission and distribution lines. Several transmission lines intersect the WUI, from Trail to Nelson (Fortis BC) and from Creston west along Highway 3 and the Pend Oreille River, where there is also a substation. In the event of a wildfire, both BC Hydro and Fortis BC will work with BCWS crews to protect and monitor electrical infrastructure. The CFRC indicated that there is communication between the RDCK and utility providers on right-of-way maintenance; however, it is ultimately the responsibility of the utility companies to manage under the Wildfire Act. Fortis BC also operates natural gas pipelines in Electoral Area G.

Communities can increase their resilience to an emergency that cuts power for days, or even weeks, through robust emergency planning and back-up power for key systems, especially water. Residents on private well systems would be relying on electrical generators to obtain drinking water in the event of a power outage. Vulnerabilities for secondary power sources include mechanical failure, potentially insufficient power sources should a wide-scale outage occur, and diesel fuel shortage in the event of long outages or road closures. Critical infrastructure in the plan area, including waters systems and community buildings that could be designated as Local Area Emergency Operations Centres under the RDCK Emergency Response and Recovery Plan, should have a backup power source.

3.3.3 WATER AND SEWAGE

Drinking water supply in Electoral Area G is provided by a combination of community water systems and private wells or surface water intakes. The RDCK operates one water system (Ymir) in Electoral Area G. Source water is from Quartz Creek. Detailed information on each RDCK water system is provided on the RDCK website and is summarized below in Table 10.¹⁷ There are no sewer or wastewater treatment systems within Electoral Area G outside of Salmo; residents rely on private septic systems. The Village of Salmo operates a water and sewer system within municipal boundaries. An engineering study on the Village's water supply was completed in 2024.

There are two designated community watersheds in Electoral Area G:

- Kelly Community Watershed (Kelly Creek, surface water for Fruitvale [RDCK Area A])
- Quartz Community Watershed (Quartz Creek, just east of Ymir)

¹⁶ <https://globalnews.ca/news/9129496/jasper-chetamon-wildfire-power-restored-september-14/>

¹⁷ <https://www.rdck.ca/EN/main/services/water/rdck-water-systems.html>

Table 10. Summary of water systems in the WUI

Water System	Description	Location
RDCK - Ymir	108 active connections, source water from Quartz Creek. 617 m ³ tank reservoir; 16 fire hydrants	Ymir
Village of Salmo	Groundwater from two wells. Pumps into reservoir. Hydranted.	Salmo

There are fire hydrants within Ymir and within Salmo municipal boundaries, and local fire departments expressed that water supply and pressure is satisfactory. For the areas not serviced by hydrants, water is supplied for firefighting by drafting natural water sources, which include the Salmo River, Erie Lake, and Erie Creek. See Section 5.4 for recommendations related to fire department resources.

3.3.4 HAZARDOUS VALUES

Hazardous values are defined as values that pose a safety hazard to emergency responders and include large fuel (e.g., propane) facilities, landfills, rail yards, storage facilities containing explosives, and pipelines. Anywhere combustible materials, explosive chemicals, and gas or oil is stored can be considered a hazardous value. Protecting hazardous values from fires is important to prevent interface fire disasters.

Hazardous infrastructure in Electoral Area G includes Porcupine Wood Products (on Highway 6 between Salmo and Ymir) which may store a substantial amount of wood fiber fuel at any given time, and farms that may store fuel or fertilizers. Gas stations can also be considered hazardous infrastructure. Not all hazardous infrastructure is mapped, but a selection is listed in Table 11 below.

Table 11. Hazardous infrastructure identified within Electoral Area G.

Name	Type	Jurisdiction	Location
Central Transfer Station	Hazardous	Regional District of Central Kootenay	Salmo
Ymir Transfer Station	Hazardous	Regional District of Central Kootenay	Ymir

3.3.5 CULTURAL VALUES

Both registered and undocumented historic and archeological sites may be found within the WUI, in addition to locations with high cultural value to local First Nations. Known archeological sites are protected under the Heritage Conservation Act, which applies to both private and public lands.

The RDCK should continue to consult with applicable First Nations well before development and implementation of any proposed fuel prescriptions to allow for meaningful review and input, as well as collaborative opportunities. Archaeological assessments or cultural use surveys may be required to ensure

that known or unknown cultural resources are not inadvertently damaged or destroyed, and that First Nations strategies for land management in their traditional territory are complied with.

3.3.6 HIGH ENVIRONMENTAL VALUES

There are numerous environmental values at risk throughout Electoral Area G. Protected areas include Erie Creek Provincial Park. The RDCK-managed Rosebud Lake Regional Park is also managed as a wildlife area for Western Painted Turtle and was recently expanded in collaboration with the BC Parks Foundation.¹⁸ The RDCK has also designated a Watercourse Development Permit (WDP) Area in Electoral Area G which applies to all riparian areas. Vegetation removal specifically for wildfire risk mitigation is exempt (see Table 2 in Section 2.3).

There are significant overlaps with species and ecosystems at risk identified through the B.C. Conservation Data Center (Table 12). As part of due diligence on public land, any prescriptions developed for fuel management treatment (see Section 5.7) should identify and mitigate potential impacts to ecosystems or species at risk. Prescriptions may require rationales and/or mitigation measures for tree removal in some areas, especially where overlapping with designated wildlife areas. There is no overlap with Ungulate Winter Range or Wildlife Habitat Areas in the WUI, but there is overlap with federally-mapped critical habitat for species at risk.

Table 12: Species and Ecosystems at Risk in the WUI – BC Conservation Data Center.

English Name	Scientific Name	BC List	Category	Habitat Type
Alkali-Marsh Butterweed	<i>Senecio hydrophilus</i>	Red	Vascular Plant	TERRESTRIAL
Banded Tigersnail	<i>Anguispira kochi</i>	Blue	Invertebrate Animal	TERRESTRIAL: Woodland Mixed; RIVERINE: Riparian
Beardless Wildrye	<i>Elymus curvatus</i>	Blue	Vascular Plant	RIVERINE: Riparian
Caribou (Southern Mountain Population)	<i>Rangifer tarandus pop. 1</i>	Red	Vertebrate Animal	TERRESTRIAL; FOREST NEEDLELEAF
Columbia Quillwort	<i>Isoetes minima</i>	Red	Vascular Plant	TERRESTRIAL: Seepage
Common Clarkia	<i>Clarkia rhomboidea</i>	Blue	Vascular Plant	TERRESTRIA: Forest Needleleaf, Roadside
Common Clarkia	<i>Clarkia rhomboidea</i>	Blue	Vascular Plant	TERRESTRIAL: Roadside, Forest Needleleaf, Seepage Slope
Cusick'S Aster	<i>Symphotrichum cusickii</i>	Blue	Vascular Plant	TERRESTRIAL: Forest Needleleaf, Rock Outcrop, Roadside; Riverine: Sand/Gravel Bars
Dwarf Hesperochiron	<i>Hesperochiron pumilus</i>	Red	Vascular Plant	TERRESTRIAL: Seepage, Grassland/Herbaceous

¹⁸ <https://www.mykootenaynow.com/60464/news/kootenay-news/rosebud-lake-regional-park-bigger-and-better/>

English Name	Scientific Name	BC List	Category	Habitat Type
Foxtail Muhly	<i>Muhlenbergia andina</i>	Blue	Vascular Plant	RIVERINE: Riparian; TERRESTRIAL: Seepage
Hairy Paintbrush	<i>Castilleja tenuis</i>	Red	Vascular Plant	TERRESTRIAL: Seepage; Grassland/Herbaceous
Henderson'S Aster	<i>Symphotrichum hendersonii</i>	Red	Vascular Plant	TERRESTRIAL: Avalanche Chute
Lance-Leaved Figwort	<i>Scrophularia lanceolata</i>	Blue	Vascular Plant	TERRESTRIAL: Forest Needleleaf, Grassland/Herbaceous, Shrubland, Avalanche Chute
Least Bladdery Milk-Vetch	<i>Astragalus microcystis</i>	Blue	Vascular Plant	TERRESTRIAL: Forest Needleleaf
Magnum Mantleslug	<i>Magnipelta mycophaga</i>	Blue	Invertebrate Animal	TERRESTRIAL: Forest Needleleaf
Monardella	<i>Monardella odoratissima</i> <i>ssp. discolor</i>	N/A	Vascular Plant	TERRESTRIAL
North American Racer	<i>Coluber constrictor</i>	Blue	Vertebrate Animal	TERRESTRIAL: Shrubland, Forest Needleleaf, Cropland/Hedgerow, Grassland/Herbaceous, Roadside
Painted Turtle - Intermountain - Rocky Mountain Population	<i>Chrysemys picta pop. 2</i>	Blue	Vertebrate Animal	LACUSTRINE: Shallow Water
Pygmy Slug	<i>Kootenaia burkei</i>	Blue	Invertebrate Animal	TERRESTRIAL: Forest Mixed, Needleleaf; Coarse Woody Debris; RIVERINE: Riparian
Red-Tailed Chipmunk, Simulans Subspecies	<i>Neotamias ruficaudus</i> <i>simulans</i>	Blue	Vertebrate Animal	TERRESTRIAL: Forest Needleleaf, Subalpine
Saw-Leaved Sedge	<i>Carex scopulorum var.</i> <i>prionophylla</i>	Blue	Vascular Plant	LACUSTRINE: Riparian
Slender Muhly	<i>Muhlenbergia filiformis</i>	Blue	Vascular Plant	TERRESTRIAL: Forest Needleleaf, Seepage
Smooth Goldenrod	<i>Solidago gigantea var.</i> <i>shinersii</i>	Blue	Vascular Plant	RIVERINE: Riparian, TERRESTRIAL: Grassland/Herbaceous, Roadside
Umatilla Dace	<i>Rhinichthys umatilla</i>	Red	Vertebrate Animal	BIG RIVER; MODERATE GRADIENT
Vivid Dancer	<i>Argia vivida</i>	Blue	Invertebrate Animal	LACUSTRINE: Beach
Western Bumble Bee	<i>Bombus occidentalis</i>	Yellow	Invertebrate Animal	TERRESTRIAL: Forest Needleleaf, Woodland Mixed, Roadside
Western Screech-Owl, Macfarlanei Subspecies	<i>Megascops kennicottii</i> <i>macfarlanei</i>	Blue	Vertebrate Animal	TERRESTRIAL: Forest Broadleaf; RIVERINE: Riparian

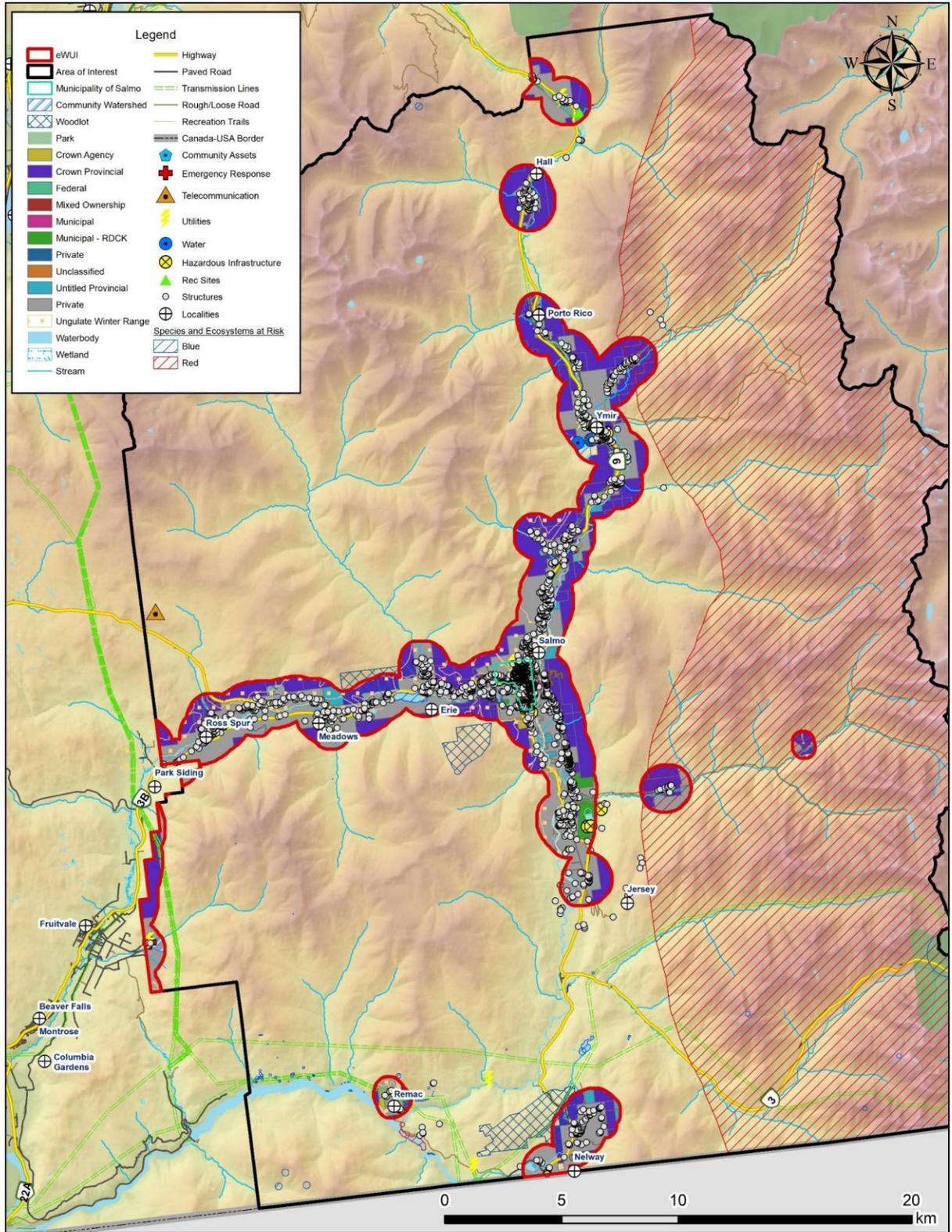
English Name	Scientific Name	BC List	Category	Habitat Type
Western Skink	<i>Plestiodon skiltonianus</i>	Blue	Vertebrate Animal	TERRESTRIAL: Rock Outcrop, Forest Needleleaf
Whitebark Pine	<i>Pinus albicaulis</i>	Blue	Vascular Plant	PALUSTRINE: Herbaceous Wetland, Pond; TERRESTRIAL: Subalpine, Forest Needleleaf, Grassland/Herbaceous
Wild Licorice	<i>Glycyrrhiza lepidota</i>	Blue	Vascular Plant	RIVERINE: Riparian, TERRESTRIAL: Forest Needleleaf, Roadside
Yellowseed False Pimpernel	<i>Lindernia dubia var. dubia</i>	Blue	Vascular Plant	RIVERINE: Riparian, Floodplain; LACUSTRINE: Beach

3.3.7 OTHER RESOURCE VALUES

There are other important resource values associated with the land base, including forestry, agriculture (commercial and hobby farms), recreation and tourism. Most Agricultural Land Reserve (ALR) polygons are south of Salmo in the Salmo River valley. Most forest harvesting takes place outside the WUI.

Large areas around Salmo are managed as provincial recreation areas (Recreation Sites and Trails BC). Controlled Recreation Areas (CRAs) managed by the Ministry of Forests Mountain Resorts Branch also overlap the WUI; these are associated with the Salmo Ski Hill as well as Whitewater Ski Resort (Whitewater has only a small overlap with Area G; the majority is in Area E). The Delaurentiis trail east of town is also a provincially managed recreation feature, as is a cross-country skiing area close to Whitewater managed by the Nelson Nordic Ski Club. The Bonnington Range and Kootenay Pass are popular backcountry skiing areas within Electoral Area G (but outside the WUI).

Any fuel management within Electoral Area G should consider the impact on any of these additional values and consult with appropriate land managers, licensees, and stakeholders groups in the area. Recommendations regarding interagency cooperation are discussed in Section 5.5.



Map 2: Values at Risk in the WUI

SECTION 4: WILDFIRE RISK ASSESSMENT

This section summarizes the factors that contribute to local wildfire risk in Electoral Area G. Section 4.1 discusses the wildfire environment in the WUI: focusing on topography, fuel, and weather. Section 4.2 and 4.2.3 discuss wildfire history in the area and wildfire response data from local fire crews. Section 4.3 summarizes the local risk assessment conducted for the last CWPP in 2017, clipped to the 1 km Eligible WUI. A full update of fuel types and local wildfire threat was outside the scope of this CWRP update.

The relationship between wildfire risk and wildfire threat is defined as follows:

$$\text{Wildfire Risk} = \text{Probability} \times \text{Consequence}$$

Where:

Wildfire risk is defined as the potential losses incurred to human life and values at risk within a community in the event of a wildfire.

Probability is the threat of wildfire occurring in an area and is expressed by the ability of a wildfire to ignite and then consume fuel on the landscape. An area's *wildfire threat* is controlled primarily by:

- Topography: Slope and terrain features can influence rate of spread; aspect can affect pre-heating and other fuel properties
- Fuel: Amount, vertical and horizontal arrangement, type, and dryness
- Weather: Temperature, relative humidity, wind speed and direction, precipitation

Consequences refer to the repercussions associated with fire occurrence in a given area. Higher consequences are associated with densely populated areas, presence of values at risk, etc.

4.1 WILDFIRE ENVIRONMENT

There are three environmental components that influence wildfire behavior: topography, weather, and fuel. These components are generally referred to as the 'fire behaviour triangle' (Figure 6); the ways in which they individually influence the wildfire environment of the area will be detailed below. Fuel is the only component of the fire triangle that can be reasonably managed through human intervention. It is important to recognize that in WUI fires, wildland fuels (trees, shrubs, branches, etc.) are not the only fuel available to the fire – houses and their exterior construction materials and landscaping vegetation, cars, barbeque propane tanks, and more (anything that is flammable or combustible) is available fuel.



Figure 6. Graphic display of the fire behaviour triangle, and a subset of characteristics within each component.¹⁹

4.1.1 TOPOGRAPHY

Slope steepness influences the fire’s trajectory and rate of spread and slope position relates to the ability of a fire to gain momentum uphill. Other factors of topography that influence fire behaviour include aspect, elevation, and configuration of features on the landscape that can restrict (i.e., water bodies, rock outcrops) or drive (i.e., valleys, exposed ridges) the movement of a wildfire. South and southwest-facing slopes are typically the most concerning for heating and solar radiation, which can accelerate fuel drying. Topography also impacts the other aspects of the fire environment. Aspect and slope influences vegetation type and continuity, which is discussed in Section 4.1.2. Also, slope length and form can influence both regional and diurnal wind patterns (e.g., anabatic and katabatic slope winds).

The communities of Electoral Area G are situated at the valley bottom between the Three Sisters Peaks, Siwash Mountain, and Mount Kelly, with Salmo located at the convergence. Homes and other structures are clustered along Highways 3 and 6 and waterways (Salmo River, Beaver Creek, and Sheep Creek), within the flat terrain of the foothills. This development pattern has innate fire resiliency characteristics as most structures are located on flat to gently sloping ground at valley bottom. However, forested slopes above communities pose an access constraint for suppression and fuel mitigation activities, and are associated with accelerated rates of fire spread upslope.

Table 13 presents a breakdown of the WUI based on slope steepness classes, with implications for fire behaviour. Even though structures are located at valley bottom, the steepness of the valleys means that a substantial portion of the WUI (61%) is on greater than 30% slope, where flame tilt and flame and fuel interaction contribute to a higher rate of spread.

¹⁹ Graphic adopted from the Province of Alberta.

Table 13: Slope Percentage and Fire Behaviour Implications.²⁰

Slope	Percent of Eligible WUI	Fire Behaviour Implications
<20%	25%	Very little flame and fuel interaction caused by slope, normal rate of spread.
21-30%	14%	Flame tilt begins to preheat fuel, increase rate of spread.
31-45%	26%	Flame tilt preheats fuel and begins to bathe flames into fuel, high rate of spread.
46-60%	21%	Flame tilt preheats fuel and bathes flames into fuel, very high rate of spread.
>60%	14%	Flame tilt preheats fuel and bathes flames into fuel well upslope, extreme rate of spread.

Slope-associated *fire risk* is dependent upon the slope position of values (Table 14). Values located at mid to upper slope have a heightened wildfire risk due to the pre-heating of fuels from fire below and longer flame lengths reaching uphill. As discussed above, most communities in Electoral Area G are located on or near valley bottom, on slopes <30%, so would not have increased fire behaviour influenced by topography and slope position alone. However, there are some structures that are mid-slope (e.g. homes on Wildhorse Road), and these would be threatened by faster rates of slope-driven fire spread. It should be noted that fires can also spread downhill, due to downslope winds or rolling debris.

For Electoral Area G, the key topographical feature affecting potential fire behaviour is the presence of continuous forested slopes on either side of the Salmo River Valley. There is little alpine terrain in proximity to communities in Electoral Area G, so natural topographic breaks to fire spread are limited.

Table 14: Slope Position of Value and Fire Behaviour Implications.²¹

Slope Position of Value	Fire Behaviour Implications
Bottom of Slope/ Valley Bottom	Impacted by normal rates of spread.
Mid Slope - Bench	Impacted by increase rates of spread. Position on a bench may reduce the preheating near the value. (Value is offset from the slope).

²⁰ Adapted from Table 3: Slope Percentage and Fire Behavior Implications; “Determining Wildfire Threat and Risk at a Local Level”; Tools for Fuel Management website. <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prevention/fire-fuel-management/fuel-management>

²¹ Copied from from Table 5: Slope Position of Value and Fire Behavior Implications; “Determining Wildfire Threat and Risk at a Local Level”; Tools for Fuel Management website. <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prevention/fire-fuel-management/fuel-management>

Slope Position of Value	Fire Behaviour Implications
Mid Slope – Continuous	Impacted by fast rates of spread. No break in terrain features affected by preheating and flames bathing into the fuel ahead of the fire.
Upper 1/3 of slope	Impacted by extreme rates of spread. At risk to large continuous fire run, preheating and flames bathing into the fuel.

4.1.2 FUEL

Understanding the distribution, type, and management of wildland fuels within Electoral Area G’s WUI is vital for developing effective wildfire mitigation and management strategies. Fuel is the only component of the fire triangle that can be realistically managed through human intervention. This section analyses and discusses available *wildland* vegetative fuels within Electoral Area G’s WUI.

Electoral Area G exhibits a unique mix of vegetative communities that are influenced by human activities and the region’s natural geography. Land clearing for agriculture, industrial, and residential development has altered the vegetative landscape in the valley bottom. This process has resulted in expansive swaths of cleared and/or irrigated farmland and lawns intermixed with forested areas. If well-maintained, these clearings effectively reduce the wildfire threat, creating natural firebreaks within the community. Additionally, riparian influence along the waterways results in typically deciduous or mixed vegetation. Deciduous vegetation, with its high moisture content and low volatility characteristics, can reduce fire behaviour and mitigate wildfire risk.

Recent and historic logging has impacted the fire environment of plan area, although most cutblocks are located on upper slopes outside of the WUI. Regardless, continued efforts to reduce accumulations of slash (harvest debris) in harvested areas will further reduce potential wildfire behavior and associated risk to nearby neighbourhoods. BCWS noted that typically forest licensee compliance with hazard mitigation and open burning under the Wildfire Act is good.

The Canadian Forest Fire Behaviour Prediction (FBP) System outlines sixteen fuel types based on characteristic fire behaviour under defined conditions.²² BC Wildfire Service maintains a provincial fuel type layer that was confirmed and updated for the previous 2017 CWPP. Where there were new areas of WUI that did not exist in 2017, the PSTA fuel type data was used. It should be noted that mixed conifer stands²³ in the interior moist belt, within which Electoral Area G’s WUI is located, are one of the specifically identified areas of uncertainty and knowledge gaps within the FBP system and are considered, at best, a poor match with any fuel type.²⁴ The FBP system was almost entirely developed for boreal and sub-boreal forest types, which do not occur within the study areas. Furthermore, fuel types depend heavily on

²² Forestry Canada Fire Danger Group. 1992. Development and Structure of the Canadian Forest Fire Behavior Prediction System: Information Report ST-X-3.

²³ Species such as western white pine and western larch growing in multi-story canopies, usually associated with Douglas-fir, redcedar, lodgepole pine, or other species.

²⁴ Natural Resources Canada. 2018. British Columbia Wildfire Fuel Typing and Fuel Type Layer Description. Daniel D.B. Perrakis, George Eade, and Dana Hicks

Vegetation Resource Inventory (VRI) data, which is gathered and maintained to inform timber management objectives, not fire behaviour prediction. Although a subjective process, the most appropriate fuel type was assigned based on research, experience, and practical knowledge; this system has been successfully used within BC, with continual improvement and refinement, for 25 years.²⁵ In some areas, aerial imagery is of low spatial resolution and/or ground access was impossible, making fuel type assessment difficult. Table 15 lists the percentage of fuel types and associated wildfire behaviour within the WUI; fuel types are displayed on [Map 3](#).

Local BCWS representatives indicated that like many other parts of the RDCK, fuel volatility (observed fire behavior) depends more on wind and topography than fuel type. However, M-1/2 and C-5 forests with high amounts of surface fuel, ladder fuels, and moderate proportion of standing dead stems were cited as the highest concern. The relative lack of large fires in the area over the last 100 years has contributed to a buildup of fuel in these forests. Open C-7 stands found in some parts of Electoral Area G were also identified as conducive to rapid fire spread.

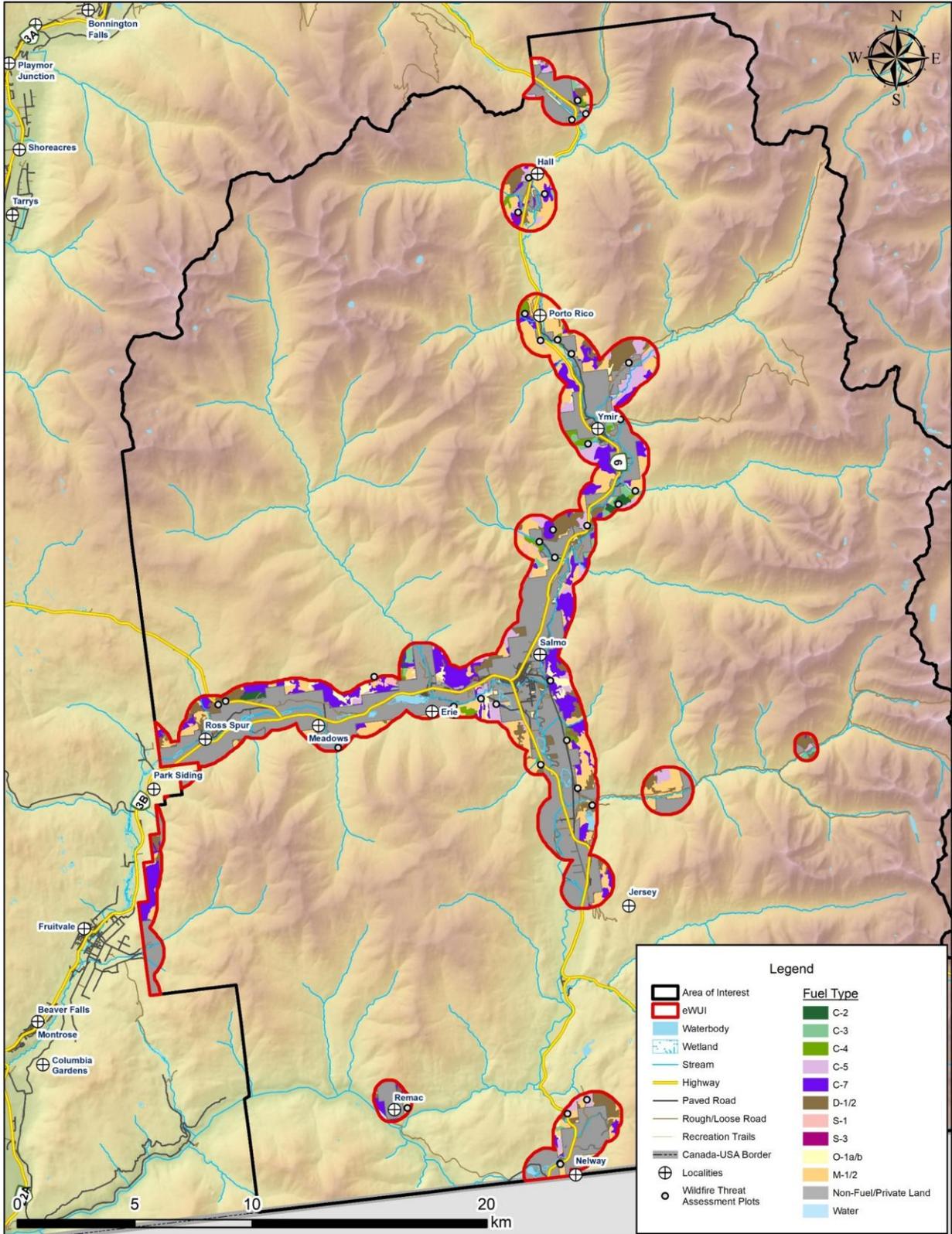
Table 15: Fuel types in Electoral Area G's WUI

Fuel Type	Fuel Type Description	Wildfire Behaviour Under High Wildfire Danger Level	Area (ha)	Percent (%) of public land
C-2	Plantations older than 20 years. High density with high canopy and low crowns.	Almost always crown fire, high to very high fire intensity and rate of spread.	77	1%
C-3	Fully stocked, mature conifer stands with crowns separated from the ground.	Surface and crown fire, low to very high fire intensity and rate of spread.	243	3%
C-4	Dense pole-sapling forest, heavy dead and down, dead woody fuel, vertical crown fuel continuity.	Almost always crown fire, high to very high fire intensity and rate of spread.	190	3%
C-5	Well-stocked mature forest, crowns separated from ground. Moderate understory herbs and shrubs. Little grass or surface fuel accumulation.	Low to moderately fast spreading, low to moderate intensity surface fire.	713	10%
C-7	Mature and open forest stands with a mix of flashy grass fuels and lower flammability shrubs.	Surface fire spread, torching of individual trees, rarely crowning (usually limited to slopes > 30%), moderate to high intensity and rate of spread.	1543	22%
D-1/2	Deciduous stands/forest. Hazard increases with the amount of deadfall and/or establishment of a flammable shrub layer.	Always a surface fire, low to moderate rate of spread and fire intensity.	1261	18%
M-1/2	Moderately well-stocked mixed stands of conifer and deciduous, low to	Surface, torching and crowning, moderate to very	2142	31%

²⁵ Perrakis, D, G. Eade and D. Hicks. 2018. Canadian Forest Service Pacific Forestry Centre. British Columbia Wildfire Fuel Typing and Fuel Type Layer Description

Fuel Type	Fuel Type Description	Wildfire Behaviour Under High Wildfire Danger Level	Area (ha)	Percent (%) of public land
	moderate dead stems and down woody fuels. Often transition to become more conifer dominated as pioneer deciduous species die out if disturbance is excluded. ²⁶	high intensity and spread rate (depending on slope and percent conifer and season (in leaf vs leafless)).		
O-1a/b	Grassland fuels ('a' refers to matted grasses, 'b' refers to standing). The volatility of this fuel type depends on the percentage of grass that is cured.	Rapid spreading, intense surface fire.	348	5%
S-1/S-3	Continuous and uncompacted slash types with moderate fuel loads and slash depth.	Ranges from surface fire, low to moderate intensity to moderate to high rate of spread and high to very high intensity surface fire.	69	1%
Non-fuel	Areas with no available forest or grass fuels (e.g., roadways, gravel clearings, irrigated and/or mowed fields). These areas may (and often do) contain combustible materials, infrastructure, flammable landscaping, and homes.	N/A	242	3%
Water	Water and riparian features (e.g., rivers, streams, waterbodies, wetlands)	N/A	147	2%
<i>Private</i>			6604	n/a

²⁶ Larch was treated as deciduous during fuel typing to account for its high moisture content.
Regional District of Central Kootenay – Electoral Area G + Salmo Community
Wildfire Resiliency Plan



Map 3. Updated fuel types in Electoral Area G's WUI.

4.1.3 WEATHER

Weather conditions, including relative humidity and wind, along with drought, play pivotal roles in wildfire behaviour. The intricacies of local topography can result in unpredictable and variable weather patterns, further emphasizing the significance of weather as a primary environmental factor influencing fire behaviour. Electoral Area G and Salmo are within the moist climate subregion of south-central BC. Diverse local topography results in variable weather patterns within this subregion.

The regional climate is characterized by warm, dry seasons, with hot summers and mild winters. Moisture deficits are common on submesic and drier sites, and even mesic sites in hot, dry years. Climate change projections suggest these trends will intensify and point toward even hotter summers and more pronounced droughts. These conditions will create an environment conducive to increased wildfire behaviour, particularly in the context of the region's complex topography.

Historical weather data can provide information on the number and distribution of days when Salmo and communities in Electoral Area G experience high fire danger conditions. 'High fire danger' is considered with a Canadian Forest Fire Danger Rating System (CFFDRS) Danger Class rating of 4 (High) or 5 (Extreme). Average danger class data for Electoral Area G can be determined from representative BC Wildfire Services (BCWS) fire weather stations. The Pend Oreille weather station, located on the south aspect slopes above the Pend Oreille River at 725 m elevation, was selected as the most representative. The weather station is situated within the ICHxw, which covers 12% of the WUI (Table 16 in the next section). Average fire danger class data for the past 14 years is presented in below in Figure 7.

Data from the Pend Orielle fire weather station shows that July, August, and September have the greatest number of High and Extreme fire danger days, with July averaging 15 days, August averaging 23 days, and September averaging 10 days for High and Extreme combined. When combined, 52% of days in those three months exhibit High or Extreme fire danger. It is important to note that High fire danger days are present in May, June, and October, as well.

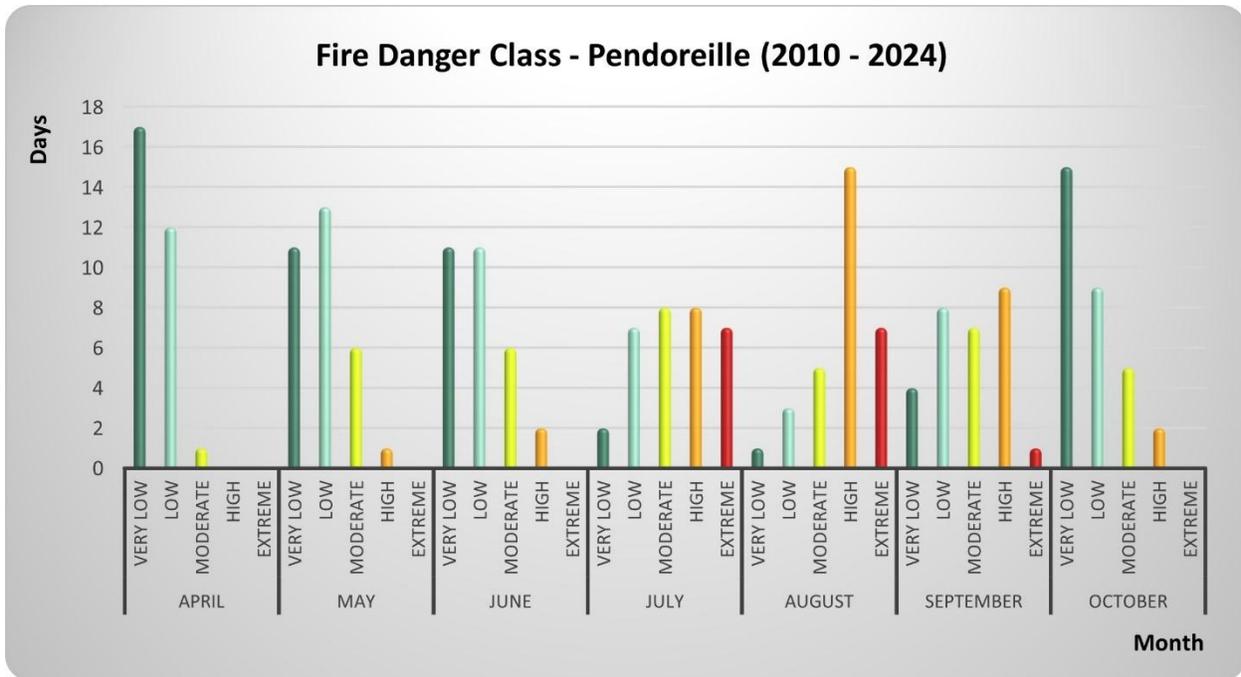


Figure 7. The average number of days by Fire Danger Class for the past 14 years, based on data from the BC Wildfire Services Pend Oreille weather station.

Wind speed and direction are also critical weather components influencing fire behavior, and wind speed and direction are also recorded at BCWS weather stations. Data is publicly available in the form of average Initial Spread Index (ISI) roses. The ISI is a numeric rating of the expected rate of fire spread that combines the effects of wind speed and fine fuel moisture (which is controlled by temperature and relative humidity). ISI roses can be used to help plan the location of fuel treatments on the landscape to protect values at risk based on the predominant wind direction and frequency of higher ISI values. Wildfire that occurs upwind of a value poses a more significant threat to that value than one which occurs downwind.

During the peak fire season (July to September), the Pend Orielle fire weather station’s hourly averages indicate that the plan area primarily experiences strong diurnal winds that originate from the southwest and southeast during the daytime and shift to north and east winds at night. Peak ISI values typically occur during the afternoon. As per Figure 8 below, May to September are peak months for high ISI values (dry and/or windy conditions).

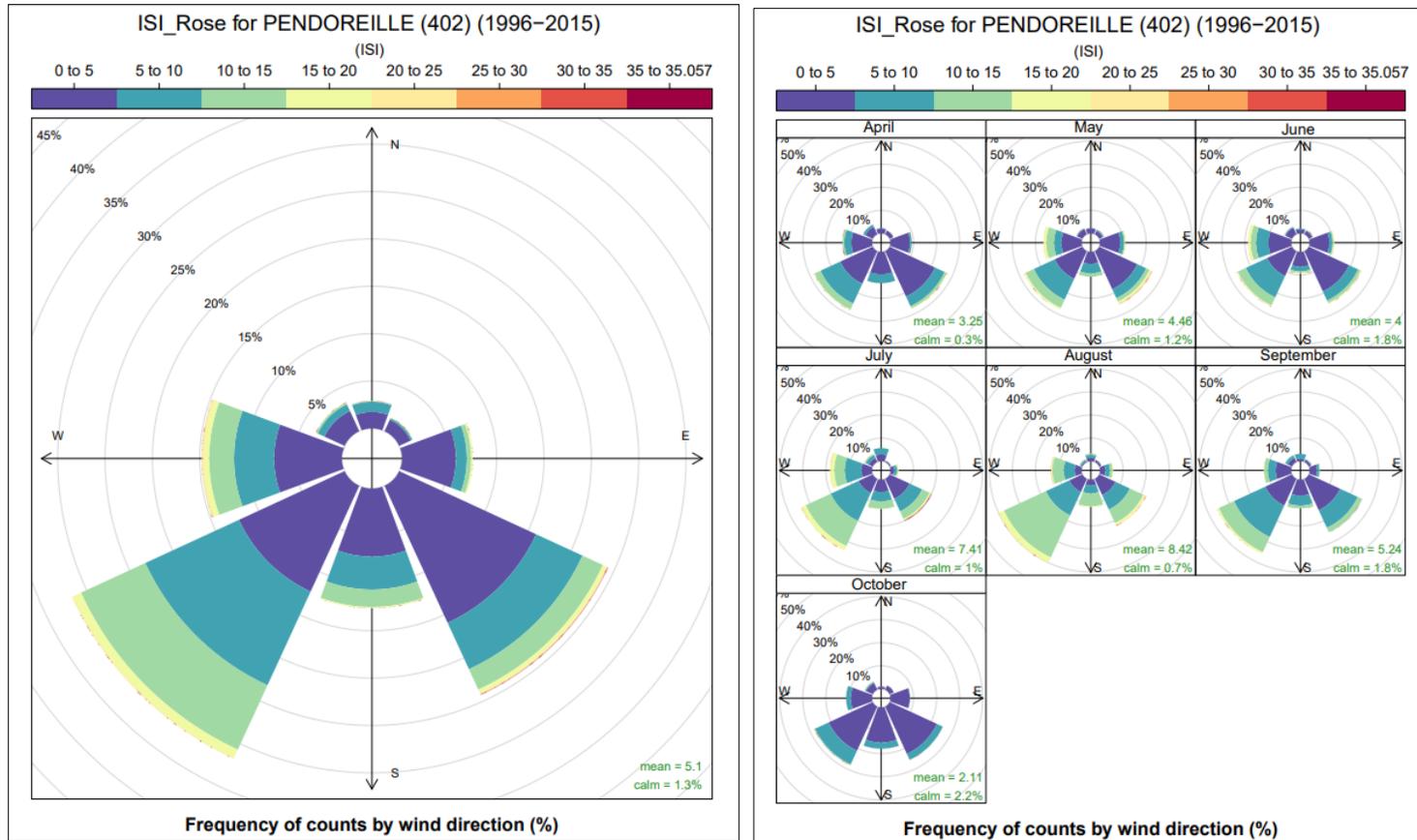


Figure 8. Average daily (right) and monthly (left) ISI values during the fire season (April to October) for the Pend Orielle weather station.

4.2 WILDFIRE HISTORY

4.2.1 HISTORIC FIRE REGIME

The plan area can be classified using the Biogeoclimatic Ecosystem Classification (BEC) system, which categorizes the province into zones by vegetation, soils, and climate. Regional subzones are derived from relative precipitation and temperature.

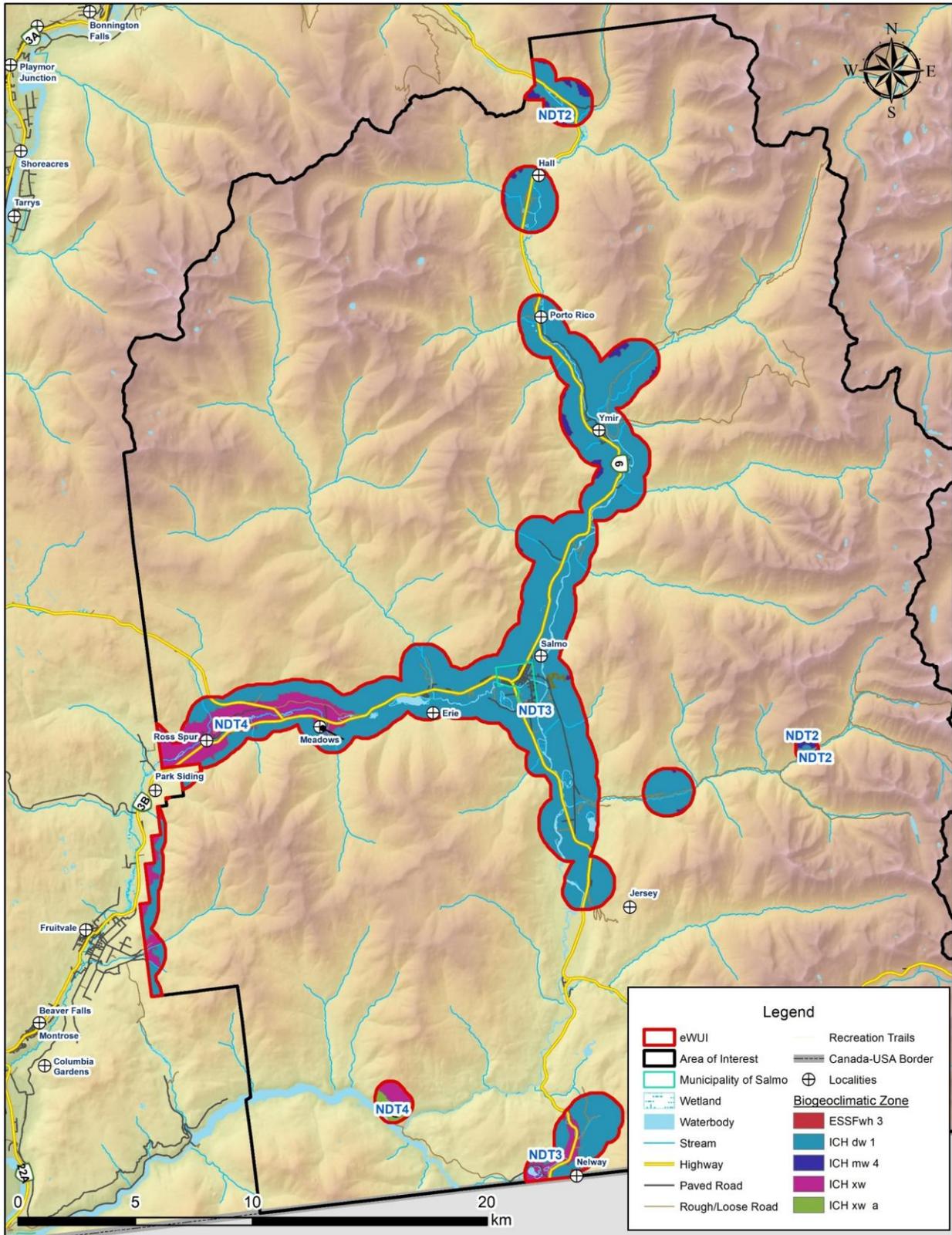
The distribution of Biogeoclimatic zones and associated Natural Disturbance Types (NDT) within the WUI are displayed in Map 4 and summarized below in Table 16. Situated mainly in the valley bottom at lower elevation, the WUI is predominantly (86%) within the Interior Cedar Hemlock dry warm (ICHdw1) subzone. This is associated with an NDT3 regime – ecosystems with frequent stand-initiating fires. According to the BC Biodiversity Guidebook, these ecosystems are characterized by frequent wildfires that range from small spot fires to conflagrations covering tens of thousands of hectares. This results in a landscape mosaic of stands of different ages with individual stands being even-aged. Larger fires often occurred and could grow to enormous sizes if no topographical-limiting features were present. The mean return interval for fire in the ICH NDT3 is approximately 150 years.

A small portion (12%) of the WUI is within the Interior Cedar Hemlock very dry warm (ICHxw) subzone with an associated NDT4 – ecosystems with frequent, stand-maintaining fires. This occurs mostly west and south of Salmo, also at valley bottom, but on warmer aspects. This low-severity fire regime maintains existing forest structure, while modulating surface fuel build-up and understory saplings that would otherwise allow wildfire to move from surface to crown. 3% of the WUI is within the Interior Cedar Hemlock moist warm (ICHmw) subzone, associated with an NDT2 regime – ecosystems with infrequent stand-initiating events.

It is important to consider that fire regimes in the region were likely shaped in part by pre-settlement cultural burning practices by First Nations. It is also important to consider that, in the future, BEC (and associated NDT) distributions will likely shift because of climate change.

Table 16. Biogeoclimatic Zone and associated Natural Disturbance Types (NDTs) of Electoral Area G's WUI.

Biogeoclimatic Zone	Natural Disturbance Type	Area (ha)	Percent of Eligible WUI (%)
ESSFwh3	NDT2	<0.1	<0%
ICHdw1	NDT3	11610	86%
ICHmw4	NDT2	365	3%
ICHxw	NDT4	1604	12%



Map 4. Biogeoclimatic zones and associated Natural Disturbance Types (NDTs) in the WUI.

4.2.2 HISTORICAL WILDFIRE OCCURRENCES

The Kootenay region has a history of large mixed-severity and stand-replacing fires. Settlement, particularly logging and mining practices, resulted in an increase in human-caused fires in the late 1800's to early 1900's. During the 1920's to 1940's, miners burned much of the landscape for increased access to and visibility of the underlying geology. Few wildfires over 500 ha have occurred since the 1940's, with the exception of a lightning-caused fire in 2007 that burned 2308 ha near Remac. Figure 10 below displays wildfire occurrences, by size, from 1920 to 2020.



Figure 9. Image of the Six Mile Creek wildfire (N71011) in August 2022. Source: BC Wildfire Services.

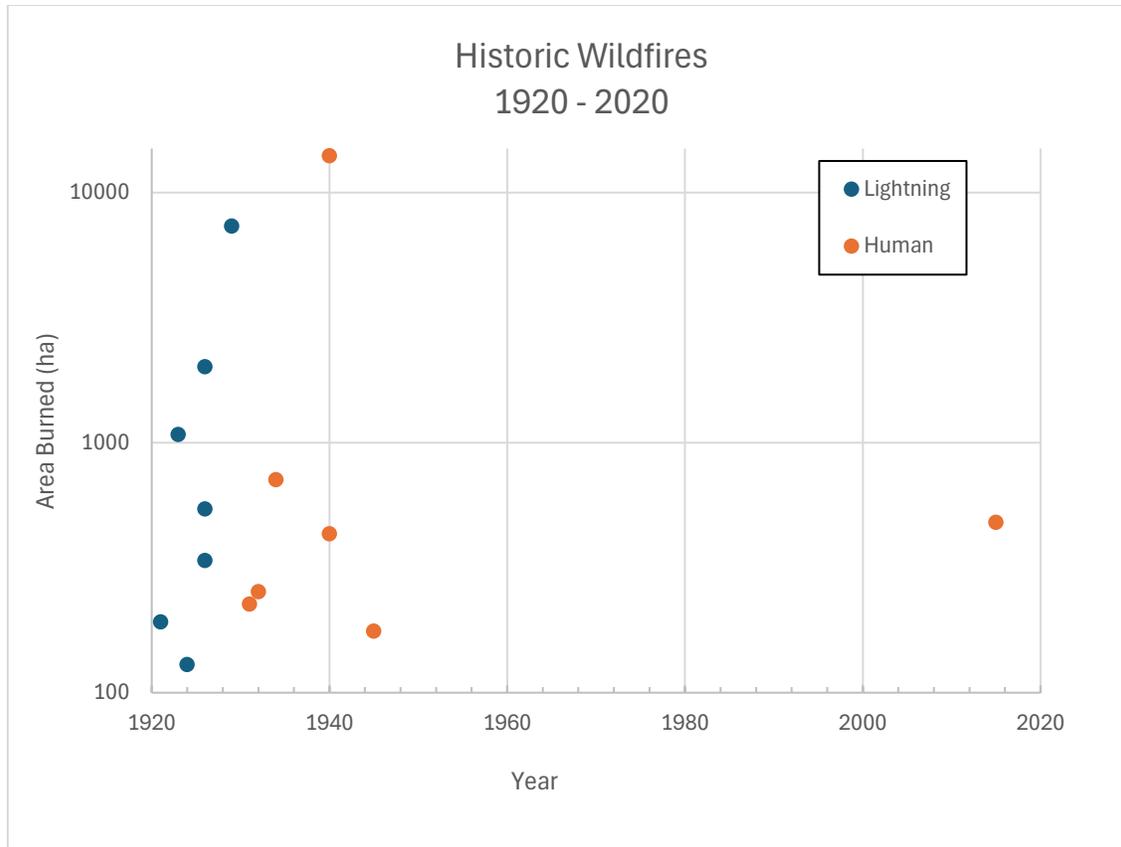


Figure 10. Historic wildfires over 100 ha in size from 1920 to 2020.

BCWS fire ignition data, which records point ignitions that may or may not have developed into a wildfire with a recorded perimeter area, is only available from 1950 onwards. Lighting strikes account for 44% of ignition starts, 31% are human-caused, and 25% unknown. Figure 11 below displays the frequency of wildfire ignitions, grouped by ignition source, from 1950 to 2023. Historic wildfire perimeters and ignition sources, from 1912-2022, are displayed below on on Map 5 for an area within five kilometers of the WUI. BCWS indicated that human-caused ignitions are relatively frequent in Electoral Area G, and that areas of concern include the Salmo River and Pend Oreille River junction and areas along the Salmo River.

Several recent fires that have occurred since the 2017 CWPP include the McCormick Creek fire (N51634), person-caused, that burned 410 ha one kilometer east of Remac in August 2017. An evacuation alert was posted for 23 residential properties, though this never escalated to an order.²⁷ In 2018, the MacArthur Creek fire (N51557) burned 703 ha 8 km east of Salmo due to a mid-slope lightning strike on Mount Waldie. Evacuation orders were issued for three properties on the Sheep Creek Road, as well as the closure of the Sheep Creek FSR. Suppression efforts involved multiple RDCK fire departments, including

²⁷ Wadhvani-Smith, A. Trail Times. "[Evacuation alert issued for McCormick Creek area.](https://www.trailtimes.ca/news/evacuation-alert-issued-for-mccormick-creek-area-5017487)" 9 August 2017. <https://www.trailtimes.ca/news/evacuation-alert-issued-for-mccormick-creek-area-5017487>

Balfour, Beasley, Ootischenia, and Tarrys through structure protection efforts in conjunction with BCWS.²⁸ The Beavervale Creek / Bombi Summit lightning-caused fire (N51756) burned 32.3 ha, including half a cutblock, roughly 750m south of Highway 3 near Castlegar in July 2021. Aggressive suppression efforts included a full perimeter containment line and water bombing.²⁹

In July 2024, BCWS published a bulletin that noted an increase in wildfire activity in the Southeast Fire Centre, citing 1600 lightning strikes, resulting in 126 fires, in a single week, mid-July. Contributing to this increase are atmospheric instability, resulting in increased winds, low relative humidity, and heavy fuel-loading.³⁰

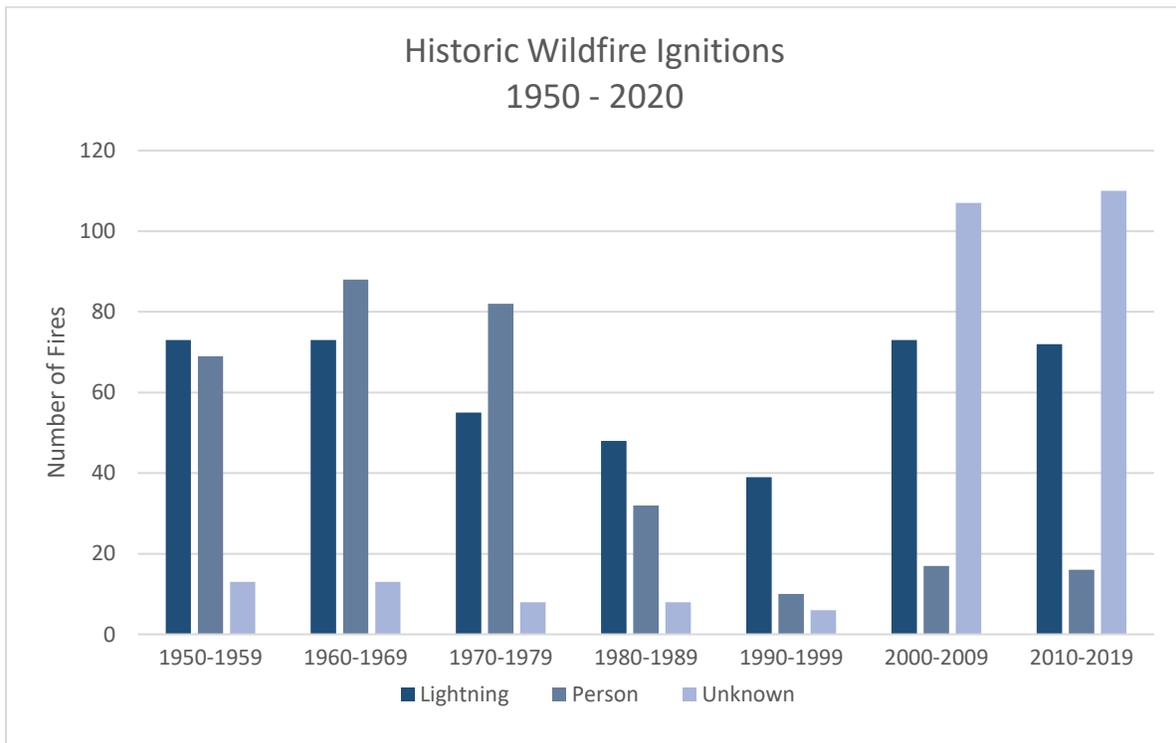
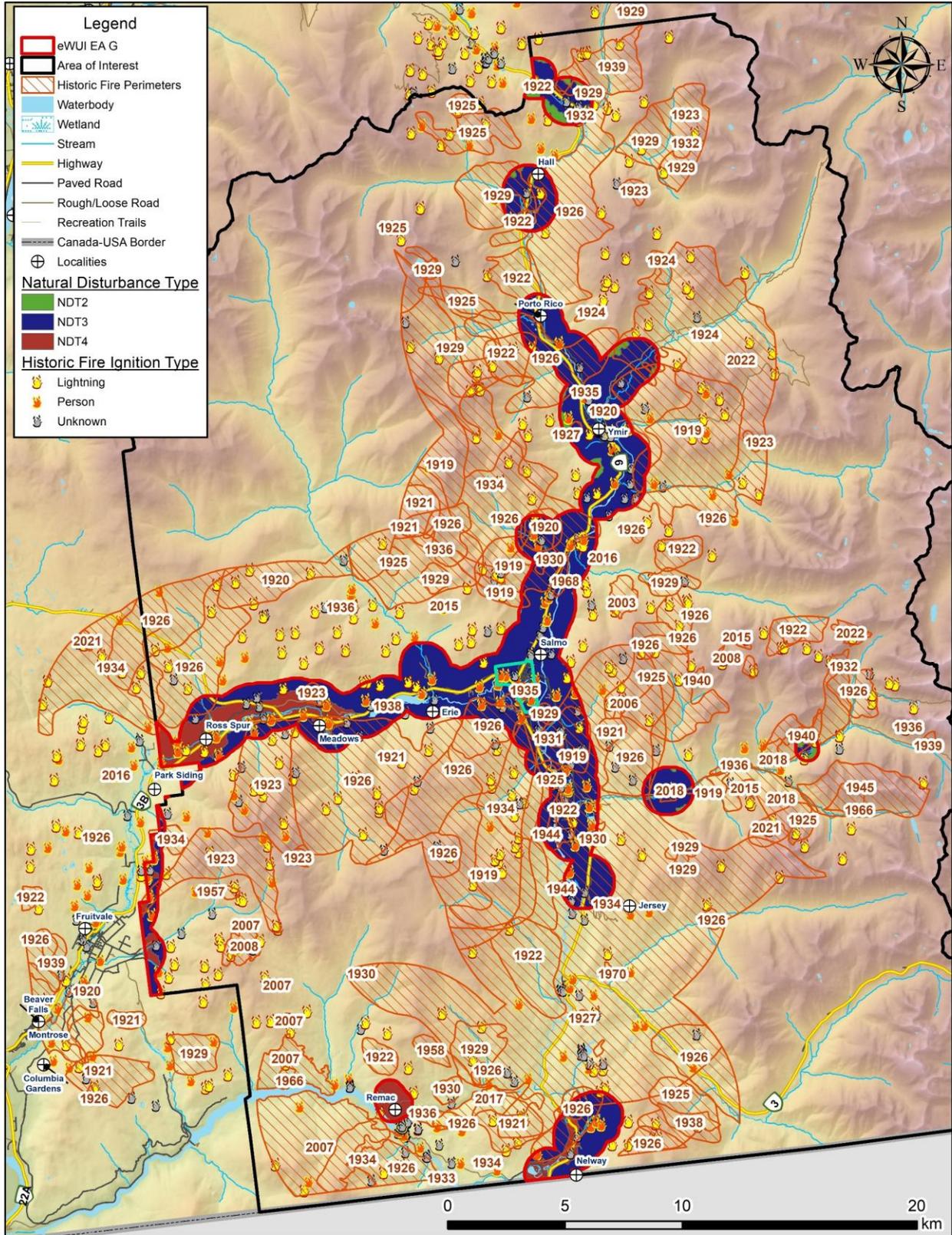


Figure 11. Historic wildfire ignitions from 1950 -2020 by ignition source.

²⁸ Crawley, T. Castlegar News. “Evacuation Order issued for Sheep Creek wildfire.” 10 August 2018. <https://www.castlegarnews.com/news/evacuation-order-issued-for-sheep-creek-wildfire-4713199>

²⁹ Kline, B. Castlegar News. “Containment lines laid around perimeter of Bombi Summit fire near Castlegar.” 14 July 2021. <https://www.castlegarnews.com/news/containment-lines-laid-around-perimeter-of-bombi-summit-fire-near-castlegar-4742117>

³⁰ BC Wildfire Services. “Increased activity in the Southeast Fire Centre.” 23 July 2024. <https://blog.gov.bc.ca/bcwildfire/increased-activity-in-the-southeast-fire-centre/>



Map 5: Historical fire perimeters and fire ignitions in the WUI.

4.2.3 WILDFIRE RESPONSE

Structural and interface fire response within much of the WUI is provided by the Salmo Fire Department (Village of Salmo) and Ymir Volunteer Fire Department (RDCK). There is a mutual aid agreement between the departments. Part of the Ross Spur area is under contract for protection with the Regional District Kootenay Boundary. Although response patterns vary from year to year, there is typically just as many wildland fires as structure fires in Electoral Area G. Salmo Fire Department reported an average of 4.1 wildland and 4.3 structure fire calls annually since 2013. This is also reflected in the level of preparation to respond to wildland fires – as summarized in Section 5.4, both Salmo and Ymir fire departments have wildland/brush truck, portable pumps, and wildland-specific Personal Protective Equipment (PPE) for their members. This response data demonstrates the importance of wildfire-specific training and equipment and public fire education - wildfires can just as easily begin from a house fire igniting the adjacent forest and wildland fuels. See Section 5 for related recommendations.

4.3 RISK FRAMEWORK AND RISK CLASS MAPS

4.3.1 PROVINCIAL STRATEGIC THREAT ANALYSIS

The Province of BC produces a Provincial Strategic Threat Analysis (PSTA, updated in 2021) for all non-private land parcels in BC, designed to consistently assess and map different aspects of wildfire threat and risk around the province.³¹ This high-level assessment of relative wildfire threat throughout the province is largely based on Vegetation Resource Inventory (VRI) data, fire occurrence patterns, potential fire intensity, and spotting potential. The PSTA ranks threat on a scale of 1 (lowest) through 10 (extreme). The PSTA is a high-level geographic information system (GIS) raster analysis that is suitable for wildfire threat information across the land base; appropriate land management activities need to be determined at the local level using site-specific stand-level information.

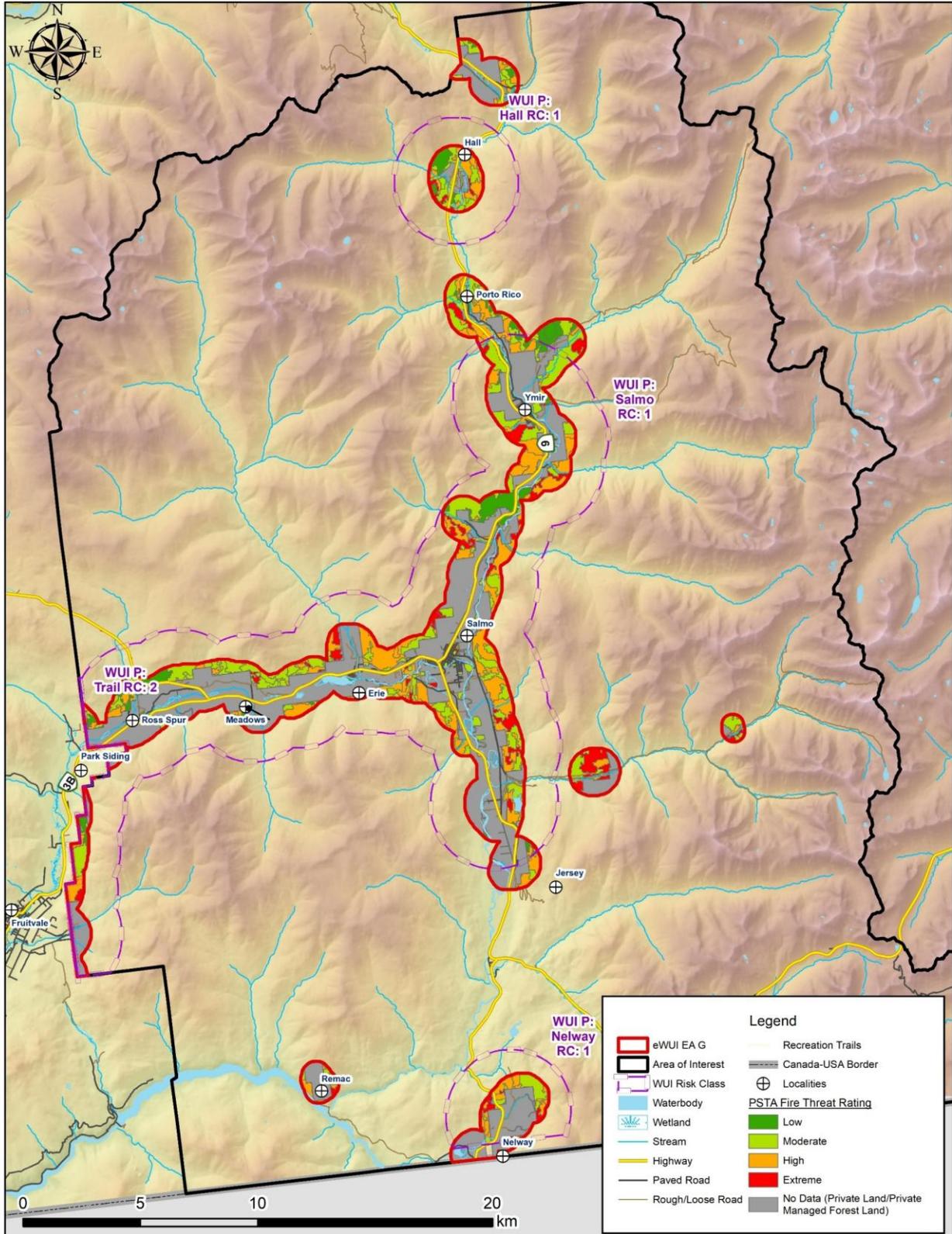
The PSTA also forms the basis for the identification of the wildland-urban interface (WUI) in BC. Structure densities are used to define areas of human development. A 1-km buffer is applied on these areas to represent a reasonable maximum distance that embers can travel from a wildfire to ignite a structure. Notably, this threat analysis does not extend onto private land, nor does it account for non-structural values that may be considered values at risk for a community, highlighting the importance of local community wildfire planning.

Once the WUI is defined, it is combined with the PSTA Fire Threat Rating to delineate discrete 'WUI Risk Class' polygons throughout BC. This framework can be used to prioritize risk reduction initiatives, categorizing WUI polygons by a risk class of 1 (highest) through 5 (lowest). The application of relative risk

³¹ Province of BC. 12 May 2023. *2021 Update: Provincial Strategic Threat Analysis (PSTA)*. <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prevention/fire-fuel-management/psta>



does not imply “no risk” since the goal is to identify areas where there is higher risk. The PSTA Fire Threat Rating and WUI Risk Class Rating are shown in Map 6 below. Communities in Electoral Area G are all in provincially defined Risk Class 1 Wildland Urban Interface (WUI) Risk Class polygons (Salmo, Nelway, Hall Siding), which reflect the highest wildfire risk rating.



Map 6. Provincial Strategic Threat Analysis (PSTA) Fire Threat Rating and WUI Risk Class Rating.

4.4 LOCAL WILDFIRE RISK ASSESSMENT

There are two main components of this local risk assessment: the *wildfire behaviour threat class* (fuels, weather, and topography sub-components) and the *WUI risk class* (structural sub-component). The local wildfire threat assessment process includes several key steps as outlined in Appendix B: Local Wildfire Risk Process and summarized as follows:

- *Fuel type attribute assessment* – ground truthing/verification and updating as required to develop a local fuel type map (Appendix B-1: Fuel Typing Methodology).
- *Consideration of the proximity of fuel to the community* – recognizing that fuel closest to the community usually represents the highest hazard (Appendix B-4: Proximity of Fuel to the Community).
- *Analysis of predominant summer fire spread patterns* – using wind speed and wind direction during the peak burning period using ISI Rose(s) from BCWS weather station(s). Wind speed, wind direction, and fine fuel moisture condition influence wildfire trajectory and rate of spread.
- *Consideration of topography in relation to values* (Table 13 Table 14) - slope percentage and slope position of the value are considered, where slope percentage influences the fire's trajectory and rate of spread and slope position relates to the ability of a fire to gain momentum uphill.
- *Stratification of the WUI* – according to relative wildfire threat based on the above considerations, other local factors, and field assessment of priority wildfire risk areas.

A fuel type and local wildfire threat and risk update was not within the scope of this CWRP update. However, fieldwork was completed to support the re-prioritization of previously proposed fuel treatment units and identify potential new units. Wildfire Threat Assessment (WTA) plots were completed in select areas of the WUI in late 2024 (see Appendix B-2: Wildfire Threat Assessment Plots and Map 3) only to support the fuel treatment unit updates.

It is important to note that the local WTA analysis does not apply to private land parcels nor any areas outside of the Eligible WUI for this CWRP. As well, the threat assessments quantify threat as it relates to forest fuels, but do not include the ignition potential of residential landscaping, structures, or other infrastructure. Structure fires and structure-to-structure spread in a wildfire scenario are largely attributable to hazardous conditions in the FireSmart Home Ignition Zone of a structure (i.e., the area within 30m of the principal building and/or its attachments).

4.4.1 WILDFIRE THREAT CLASS ANALYSIS

Classes of the wildfire threat class analysis are as follows:

- **Very Low:** Waterbodies with no forest or grassland fuels, posing no wildfire threat;
- **Low:** Developed and undeveloped land that will not support significant wildfire spread;

- **Moderate:** Developed and undeveloped land that will support surface fires that can pose little threat to homes and structures;
- **High:** Landscapes or stands with continuous forested or grassland fuels that will support candling, intermittent crown fires, or continuous crown fires. These landscapes often contain steeper slopes, rough or broken terrain and/or south or west aspects. High polygons may include high indices of dead and downed conifers; and
- **Extreme:** Continuous forested land that will support intermittent or continuous crown fires.

The results of the wildfire threat class analysis carried forwards from the 2017 CWPP and clipped to the 1 km WUI are shown on Map 7 and summarized in Table 17 below. The local threat analysis shows that, for the assessable area (i.e., not private land and removing large water bodies like Kootenay River), a large proportion – 43% - is in a High or Extreme wildfire threat class. Overall, private land totals 54% of the [2017] WUI – this area was not allocated fire threat data. Conditions on private land can often result in the fire hazard being much higher than in the forest adjacent if there is low compliance with FireSmart vegetation and structure principles.

Table 17: Wildfire threat summary for Electoral Area G's Eligible WUI

Wildfire Threat			
Threat Class	Hectares	% of WUI	% of Assessable Public Land
Extreme	118	1%	2%
High	2497	18%	41%
Moderate	1575	12%	26%
Low	1860	14%	31%
Very Low/No Threat (Water)	134	1%	-
No Data (Private Land)	7316	54%	-

4.4.2 WUI RISK CLASS ANALYSIS

WUI risk classes are quantified when the Wildfire Threat (the above) is assessed as High or Extreme, potentially causing unacceptable wildfire risk when near communities and developments. WUI risk classes are described below:

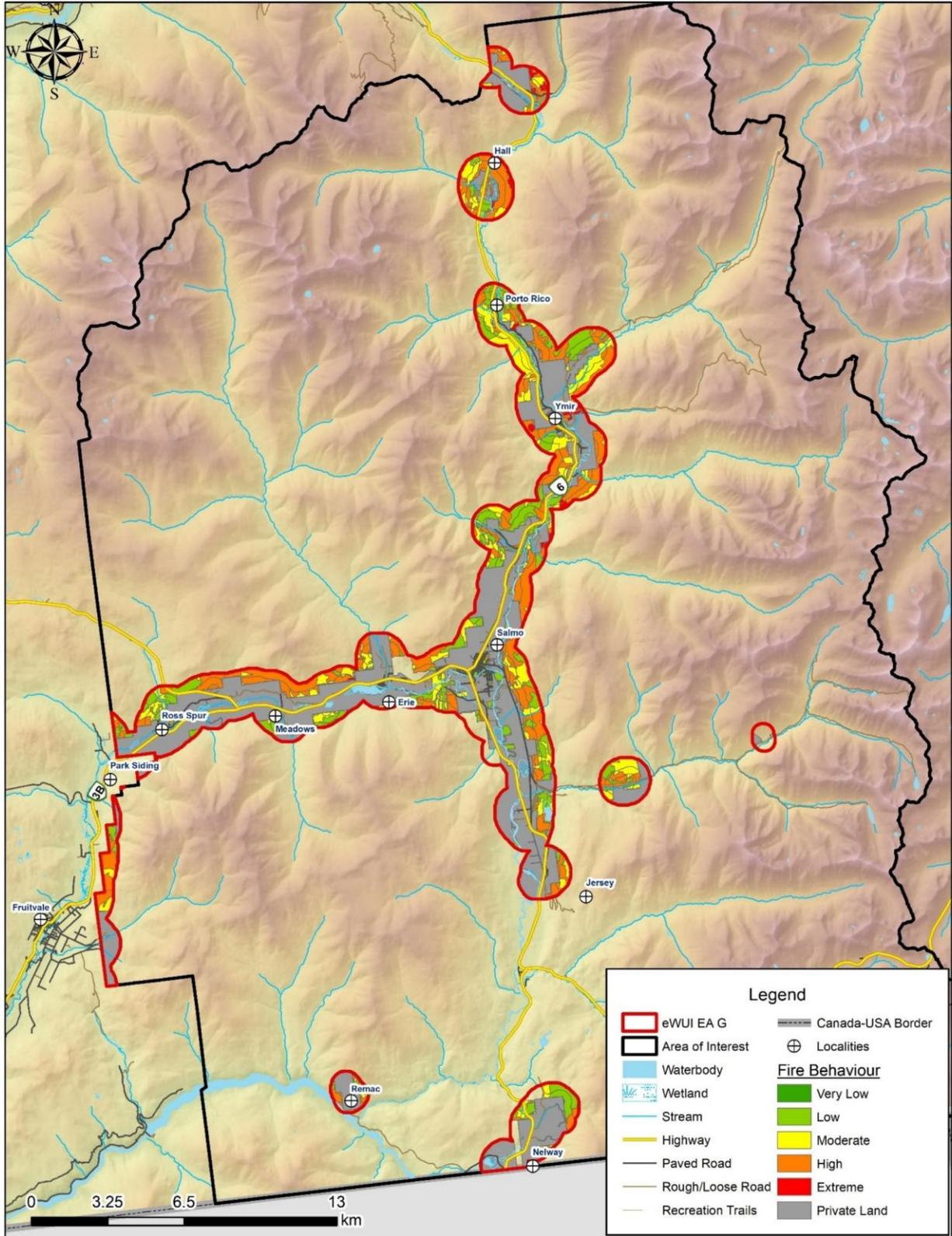
- **Low:** The high or extreme threat is sufficiently distant from developments, having no direct impact of the community and is located over 2 km from structures;
- **Moderate:** The high or extreme threat is sufficiently distant from developments, having no direct impact of the community and is located 500m to 2 km distance from structures;
- **High:** The high or extreme threat has potential to directly impact a community or development and is located 200m to 500m from structures; and

- **Extreme:** The high or extreme threat has potential to directly impact a community or development and is located within 200m from structures.

Table 18 below (and displayed on Map 7) summarizes the risk class ratings within the WUI. Of the 2615 ha assigned a High or Extreme wildfire threat class, 1167 ha (45%) have a High or Extreme WUI risk. This represents 17% of the assessable public land in the WUI. This analysis provides an initial step towards identifying priority areas/neighbourhoods for directing FireSmart education and vegetative/fuel management efforts, if practicable.

Table 18: WUI risk class ratings within the Eligible WUI of the Electoral Area G

WUI Risk			
Risk Class	Hectares	% of WUI	% Assessable Public Land
Extreme	217	2%	3%
High	950	7%	14%
N/A (Moderate, Low, Very Low <i>Wildfire Threat Class</i>)	5728	42%	83%
<i>Private / No Data</i>	6604	49%	-



Map 7: Local wildfire threat assessment within the WUI

4.5 HAZARD, RISK, AND VULNERABILITY ASSESSMENT

The purpose of a Hazard, Risk and Vulnerability Assessment (HRVA) is to help a community make risk-based choices to address vulnerabilities, mitigate hazards, and prepare for responding to and recovering from hazard events. The HRVA process assesses sources of potential harm, their likelihood of occurring, the severity of their possible impacts, and who or what is particularly exposed or vulnerable to these impacts.³²

An HRVA was not noted, however, the Emergency Response and Recovery Plan for the Regional District of Central Kootenay includes a section on interface wildfire planning (3.10) with listed potential impacts. When an HRVA is completed or updated for Electoral Area G, Salmo (or the RDCK as a whole), the RDCK and Salmo should look to the most recent CWRP and reference their completed wildfire threat class analyses as well as recommendations.

³² Government of BC. HRVA Example Report. https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/local-government/hrva/hrva_forms-step_8-anytown_bc-sample_hrva_report.pdf

SECTION 5: FIRESMART PRINCIPLES

FireSmart™ is the leading program in Canada aimed at empowering the public and increasing neighbourhood resilience through wildfire mitigation measures. It has been formally adopted by almost all Canadian provinces and territories, including British Columbia in 2000. The FireSmart program covers a wide breadth of preventative measures, which are founded in the seven FireSmart disciplines: Education, Legislation and Planning, Development Considerations, Interagency Cooperation, Cross-Training, and Vegetation Management. These seven disciplines and the guiding principles behind FireSmart can be applied at a number of spatial scales and are not restricted to any type of land ownership, forest type or property type. The RDCK has an active FireSmart program that is well staffed and funded to complete residential education activities.

Since the development of the 2017 CWPP, 19 of 34 of its recommendations have been wholly or partially implemented. See Appendix A: Review of 2017 CWPP Recommendations.

It has been found that during extreme wildfire events, most home destruction has been a result of low-intensity surface fire flame exposures, usually ignited by embers (firebrands). Firebrands can be transported long distances ahead of the wildfire, across fire guards and fuel breaks, and accumulate in densities that can exceed 600 embers per square meter. Combustible materials found on the exterior of and surrounding homes (the FireSmart Home Ignition Zone) combine to provide fire pathways allowing spot surface fires ignited by embers to spread and carry flames or smoldering fire into contact with structures.

Because ignitability of structures and landscaping vegetation is the main factor driving structure loss, the intensity and rate of spread of wildland fires beyond the community has not been found to necessarily correspond to loss potential. For example, FireSmart homes with low ignitability may survive high-intensity fires, whereas highly ignitable homes may be destroyed during lower intensity surface fire events.³³ Increasing ignition resistance would reduce the number of homes simultaneously on fire; extreme wildfire conditions do not necessarily result in WUI fire disasters.³⁴ It is for this reason that the key to reducing WUI fire structure loss is to reduce structure ignitability. Mitigation responsibility must be centered on structure owners. Risk communication, education on the range of available activities, and prioritization of activities should help homeowners to feel empowered to complete simple risk reduction activities on their property.

5.1 COMMUNITY OVERVIEW

During CWRP development, FireSmart risk and resiliency factors for different communities were noted (Table 19). This incorporates field observations, the local risk assessment, and information from local government meetings and consultation.

Table 19: FireSmart vulnerability and resilience factors by neighbourhood.

Community	Vulnerability	Resilience
Salmo	<ul style="list-style-type: none"> - Forested interface - Dense residential development increases risk of structure-to-structure fire transmission 	<ul style="list-style-type: none"> - Serviced by a fire department w/ hydrants - Some defensible space due to riparian vegetation, agricultural lots in valley bottom - Access to two arterial access/egress routes (Highway 3 or Highway 6)
Ross Spur – Erie	<ul style="list-style-type: none"> - Some roads are intermix (e.g. Balsalm Road) 	<ul style="list-style-type: none"> - Serviced by a fire department (Salmo and RD Kootenay Boundary) - Defensible space – cleared lots

³³ Cohen, J. Preventing Disaster Home Ignitability in the Wildland-urban Interface. *Journal of Forestry*. p 15 - 21.

³⁴ Calkin, D., J. Cohen, M. Finney, M. Thompson. 2014. *How risk management can prevent future wildfire disasters in the wildland-urban interface*. *Proc Natl Acad Sci U.S.A.* Jan 14; 111(2): 746-751. Accessed online 1 June, 2016 at <https://pmc.ncbi.nlm.nih.gov/articles/PMC3896199/>

Community	Vulnerability	Resilience
	- Some roads access-egress to Highway (Opal Street, Rose Road in Erie; Archibald Road in Meadows)	- Most roads dual access to Highway 3
Ymir	- Forest intermix, especially outside of community core - Water supply concerns in some areas without hydrants (Wildhorse Road) - Less defensible space around structures	- [Mostly] Serviced by a fire department with hydrants - Dual access to Highway 3
Porto Rico / Hall	- Intermix homes on Porto Rico-Ymir Road - Riding Road is single access/egress to Highway 6 - Water supply concerns (Hall Siding)	- Serviced by a fire department - Multiple access/egress options
Nelway	- Exposed to forested land south of the Canada-US border - Rosebud Lake Road single access/egress to Highway 6 - No fire protection service	- Defensible space, large agricultural lots, low structure density -

The sections to follow provide information on each FireSmart discipline as it relates to Electoral Area G. An analysis of actions that have been implemented are noted, as well as any relevant gaps identified. Each section contains a table of recommended actions for Electoral Area G. Most actions are fundable through the CRI FireSmart Community Funding and Supports program. Each recommendation includes a rationale, lead agency, timeline, and estimated resources to complete.

5.2 EDUCATION

Public education and outreach play a critical role in helping a community prepare for and prevent a wildfire emergency. Awareness of wildfire risk is important, but this needs to be paired with an awareness of potential mitigation actions and locally available FireSmart programs. Participating in wildfire risk reduction and resiliency activities can also promote a sense of empowerment and shared responsibility. A successful public education campaign that builds awareness and understanding among residents and visitors can support the implementation of projects related to other FireSmart disciplines.

The RDCK has been actively engaging in Salmo and communities in Electoral Area G through a well-developed FireSmart program which began over 17 years ago with the completion of CWPPs in 2008 for the Village of Salmo and Ymir Fire Protection Areas.³⁵ Specifically in Electoral Area G and Salmo, there has been 136 FireSmart Assessments and 19 rebates awarded. There are currently six Wildfire Mitigation Specialists across multiple RDCK electoral areas who work to implement the RDCK FireSmart program.

FireSmart education activities that have been completed or are ongoing include:

- FireSmart Home Assessments (136 in Electoral Area G to date; previously the Home Partner Program, now the FireSmart BC Wildfire Mitigation Program);
- FireSmart demonstration house;
- Distribution of FireSmart educational materials to residents at events (e.g. farmer's markets);
- Social media updates with FireSmart information and fire danger ratings, and print advertising, and;
- FireSmart workshops and presentations

Because of the large amount of private property within the WUI and the understanding that homes, landscaping vegetation, and all other manner of flammable and combustible materials are considered fuel in the wildfire triangle, a large emphasis should be placed on existing FireSmart education successes and seeking out new opportunities to engage with residents. This includes tourists that may not be

³⁵ Regional District of Central Kootenay. 2017. Electoral Area G Community Wildfire Protection Plan Update.

knowledgeable on FireSmart and the wildfire risks their actions may carry. Not all efforts will be successfully received by the public, but understanding what activities are not suitable for the community is still valuable information that can be used to refine and improve programming moving forwards.

See Table 1 in the Executive Summary for recommended FireSmart Education actions that the RDCK can implement in Electoral Area G and the Village of Salmo.

5.3 LEGISLATION, PLANNING AND DEVELOPMENT CONSIDERATIONS

Legislation and regulation are effective tools for reducing wildfire risk, although they can be less effective in large, rural regional districts like the RDCK. The preference of elected officials in many regional districts is for information sharing rather than enforcement as a policy tool, due to limited bylaw officers and staff capacity. Regardless, how RDCK policies relate to wildfire are still important, as they set the tone for risk recognition and community resilience. Consideration of wildfire at the development planning stage is also a key step in protecting neighbourhoods from wildfire. A summary of RDCK bylaws, policies, and plans relevant to wildfire risk and emergency planning was provided earlier in Section 2.3.

Post-fire studies, experiments, and models have shown that homes ignite due to the condition of the structure and everything around it. This tenant forms the basis of the 'Home Ignition Zone,' which FireSmart BC now defines as the area within 30 m of homes and structures.⁵¹ Legislation, planning, and development standards all play a significant role in building and maintaining FireSmart structures. Factors that can be planned for (and regulated through the land use planning and development process) that affect public safety during a wildfire include:³⁶

- Location of development (including hazardous or vulnerable land uses) in relation to high hazard forested vegetation, steep slopes, and other geographical features that contribute to extreme fire behaviour
- Evacuation and egress;
- Availability and adequacy of water supply for firefighting;
- Type of construction materials on structures and attachments;
- Lot size and structure density;
- Design guidelines and architectural standards;
- Addressing and street signage;
- Landscaping, screening, and buffering; and
- Temporary land uses that determine the type of use and quantity of people.

Section 10 of the Electoral Area G Official Community Plan contains policies to manage interface fire risk, including protecting access to water sources, encouraging FireSmart efforts, and evaluating opportunities to assist in interface forest fuel mitigation treatments. The RDCK also reserves the right to request a fire hazard risk assessment to accompany subdivision applications. Section 6 of the Village of Salmo OCP also recognizes interface fire risk. No gaps with OCP language as it related to wildfire risk reduction were identified in either plan.

The Village of Salmo has a Wildfire Hazard DPA that applies to narrow interface areas at the edge of town mapped in Schedule K of the OCP (Figure 12). For development within the identified area, a fire risk assessment and fuel management strategy must be submitted. The three areas of concern to which the DPA applies (Figure 12) are described in the OCP as:

- The wooded hills on the west side of Highway 3/Railway Avenue;
- Around the bottom of the hill in the middle of the Village; and
- Property along the north-east edge of the Village boundary and Riverside Avenue.

³⁶ FireSmart BC. Community Wildfire Resiliency Plan Instruction Guide 2023. Retrieved from: <https://www.ubcm.ca/cri/firesmart-community-funding-supports>

The DPA policies and guidelines are robust; however, it was noted that where priority zones are discussed, the distance from the property’s forested edge, and not the structure, is referenced. Salmo should review the wording of their Wildfire Hazard DPA to ensure that it provides sufficient clarity to achieve the desired outcome of residents in the interface complying with FireSmart principles. The Village should also consider the pros and cons of expanding the DPA area to cover the entire municipality. Although this would increase administrative burden to the municipality and increase the cost of development, it would also ensure that the entire Village is built towards FireSmart standards. The Village could consider relaxing DPA guidelines accordingly as a compromise; for example, by allowing wood siding.

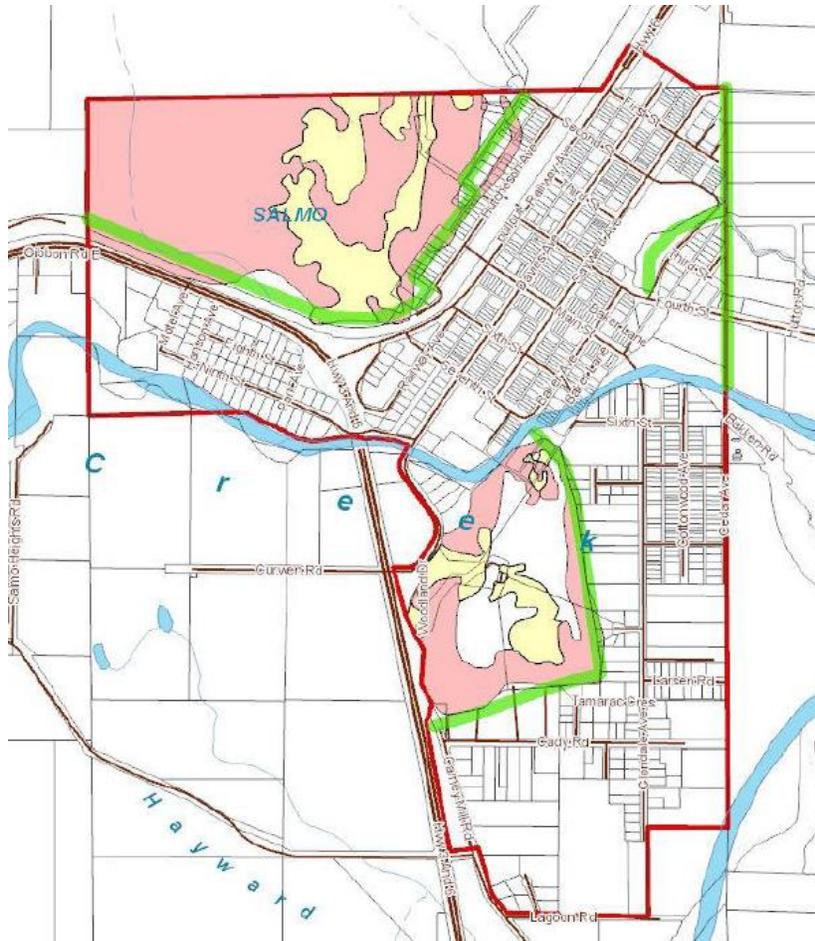


Figure 12. Screenshot of the Village of Salmo’s Schedule K: Natural Hazard Development Permit Areas map. Shaded areas are steep slopes; green highlighted areas are wildfire interface areas.

When it comes to embedding FireSmart practices and considerations into development, the RDCK has opted for an information sharing approach rather than a regulatory approach. A detailed report was completed in 2023 outlining a range of possible Wildfire DPA guidelines and OCP policy options for the RDCK to consider.³⁷ A lack of staff capacity and poor response from elected officials and residents has tempered interest in a Wildfire DPA throughout most of the RDCK. However, the CFRC indicated that the RDCK is planning to implement a Wildfire DPA in Electoral Area I (between Castlegar and Nelson) as a pilot project. Implementation in other areas of the RDCK is ultimately at the discretion of individual Electoral Area Directors. In the meantime, some development concerns are addressed through the RDCK Bare Land FireSmart assessment program. This free, voluntary assessment is offered throughout the region to residents who are planning to build on undeveloped lots. This program educates residents on FireSmart principles and advises best practices with regards to construction, lot preparation, and landscaping.

Regardless of the challenges involved, it is important to consider that a DPA is currently the most direct option for a local government to impose regulations on development that go beyond the BC Building Code. The purpose of DPAs is to ensure that new development is consistent with the policies of the Official Community Plan (OCP). Especially in areas that may support medium and higher density residential development, like Ymir and rural Salmo, Wildfire Protection DPAs help ensure that new developments are

³⁷Urban Systems. 2023. *Wildfire Development Permit Area Summary Report*. https://www.rdck.ca/assets/Services/Land~Use~and~Planning/Documents/2023-01-06-Wildfire_DPA-Final_Report-Redacted.pdf

designed to minimize wildfire hazard and contribute to the fire safety of the neighbourhood, thus limiting property damage should a wildfire occur.

FireSmart principles can also be incorporated into other local bylaws. Several jurisdictions, including the District of Squamish and the City of Nelson, have implemented Wildfire Landscaping Bylaws to prohibit the planting of new flammable conifer shrubs next to residences. Even without much enforcement, such a bylaw can a) educate the public on FireSmart best practices, b) set the tone for FireSmart recognition at the local government scale, and c) be implemented for public infrastructure. All bylaws applicable to the RDCK and specifically to Electoral Area G were reviewed through a wildfire lens.

The lack of a bylaw regulating open burning across the RDCK, outside of the Village of Salmo, was identified as a potential gap in the last CWPP. An open burning bylaw would have stricter provisions than fire bans set by the province, which local fire departments do not have the authority to enforce. The recommendation was not renewed in this plan as the RDCK and BCWS determined that a local burning bylaw would not be effective or feasible for the RDCK to enforce.

Part of the Development Considerations discipline is ensuring that all critical infrastructure (described in Section 3.3 and listed in Table 9) are constructed or retrofitted to a high FireSmart standard. Performing FireSmart Critical Infrastructure Assessments on all publicly owned infrastructure will help inform further mitigation actions by the RDCK and the Village of Salmo. Assessments have already been completed for the Ymir Fire Hall and most Salmo municipal buildings. Recommendations regarding planning and development are detailed in Table 1 in the Executive Summary.

5.4 CROSS-TRAINING AND FIRE DEPARTMENT RESOURCES

All staff and agency partners who are expected to participate in the development and implementation of this plan, or participate in a wildfire response and recovery, should be appropriately trained. This includes municipal Emergency Management staff, other municipal staff that could play a role in an Emergency Operations Center (EOC), and local fire departments.

Regular in-person cross-training between BCWS and structural fire crews can facilitate joint responses to interface wildfires. Crews are likely to work together and may want to use each other’s equipment. There are BCWS crews stationed in Nelson, only a 30-minute drive from Salmo, which reduces barriers for crews to complete cross-training. Salmo Fire Department cited a strong relationship with BCWS; crews work together on fires once or twice per season and complete training together about every 3 years. Interagency meetings also take place semi-annually.

Local fire departments should maintain a level of wildland-specific training and equipment. Both Ymir and Salmo Fire Departments indicated that they have adequate wildland firefighting equipment and try to train members in S-100 or SPP-WFF1 annually. Challenges include cost and time to undertake training, especially as members are volunteers and structural firefighting training is a priority. Ymir Fire Department also expressed concerns with high personnel turnover, leading to a lack of senior members able to provide in-house training. Table 20 lists the capacity, training level, wildland firefighting equipment, and deficiencies of fire departments that provide fire protection services in Electoral Area G.

Table 20. Capacity, training, and resources of fire departments in Electoral Area G.

Fire Department	Personnel	Wildland Training	Wildland Equipment
Ymir Fire Department	21 volunteers	Members trained to SPP-WFF1 and, BCWS courses (S-100, SPP-115)	Tender, Old tender, engine, squad vehicle, and rescue vehicle (pickup with water skid); wildland PPE; 1-2 portable pumps
Salmo Fire Department	26 volunteer	SPP-WFF1 - 13 members S-100 annual course	1 tender (1800 gal), 2 engines (1000 gal, 1060 gpm), 1 brush truck (250 gal), 1 rescue van; 3 portable pumps, 2000' hose, 2 portable tanks, wildland PPE

Water is one of the most important resources for fire suppression. The ability to quickly deliver water to a fire, even outside of fire-hydrant zones, is critical to effective response to an interface wildfire event. There are fire hydrants within the Village of Salmo and within the Ymir water service area. Outside of these areas, fire departments would use a water tender to shuttle water to the fire from the nearest hydrant, standpipe, or natural water source. Salmo Fire indicated that there are two drafting spots west of Salmo that have water year-round. Kootenay River, which runs through the Electoral Area, is a reliable and accessible year-round water source, but designated drafting sites should be established throughout the area.

The Ymir VFD noted that Wildhorse Creek Road has water supply challenges, as drafting sites are limited and not all trucks can access them. Hall Siding (about 12 km north of Ymir on Highway 6) was also identified as a possible concern for water sources. It is recommended that the RDCK assist the Ymir VFD in identifying ways to reduce water supply vulnerability outside of hydranted areas; for example, by installing standpipes or strategically locating water tanks. Neither department owns a Structural Protection Unit (SPU), but the RDCK owns several and they are available upon request.

The ability to quickly communicate key information on water sources during an interface fire event is critical. Software applications like 'I Am Responding' are used by some fire departments to map water sources (e.g., lake access points, standpipes, etc.). Maps are an easy way to share information with BCWS and other fire crews that may be assisting in an interface wildfire situation. It is recommended that local fire departments develop a simple response map showing roads, gates, any fuel-treated areas, and water access points to share with BCWS and/or other response agencies in the event of an interface fire. It can take time to communicate this type of detailed local knowledge, and time is a scarce resource during emergency. Therefore, any pre-planning that can be completed is worthwhile. Pre-planning is further discussed in Section 5.5.

See Table 1 in the Executive Summary for recommended action items that the RDCK can implement to create and continue to develop opportunities for cross-training and improve fire department resources.

5.5 INTERAGENCY COOPERATION

The goal of interagency cooperation is to approach wildfire resilience through a collaborative, multi-agency approach. This increases the ability of local governments to plan and respond to emergencies effectively. For a large regional district like the RDCK, interagency cooperation is especially crucial. Depending on location, regional district residents may identify more with a member municipality than they do with the regional district. The small amount of regional district-owned land also means that the activities of other land managers may have a stronger influence on the risk profile of a specific community than RDCK actions. Examples include fuel treatments under the Ministry of Forests or BC Parks Wildfire Risk Reduction programs, development on private land, and logging on Crown land.

Engagement can be formal or informal and can take place through existing communication channels, or stand-alone committees. For the development of this CWRP, an informal, plan-level Community FireSmart Resiliency Committee (CFRC) was formed with membership from the RDCK, local fire departments, and BC Wildfire Service. Individuals were contacted to answer questions relating to this plan.

There is currently no local FireSmart Committee in the plan area, but Salmo and Electoral Area G are represented on the RDCK's Regional Wildfire Planning Table. The Planning Table includes local government representatives and provincial land managers and response agencies, including the Ministry of Forest, BC Parks, BCWS, and FNESS. The RDCK noted the benefits of both regional and sub-regional committees to achieve different objectives, while striking a balance between staff availability and local knowledge sharing.

External land-based stakeholders, such as utility providers and local forest licensees, are also an important component of interagency cooperation. According to BCWS, forest industry compliance with the Wildfire Act regarding slash hazard mitigation and open burning prohibitions are good. Likewise, no problems with utility or road rights-of-way maintenance within the plan area were specifically identified. BCWS also works with local companies to source heavy equipment, low beds, and equipment operators for potential wildfire response. These agreements are usually arranged on a contractual basis with the fire zone.

See Table 1 in the Executive Summary for recommended action items that the RDCK can implement to continue growing interagency relations and increase interagency cooperation.

5.6 EMERGENCY PLANNING

When several wildfire emergencies are taking place throughout the province, BCWS resource availability may become scarce. Deployment of provincial resources occurs based on the Provincial Coordination Plan for Wildland Urban Interface Fires.³⁸ Therefore, local government and community preparedness and resource availability are critical components of community wildfire resilience – individuals and agencies need to be ready to act. Plans, mutual aid agreements, resources, training, and emergency communications systems make for effective wildfire response. Emergency planning is provided by the RDCK Emergency Management Program, which includes all Electoral Areas and several participating municipalities including the Village of Salmo (see Section 2.1).

Clear, consistent, concise, and quick communication during an emergency event and evacuation are integral to the prevention of loss of life. The RDCK has upgraded to a new notification system for emergency alerts and water advisories powered by "Voyent Alert!". Downloadable as an app to a smart phone, the user can receive a detailed map of the affected area. The system also supports text messaging, emails, or landline calls. The RDCK should promote this notification system to residents as much as possible.

³⁸ Province of British Columbia. 2016. *Provincial Coordination Plan for Wildland Urban Interface Fires*. 2016. Retrieved from: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/provincial-emergency-planning/bc-provincial-coord-plan-for-wuifire_revised_july_2016.pdf

Emergency events are not uncommon in the RDCK and the regional EOC was particularly active in response to the 2024 wildfire season (Slocan Lake and Lavina Complexes). However undesirable it may be, exposure to interface wildfire events increases community resiliency by requiring local governments and residents to put their emergency plans into action. The RDCK maintains a well-trained staff and volunteer Emergency Social Services (ESS) team(s) and conducts emergency exercises annually.

Some of the complexities of interface wildfires in Electoral Area G include:

- Evacuation of livestock from farms;
- Several dead-end streets (Wildhorse Creek Road in Ymir, Woodland Drive in Salmo);
- Musical festival site south of Salmo with thousands of attendees mid-fire season, and;
- Adjacency to rural forested land in Washington State requiring coordination with the US Forest Service in a response scenario.

Pre-incident planning can help immensely with wildfire response. A pre-incident plan is a compilation of essential fire management information needed to save valuable time during fire suppression operations. Basic pre-incident wildfire plans have been developed for every Natural Resource District in BC. The Selkirk Resource District Fire Management Plan is a high-level plan to guide BCWS response based on known and mapped values, including human life and safety, critical infrastructure, high environmental and cultural values, and resource values.

The RDCK could consider working with BCWS Structural Protection Coordination Office and the Fire Chief's Association of BC to have additional detailed pre-incident plans (Structure Protection Community Assessments) developed for communities in Electoral Area G with emergency-planning complications. Plans have been developed for the Village of Salmo and Ymir. These plans provide a) basic information on values at risk, available resources, and level of risk, and b) operational information usable by an Incident Management Team or Structural Protection Specialist including structure triage categories, safe zones, and resource requirements. These plans can build off of information already contained within a local government's online GIS platform, such as community evacuation zones.

A vital component of emergency management is recovery. The RDCK provides recovery information on their emergency management webpage, including post-emergency hazard reports and an online Community Recovery Resource Hub was created. The RDCK also opened three in-person Resiliency Centers during the wildfire season to support community recovery.³⁹

Recommendations and action items that the RDCK and Salmo can implement to continue productive and effective emergency planning are detailed in Table 1 in the Executive Summary.

³⁹<https://www.rdck.ca/information-bulletin-august-14-2024/>

5.7 VEGETATION MANAGEMENT AND OTHER FIRESMART ACTIVITIES

As discussed in Section 4.1, fuel is the only aspect of the fire behavior triangle that can be realistically modified to reduce wildfire threat. Fuel or vegetation management reduces potential wildfire intensity and ember, flame, and radiant heat exposure to people, structures, and other values through manipulation of both natural and cultivated vegetation within or adjacent to a community. A well-planned vegetation management strategy can greatly increase first responder safety, fire suppression effectiveness, and reduce damage to property and to values.

Vegetation management can largely be accomplished through two different activities:

1. **Residential FireSmart landscaping:** The removal, reduction, or conversion of flammable [landscaping] plants to create more fire-resistant areas in the FireSmart Immediate, Intermediate, and Extended Zones (i.e., the area within 30m of a structure; see Figure 13 below).
2. **Fuel management treatments:** The manipulation or reduction of living or dead forest and grassland fuels to reduce the rate of spread and head fire intensity and enhance likelihood of successful suppression.



Figure 13: FireSmart Home Ignition Zone

Residential FireSmart Landscaping

Although there is the potential for large-scale fuel management treatments on both public and private land in the WUI, it is highly recommended that the RDCK and Salmo focus on a structures-out approach for vegetation management, in line with BCWS priorities. This means treating vegetation closest to structures first, before progressing outwards to complete fuel management in the interface and then at the landscape level. Thus, educating (see Section 5.2) and reducing barriers for residents to implement FireSmart landscaping should be the priority.

Some debris disposal opportunities exist for residents managing vegetation on their properties. Open burning is allowed outside of provincial fire bans. Yard debris can be dropped off for free at the Central (Salmo) transfer station and the Ootischenia (Castlegar) landfill during the months of May and October.⁴⁰

FireSmart landscaping is also an eligible activity under the RDCK administered FireSmart rebate program for Area G and Salmo. Provided residents receive a FireSmart Home Assessment beforehand, they can apply to receive compensation for their personal hours and materials or hired contractors. Despite these options, providing more or additional debris disposal options may further incentivize FireSmart vegetation management. Examples include driveway chipping programs and support for communities organizing community clean-up days. Clean-up days are an example of a qualifying event under FireSmart Canada Neighbourhood Recognition program. The RDCK supports this program and also has a grant to compensate Neighbourhood Champions for their personal time working towards neighbourhood recognition. No communities in Electoral Area G or Salmo have received recognition to date.

Fuel Management Treatments

Fuel treatment opportunities may be linear fuel breaks, polygon treatments for discrete areas, or broader forest interventions. The intent of establishing fuel treatments is to modify fire behaviour and should be designed to keep surface fires on the ground to avoid the establishment of more dangerous and uncontrollable crown fires. Fuel treatments can also provide anchor points to fire-fighting crews for suppression activities,⁴¹ yet the application of appropriate suppression tactics in a timely manner with sufficient resources is essential for fuel treatments to be effective – fuel treatments adjacent to a home or property should not be considered a “fire break”. Thus, to increase the efficacy of fuel treatments, FireSmart standards should be applied on nearby private properties to structures and vegetation to reduce the risk of structure ignition. Fuel treatment units will also require periodic maintenance (e.g., brushing, prescribed burning, surface fuel cleanup) to retain their effectiveness.

Funding opportunities for fuel treatments on public land exist through the UBCM CRI FireSmart Community Funding and Supports (FCFS) program, the Crown Land Wildfire Risk Reduction (WRR)

⁴⁰ RDCK. *Yard & Garden Waste – Seasonal Free Tipping*. Retrieved from: <https://www.rdck.ca/environmental-service/environmental-services/waste-recycling/household-hazardous-waste-round-up/yard-garden-waste-seasonal-free-tipping/>

⁴¹ BC Wildfire Service. (2022). [2022 Fuel Management Prescription Guidance](#).

program (administered by the Ministry of Forests), the Forest Enhancement Society of BC, and the Columbia Basin Trust. Map 8 below shows proposed and completed fuel treatment units within the WUI.

Between 2008 – 2024, at least 33 ha of fuel treatment has been completed in the plan area (Table 18), with about 58 additional hectares prescribed. Note that additional treatments may have been completed on private land and are not systematically tracked. Other areas may have treatments planned or in progress that are not yet part of public datasets. For example, Ministry of Forests staff indicated that a fuel treatment project was completed in Nelway in 2024 but is not yet uploaded in RESULTS (12 ha). Fuel management work has also taken place at the Salmo Ski Hill.⁴²

It should be noted that recently the Regional Wildfire Planning Table used grant funding to build a pilot map dashboard of completed fuel treatments across the region. This dashboard is not currently available to the public, but if maintained, will serve as an excellent tool for both interagency collaboration and coordinated wildfire risk reduction work in the region.

Table 21. Prescribed and completed treatment units in the plan area.

Treatment Unit Name	Community	Year	Area (ha)	Comment
CBTSE022	Ymir	2023	13.5	2024: Treated (part of YMIR 1 – 2017 CWPP PTU).
WRSE0043	Salmo [Rural]	N/A	20.2	Prescribed (2021) Salmo Ski Hill
WRSE0015 / WRSE0024	Whitewater	N/A	37.3	Prescribed (2020, 2022) Whitewater Ski Hill Road
YMI1	Ymir south	2011	10.9	Confirmed completed in 2017.
YMI2	Ymir south	2011	3.6	Confirmed completed in 2017.
YMI3	Ymir south	2011	2.2	Confirmed completed in 2017.
YMI5	Ymir south	2011	1.1	Confirmed completed in 2017.
YMI6	Ymir south	2011	1.3	Confirmed completed in 2017.

A full reconnaissance of the WUI was not in the scope of this plan update, so most proposed treatment units (PTUs) are carried forwards from the 2017 plan and then clipped to the 1-km Eligible WUI or otherwise altered in minor ways. Boundaries were updated using satellite imagery to exclude harvested or treated areas and aligned to private property, roads, or other mapped features where possible. PTU boundaries are intended to show the shape, size, and location of strategic WRR areas but are not intended to be usable prescription boundaries. Additionally, identifying net-out areas was beyond the scope of this

⁴² <https://wildsight.ca/2024/06/20/beloved-local-ski-hill-gains-wildfire-protection-thanks-to-youth-climate-corps/>

plan. Therefore, during any future prescription development it is strongly recommended that contracts allow flexibility for contractors to prescribe differently shaped areas. PTUs are summarized in Table 22.

BC Timber Sales, Atco Lumber Ltd., and Kalesnikoff Lumber Company are the major forest licensees with tenure overlaps in Electoral Area G's WUI. Forest harvesting for timber objectives can act as a form of vegetation management. Forestry activities affect wildfire risk in the WUI, depending on factors like post-harvest slash clean up, pre-harvest stand hazard, and post-harvest stand structure. Harvesting across the AOI has created a heterogeneous patchwork of forest stands with different fuel load characteristics. Generally, even aged second growth stands with a high loading of ladder fuel from stem exclusion processes present the highest fire threat. Selective harvest or commercial thinning may be a good candidate to achieve fuel reduction on a large and socially acceptable scale throughout the area, especially where visual impact is a concern. Interagency collaboration (see Section 5.5) will be key to achieving this scale of vegetation management.

Despite opportunities on public land, the most beneficial location for fuel management is on private land, due to proximity to values. Recommendations in Section 5.1 and 5.2 help address these gaps and this type of 'FireSmart Landscaping' is discussed above. This will be particularly applicable in communities like Salmo and Ymir that have small residential lots. To have the most meaningful influence on the fuel component of the wildfire environment in other parts of Electoral Area G, creative solutions to incentivize forest treatment on private land even outside of the Home Ignition Zone (30 m buffer) may be required. Many properties in Rural Salmo are over 1 hectare in size (100 m x 100 m) and are partly or fully forested. One recommendation is to work with the Ministry of Forests to consider a program or strategy to guide larger-scale forest treatments on private land. The Washington State Department of Natural Resources' Small Forest Landowner Regulation Assistance Program is a possible framework.

Vegetation management recommendations and action items are listed in Table 1 in the Executive Summary.

Table 22: Summary of Proposed Fuel Treatment Units

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
ERIE 1	Moderate	29.3	Provincial Crown land. Salmo ski hill overlap at eastern end, and overlap with Controlled Recreation Area – Mountain Resorts Branch) and residents within 500m. Pipeline right of way to the north and abuts prescribed area to the east.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The area is predominantly composed of hemlock, with an understory of thick cedar creating continuous ladder fuels. Surface fuels consist of scattered large woody debris and fine materials, with minimal herbaceous and shrub layers. Logging and treatment have already been completed within the PTU. Consult with Salmo Ski Hill before developing the prescription. The northern end of the PTU has steep slopes, with evidence of past cable yarding operations. The southern slopes are also steep, with gradients up to 60%. Hand treatment is recommended to remove all trees under 17.5 cm DBH, then pile and burn the debris.
HALL 1	Moderate	40.8	Provincial Crown land with private property to the northeast. NE corner overlaps UREP 0248029.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Good access, with a private residence nearby, and no critical infrastructure is at risk. The timber type is mixed deciduous and coniferous and is considered less volatile, and portions of the PTU have already been harvested. The PTU hangs off of Hall Creek FSR and ties to recent cut locks to the south and private land to the north and east. Areas with higher percentage of conifers should be considered for a commercial thinning treatment and areas with more than 20% deciduous components, is better suited for manual treatment
HALL 2	Moderate	9.9	Provincial Crown land. Accessible through Nordic Ski Trails. Abuts Nelson Salmo Great Northern Trail (Rail Trail) Regional Park - to the east.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Low to moderate priority due to high crown base height of mature Cw and Hw and its location on a 45% slope. There has been a recent harvest directly north of the PTU. It is recommended to consult with the Nordic ski club before developing a prescription.
HALL 3	Moderate	16.5	Provincial Crown land. Mountain bike trails within PTU.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The PTU buffers the Clearwater FSR and requires a manual thinning treatment due to limited machine operability. Forest is predominantly mature Cw and Hw with sparse understory. There is a large creek draw and mountain bike trails running through the PTU, and consultation with the local recreation club should be done prior to developing a prescription. Residences and private land are situated to the west of the PTU.
HALL 4	High	33.1	Provincial Crown land. Nordic ski club, homes and powerlines to the west.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. PTU is assessed to be a high risk and located above the Whitewater Road and is close proximity to residents, the Nordic ski club and the highway. The forest is densely stocked overstory and understory, predominantly Cw and Hw. West of the PTU has been recently harvested. Overstory thinning maybe be limited near the powerlines that run below the PTU. Understory manual thinning up to 17.5 is recommended.

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
HALL 5	Moderate	13.7	Provincial Crown land.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. PTU is on an east facing aspect with the bottom boundary tied along a powerline. Forest structure is C4 due to the immature regen growing in an old, harvested block. Good access into PTU from Callbeck Rd, and residences are adjacent to PTU. Commercial thinning is recommended since the slope can support machinery.
HALL 6	Moderate	35.9	Provincial Crown land. Northern third overlaps Clearwater Cross Country Ski Trails – Recreation Site/Polygon (RSTBC)	New PTU in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The PTU buffers the Clearwater FSR and is located east of Hall Siding. There are commercial harvest opportunities to remove co-dominant and Cw and Hw while retaining Fd and Lw. Debris should be disposed of through pile burning. The overstory is moderately stocked, with a dense understory present in patches where crown closure is low.
NEL 2	High	41.3	Provincial Crown land. Adjacent to private residents	2017 PTU. Boundaries adjusted in 2024 Treat to reduce wildfire threat within the WUI adjacent to private property. The site has a high wildfire risk and is composed of an intermixed stand of mature hemlock and larch. The fuel strata gap is beginning to close with subdominant species including grand fir and hemlock. Surface fuels consist of herb and shrub layer with scattered fine fuel accumulations. Hand treatment is recommended, focusing on the removal of all conifers with a DBH less than 17.5 centimeters. Debris should then be piled and burned. The treatment unit is adjacent to a community with multiple homes, but no critical infrastructure has been identified nearby.
NEL 3	Low	29.4	Provincial Crown land. Majority overlaps Woodlot W0402 C. Adjacent to private residents	2017 PTU. Boundaries adjusted in 2024 Treat to reduce wildfire threat within the WUI adjacent to private property. The stand consists of 25% deciduous trees and 75% Douglas fir, with good spacing between the trees and minimal understory ladder fuel continuity. The wildfire risk is low, so treatment is not a priority. If treatment does occur, manual thinning is recommended to remove all conifers under 17.5 cm DBH, limbing remaining mature conifers up to 3 meters, and pile burning debris.

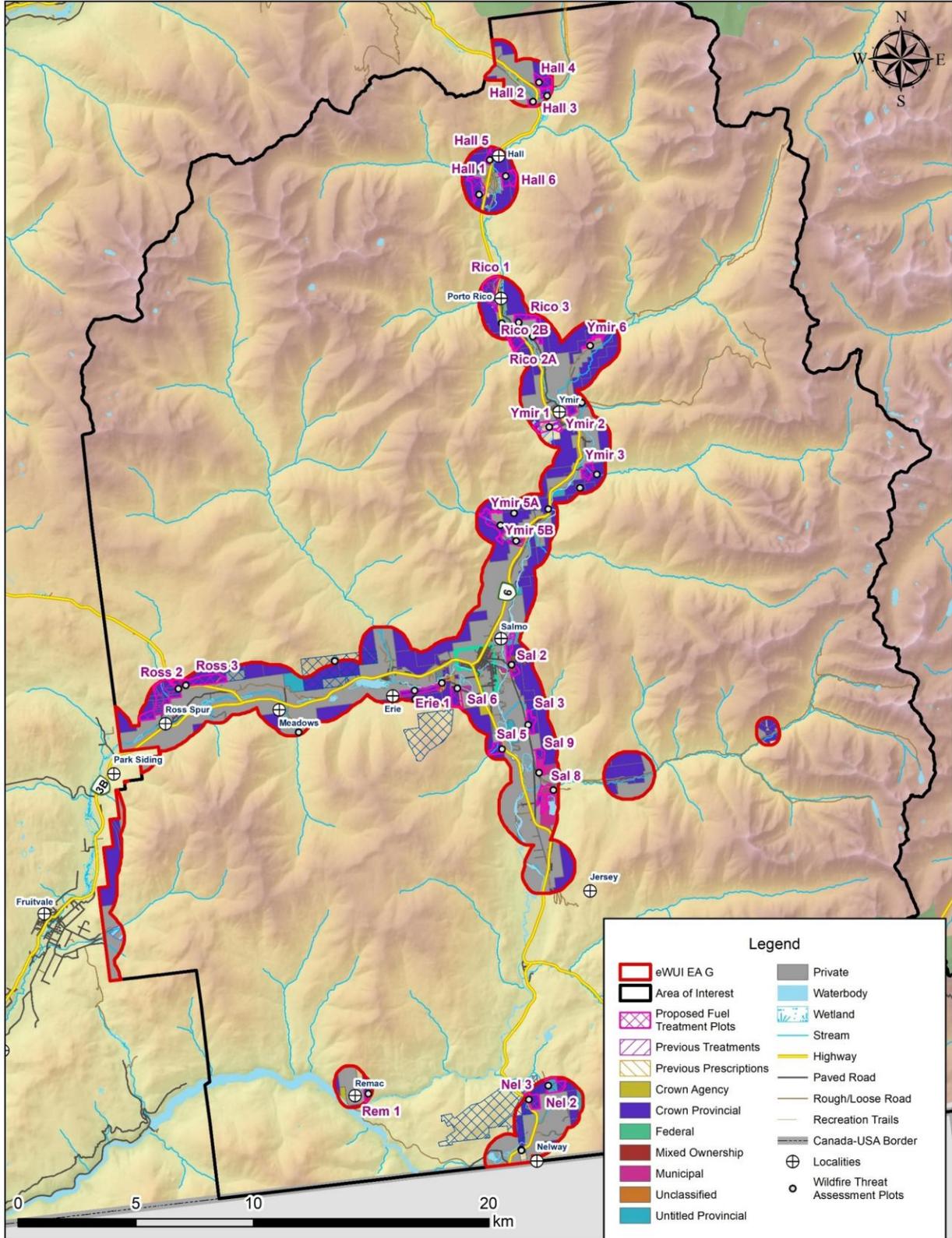
PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
REM 1	Low	7.7	Provincial Crown land.	2017 PTU. Boundary adjusted in 2024 update to be included in new WUI 1 km buffer Treat to reduce wildfire threat within the WUI adjacent to private property. The site has a low wildfire threat and is predominantly composed of mature Douglas fir. Due to the C7 fuel type, with minimal understory and good crown separation, treatment is not high priority. The treatment regime recommended to manual thin all conifers less than 17.5 cm dbh and pile burn surface debris. Mature trees should be limbed to a height of up to 3 meters.
RICO 1	High	63.6	Entirely on Crown Provincial land within RDCK Electoral Area G, approximately 200m from homes. Shooting range (NRGC) and rec trails within PTU.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The PTU is located off Porto Rico Road and surrounds the shooting range. There is an opportunity for commercial thinning in areas with enough volume and preferred species exist throughout the unit. Manual thinning in low-volume areas would also be beneficial. The PTU has a dense understory of Cw and Bg, with continuous patches of ladder fuels. Residences and private land are located to the south
RICO 2A	Moderate	44.7	Provincial Crown land, approximately 200m from homes. Slight overlap with Stewart Creek Rest Area.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The PTU is located off Stewart FSR, with opportunities for commercial thinning in areas where benches allow for machine operations. Patch cuts are recommended along operable ground through stands of Cw and Hw while retaining existing Fd. Manual thinning in retention areas may also be beneficial. The understory is dense with western Cw and Bg, with continuous patches of ladder fuels. Residences and private land are situated to the north and east.
RICO 2B	Moderate	4.2	Provincial Crown land, approximately 200m from homes.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The PTU is located off Stewart FSR, with opportunities for commercial thinning in areas where benches allow for machine operations. Patch cuts are recommended along operable ground through stands of Cw and Hw while retaining existing Fd. Manual thinning in retention areas may also be beneficial. The understory is dense with western Cw and Bg, with continuous patches of ladder fuels. Residences and private land are situated to the north and east.
RICO 3	Moderate	44.9	Provincial Crown land, approximately 100m from homes.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The PTU is located next to residences along Porto Rico-Ymir Road. Treatment should involve manual thinning, connecting to the private land boundaries and the maintained road. The area has a dense

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
				understory of Cw and Bg, with continuous patches of ladder fuels. There is an opportunity to extend the PTU uphill to the east. Residences and private land are located to the east and south of the PTU.
ROSS 2	Low	117.6	Provincial Crown land, adjacent to residents and private property	2017 PTU. Boundaries adjusted in 2024 Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of mature mixed-wood stand with approximately 50% conifers, including Douglas fir, ponderosa pine, and cedar, with paper birch and trembling aspen. The understory is immature conifers and deciduous species scattered throughout the stand. Access to the treatment unit (TU) is limited, with the only viable entry point located on the west side. As a result, the treatment regime lends itself to a commercial thin with recommend pruning of retained trees, and pile and burning ladder and surface fuels.
ROSS 3	Moderate	72.9	Provincial Crown land, adjacent to residents and private property	2017 PTU. Boundaries adjusted in 2024 Treat to reduce wildfire threat within the WUI adjacent to private property. The site has a moderate wildfire risk and consists of a mature deciduous stand dominated by Douglas fir, with some intermixed aspen. Ocean spray and alder are present throughout the stand. Access to the primary treatment unit is available from the east side. Treatment recommendations include selective harvesting, manual limbing, and pile burning. The eastern portion of the treatment unit has a low wildfire risk and is not a priority for treatment. This site also contains a tree plantation composed primarily of Douglas fir and larch, approximately 10 to 15 years old. There is no remaining mature timber in this area.
SAL 2	Moderate	42.8	Provincial Crown land. Community hiking trails in proximity of PTU. Within 100m from homes.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The area is composed of mature Douglas fir and cedar, interspersed with aspen and birch. Overstory stems are widely spaced, with low amounts of coarse woody debris. 27The Douglas fir in decay class 3 shows mid-stem failure and has high wildlife value. The stand is generally open, although some sections contain denser Douglas fir stands with low to moderate canopy base height. The terrain is rocky and located near a hiking trail, which provides good access and extends to the upper portion of the treatment unit. Consult with the community before developing a prescription.
SAL 3	Low	25.8	Provincial Crown land.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The area is composed of mature Douglas fir and cedar, interspersed with aspen and birch. Overstory stems are widely spaced, with low amounts of coarse woody debris. 27The Douglas fir in decay class 3 shows mid-stem failure and has high wildlife value. The stand is generally open, although some sections contain denser

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
				Douglas fir stands with low to moderate canopy base height. The terrain is rocky. Consult with the community before developing a prescription.
SAL 5	Moderate	24.2	Provincial Crown land. Within 100m of homes and highway	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The area consists of a mixed deciduous stand with a high proportion of larch and birch. The stand structure is classified as M1/2, with a significant amount of coarse woody debris elevated off the ground. Some sections contain large regeneration patches within the treatment unit. There are numerous dead spruce and fir stems, along with a high volume of dead, partially downed material. The site is located off the highway, with no suitable alternate road access to the TU. As a result, the treatment regime lends itself towards a non-commercial thin, pruning retained trees, and pile and burning ladder and surface fuels.
SAL 6	High	32.5	Provincial Crown land. Biking and hiking trails within PTU. PTU adjacent to Salmo ski hill. Western edge overlaps Controlled Recreation Area – Mountain Resorts Branch).	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The area consists of a mixed deciduous stand with a high proportion of larch and birch and continuous. The stand structure is classified as C5, with a significant amount of coarse woody debris elevated off the ground. Understory is juvenile cedars creating patchy ladder fuels. Some sections contain large regen patches within the treatment unit. Salmo ski hill is adjacent and will require consultation before prescription development.
SAL 8	Moderate	46.9	Majority overlaps municipal land – RDCK. Community waste transfer station adjacent to PTU.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The stand is a mixed fir-pine forest with a moderate to high density of codominant trees. Coarse woody debris on the ground is minimal. The stand's structure is variable, with patches of dense thickets containing Bg and Cw ladder fuels, interspersed with open areas. The site is easily accessible by road and machinery, making it suitable for commercial thinning. Recommended treatments include pruning retained trees and piling and burning ladder and surface fuels.
SAL 9	Low	32.3	South end overlaps municipal land – RDCK. Community waste transfer station southeast of the PTU. Residences adjacent to the west.	Existing 2017 PTU. Boundaries adjusted to stay within 1km WUI buffer. Treat to reduce wildfire threat within the WUI adjacent to private property. The stand is an open mixed wood forest with rocky terrain to the northeast and a steep slope exceeding 60% to the east. The site has minimal surface fuels, which are mostly composed of herbs and shrubs. The recommended treatment includes non-commercial thinning, pruning of retained trees, and piling and burning of ladder and surface fuels.

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
YMIR 1	High	31.5	Entirely on Crown Provincial land. PTU is situated within Quartz community watershed uphill from water treatment facility of Ymir. Abuts treated area to the east	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. This area is considered a high priority due to its proximity to the Ymir water treatment facility. It is recommended to consult with water treatment operators before developing a fuel management prescription. The forest consists of mature Cw and Fd, with patches of dense understory. Past treatments have been completed to the east of the PTU, adjacent to the water treatment facility. A manual thinning is recommended to connect existing access features to improve accessibility.
YMIR 2	High	14.7	Entirely on Crown Provincial land. Clover Bear Dink Golf Course situated within PTU.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of patchy and mature Cw with areas of Bg intermixed. Light surface fuels consisting of fines and leaves. Consult with community of Ymir prior to prescription development since the PTU is adjacent to a disk golf course. As a result, the treatment regime lends itself towards a non-commercial thin, pruning retained trees, and pile and burning ladder and surface fuels. Residence and private land to the east of PTU.
YMIR 3	Moderate to high	25.2	Entirely on Crown Provincial land within RDCK Electoral Area G, approximately 150m from homes.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. High priority WTA, very close to extreme threat score which elevates the priority. However, no critical infrastructure is in close proximity PTU. Forest composition is high density and overstocked understory of Bg and Cw creating continuous ladder fuels. Crown base height is low between understory and mature trees consisting of Fd and Cw. Minimal coarse woody debris. The PTU is 150m from residence and there is good access from the adjacent FSR.
YMIR 5A	Moderate	45.8	Entirely on Crown Provincial land. PTU adjacent to Porcupine Wood Products	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The area has moderate to high levels of coarse woody debris and elevated dead fuels, with rotted Ep stems contributing to ground fuels. The understory is shrubby, dominated by Oregon grape and conifer saplings. Ladder fuels consist of a mix of mostly coniferous and some deciduous vegetation, with variable density. The stand is a mix of wide spacing mature Fd and Bg in some areas and dense thickets in others. Adjacent to the road, there is a thick C-3 stand of dense immature trees that transitions to a more open structure approximately 50-100 meters in. Consult with Porcupine Wood Products before developing a management prescription.
YMIR 5B	Moderate	13.6	Entirely on Crown Provincial land. PTU adjacent to Porcupine Wood Products. Majority overlap UREP 0106342.	Existing 2017 PTU. Boundaries adjusted in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The area has moderate to high levels of coarse woody debris and elevated dead fuels, with rotted Ep stems contributing to ground fuels. The understory is shrubby, dominated by Oregon grape and conifer saplings.

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
				<p>Ladder fuels consist of a mix of mostly coniferous and some deciduous vegetation, with variable density. The stand is a mix of wide spacing mature Fd and Bg in some areas and dense thickets in others. Adjacent to the road, there is a thick C-3 stand of dense immature trees that transitions to a more open structure approximately 50-100 meters in. Consult with Porcupine Wood Products before developing a management prescription.</p>
YMIR 6	Moderate	10.7	Entirely on Crown Provincial land, approximately 500m from homes.	<p>New PTU in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of a heterogenous stand of C7 intermixed with C5 leading areas. Dead standing Fd through PTU due to bark beetle. High potential for commercial thin targeting Cw and removing dead standing and blow down. Areas of the PTU has steep slopes therefore, manual thinning is recommended to prune retained trees, and pile and burn ladder and surface fuels. The community of Ymir is located west to PTU and extending the boundaries to the values should be considered if slope permits.</p>



Map 8: Overview map of prescribed, completed and proposed fuel treatment units within the WUI.

SECTION 6: FIRESMART ROADMAP AND CWRP ACTION PLAN

6.1 FIRESMART ROADMAP

The FireSmart Roadmap (see Figure 14 below) is a concept that visually demonstrates how no two communities will follow the same path towards increased community wildfire resiliency, but that actions progress along four sequential phases. Some activities, including education, may appear in multiple phases but should reflect progression in terms of the community’s understanding and adoption of FireSmart principles.⁴³

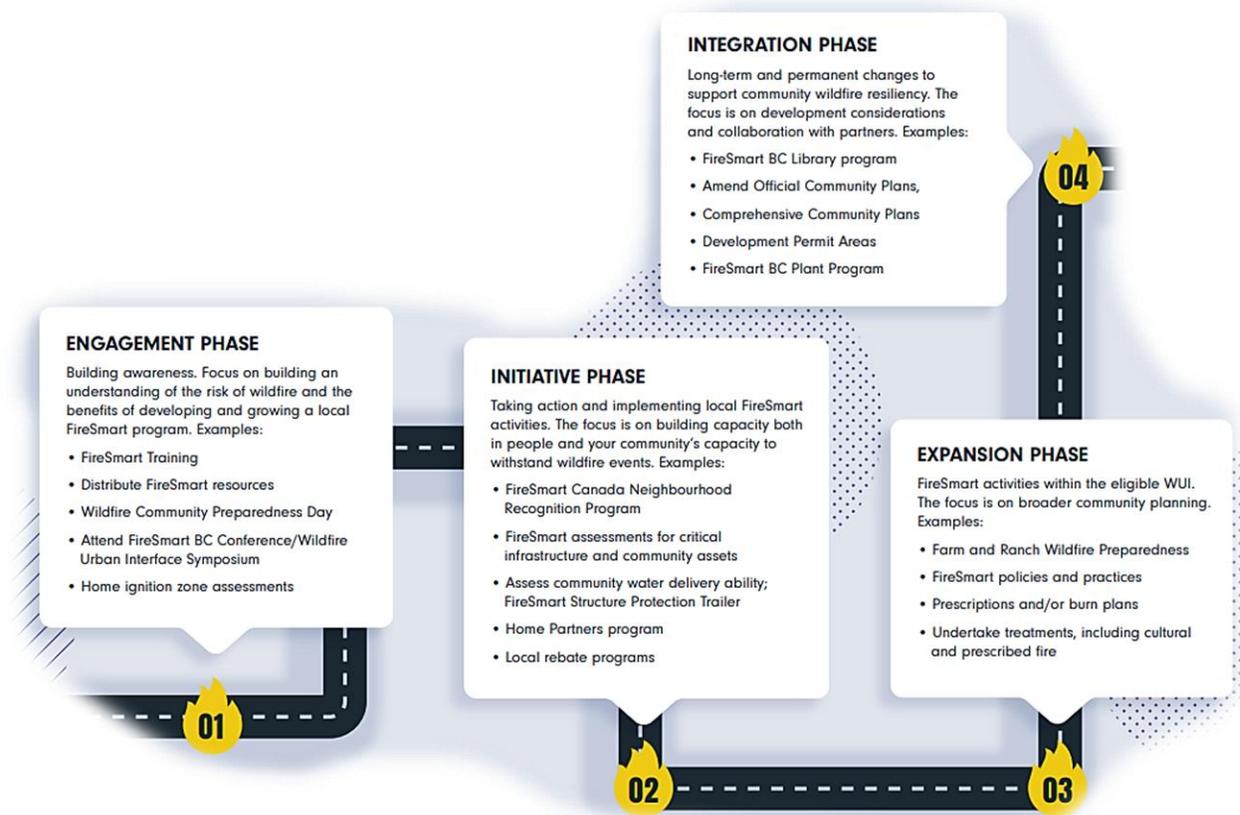


Figure 14. Graphic representation of the FireSmart Roadmap concept.⁴⁴

⁴³ Community Resiliency Investment. 2023. *FireSmart Community Funding and Supports Supplemental Instruction Guide*. Retrieved from: <https://www.ubcm.ca/funding-programs/local-government-program-services/community-resiliency-investment/firesmart-0>

⁴⁴ Copied from FireSmart BC – The FireSmart Roadmap. <https://firesmartbc.ca/resource/the-firesmart-roadmap/>

Prior to the first phase, FireSmart BC recommends that three foundational elements are in place:

- A FireSmart Position
- A Community Wildfire Resiliency Plan
- A Community FireSmart Resiliency Committee (CFRC), or participation in one

The RDCK both for Area G and Salmo, has all three elements in place and is engaging in late-stage activities on the Roadmap, such as Development Permit Areas. Table 1 in the Executive Summary details the Action Plan for the RDCK and the Village of Salmo. Each Action Item is a prioritized recommendation supported with a rationale, suggested lead agency, expected timeframe, resources required (funding, staff capacity), and metric for success.

6.2 TRACKING, REPORTING, AND UPDATES

As the RDCK and the Village of Salmo work towards implementation of this plan, consider scheduling an annual review of progress made towards each action item/recommendation. Tracking and reporting will create accountability and also help with future funding applications. Consider reporting accomplishments and successes of the FireSmart program (for example, number of members trained, number of assessments completed) in a brief annual report that can be shared with the public, and serve to further FireSmart engagement.

The RDCK should prepare for a five-year comprehensive review/update of the entire plan. A current CWRP (typically 5 years or less) is presently a requirement of the FCFS program. The update should review the entire plan and consider how risk has changed based on any recent wildfires, vegetation management works completed, significant changes to the built environment due to growth and development, economic changes, or other factors that would influence the overall success of the plan. This would also include a detailed analysis of all completed fuel management treatments within the planning area with an updated status and/or a maintenance plan.

APPENDIX A: REVIEW OF 2017 CWPP RECOMMENDATIONS

Item	Priority	2019 CWPP Recommendation	2024 CWRP Follow-Up Discussion
Communication and Education			
Objective: To improve public understanding of fire risk and personal responsibility by increasing resident awareness of the wildfire threat in their community and to establish a sense of homeowner responsibility.			
1	High	Establish a school education program to engage youth in wildfire management. Consult ABCFP, BCWS (the zone) and RDCK Fire Service to facilitate and recruit volunteer teachers and experts to help with curriculum development to be delivered in elementary and/or secondary schools. Educational programming can be done in conjunction with any currently running fire prevention education programs.	This has not been done
2	High	Make summaries of this report and associated maps publicly available through webpage, social media, and public FireSmart meetings. Add fire threat spatial data to the interactive web-mapping tool to allow residents to find their property and the associated threat of wildfire.	The CWPP was posted on the RDCK website. Fire threat spatial data is not currently available on the RDCK public webmap.
3	Moderate	Participate in the National Wildfire Community Preparedness Day, typically in May each year.	The RDCK Participates in this
4	High	Expand door-to-door FireSmart assessment and/or Home Partner Program within the EA-G and Salmo interface to educate residents and to quantify the level of risk in the interface.	This has been expanded successfully
Objective: To enhance the awareness of elected officials and stakeholders regarding the resources required to reduce fire risk.			
5	High	Develop regional development permit standards and align local government bylaws.	As per the response in the questionnaire

Item	Priority	2019 CWPP Recommendation	2024 CWRP <i>Follow-Up Discussion</i>
Communication and Education			
6	High	Provide a group voice to the Building and Safety Standards Branch and other provincial entities.	There has been some limited work done on this; however this needs provincial leadership
7	High	Develop a coordinated approach to fuel management and hazard reduction within and adjacent to EA-G and Salmo by coordinating with stakeholders including conservation organizations, communities, forest licensees, Ministry of Transportation and Infrastructure and utility companies, to aid in the establishment of FireSmart activities and large, landscape-level fuel breaks or compliment current or proposed fuel treatment areas.	Some collaboration has occurred
Structure Protection and Planning			
Objective: Enhance protection of critical infrastructure from wildfire.			
8	High	Complete a fire flow / water vulnerability assessment for each water system and identify and map all alternative water sources (reservoirs, streams, lakes, etc.). Identify which areas may have insufficient or unreliable water supplies and provide recommendations to reduce vulnerability in EA-G and Salmo. Explore collaboration with other agencies including Columbia Basin Trust, Ministry of Environment, Ministry of Transportation and Infrastructure and Interior Health Authority.	This has not occurred
9	High	Complete a vulnerability assessment of all critical infrastructure (not only RDCK critical infrastructure) including water infrastructure in interface areas with FireSmart recommendations.	This has not occurred
10	High	Develop alternative, back-up water sources for fire protection, and the establishment of standpipes as required.	This has not occurred
11	High	Complete a detailed review of back-up power source options for all critical infrastructure and upgrade as required.	This has not occurred

Item	Priority	2019 CWPP Recommendation	2024 CWRP <i>Follow-Up Discussion</i>
Communication and Education			
12	High	Complete more detailed hazard assessments and developing, in collaboration with other available government funding, response plans for stabilization and rehabilitation of burn areas in watersheds that are vulnerable to post-wildfire debris flows and floods.	The completion of hazard assessments and rehab of burns areas is provincial responsibility. The RDCK does conduct further hazard assessments where there is a public safety risk
13	High	Establish a Joint Responsibility Area around the Village of Salmo in which Salmo and the RDCK will collaborate for wildfire response and initiatives.	The RDCK and Salmo work collaboratively in the delivery of FireSmart. Salmo provides fire protection under contract in the surrounding Area G, there is a mutual aid agreement in place for firefighting purposes between Salmo and Ymir Fire Departments
Objective: Encourage private homeowners to voluntarily adopt FireSmart principles on their properties.			
14	High	Support homeowners with professionals to provide the Home Partners Program or WUI Site and Structure Hazard Assessments for interface homes and provide information to homeowners on specific steps that they can take to reduce fire hazards on their property. Homeowners should not be charged for these assessments.	This program is being delivered
Local Government Policy			
Objective: To reduce wildfire hazard on private land and increase FireSmart compliance.			
15	High	Complete OCP review and implement and / or strengthen zoning to expand reach of the existing.	Not as it pertains wildfire / Salmo review questionnaire

Item	Priority	2019 CWPP Recommendation	2024 CWRP <i>Follow-Up Discussion</i>
Communication and Education			
16	High	Develop Wildfire Hazard Development Permit (DP) Areas for major retrofits / renovations or new builds (building permits), collecting bonds to be returned upon evidence of completing development and landscaping according to wildfire hazard assessment. Review District of North Vancouver and Kelowna DP processes, with particular attention to implementation, enforcement, affordability and associated liabilities. Explore proactive incentives, such as tax reductions and reduced building permit fees.	As per the questionnaire. The Village of Salmo has a Wildfire DPA.
17	High	Obtain legal advice regarding the Building Act, specifically regarding the temporarily unrestricted matters and local government authority to set exterior building materials requirements. Use local government authority to mandate FireSmart construction materials beyond BC Building Code in wildfire hazard development permit area, as allowed.	
18	High	Develop a landscaping standard to be applied in interface / DP areas. The standard should list flammable non-compliant vegetation, nonflammable drought and pest resistant alternatives, and tips on landscape design to reduce maintenance, watering requirements, and reduce wildfire hazard. Include meeting landscaping standard as a requirement of Development Permit. Review District of North Vancouver and Kelowna DP processes, with particular attention to implementation, enforcement, affordability and associated liabilities. Explore proactive incentives, such as tax reductions and reduced building permit fees.	As per the questionnaire
19	High	Proactively enforce wildfire covenants requiring owners to maintain their properties hazard free on all properties in Development Permit areas. Enforcement will serve to minimize fuel risks on problematic private properties that have allowed hazardous accumulation of fuels and provide improved protection to adjacent lands.	No
20	High	Develop a landscaping standard to be applied in interface / DP areas to ensure that developers leave building setbacks on private land so that there is a minimum of 10 m distance between buildings and forest interface.	No

Item	Priority	2019 CWPP Recommendation	2024 CWRP <i>Follow-Up Discussion</i>
Communication and Education			
21	High	Consider developing an outdoor burning bylaw specifying requirements for and limitations to outdoor burning and, in conjunction with the Fire Chief, implement the bylaw at times of high fire danger when provincial bans are not in place. The bylaw should consider effective and efficient enforcement measures and powers.	This has not been applied in the rural electoral area. In consultation with BC Wildfire it has not been deemed feasible of effective to do this.
22	Moderate	Work with the Building and Safety Standards Branch to provide input into the Building Code revisions that would apply within the interface to prevent the spread of wildfire.	No
Emergency Response and Planning			
Objective: To improve structural and wildfire equipment and training available to RDCK Fire and Rescue.			
23	High	Conduct annual mutual aid training with MFLNRORD and BCWS including completion of a mock wildfire simulation in coordination with BCWS and safety training specific to wildland fire and risks inherent with natural areas. As part of the training, conduct annual reviews to ensure PPE and wildland equipment resources are complete, in working order, and the crews are well versed in their set-up and use. Wildfire training should follow Office of the Fire Commissioner standards.	This occurs annually
24	High	Ensure RDCK Wildfire Mitigation Coordinator act as liaison between the RDCK Collaborative Planning Group and the Emergency Preparedness Committee for EA-G and Salmo. Coordination and information sharing are crucial to the development of a community well prepared for wildfire.	There is collaboration on this within the emergency program
25	Moderate	Review and clarify SPU request procedures with RDCK fire Chiefs and ensure robust SPP115 training for fire fighters.	This is in place
26	Moderate	Develop Regional Service to fund additional SPUs and maintain existing SPUs.	This is in place
27	Moderate	Explore opportunities to collaborate with BCWS and within RDCK fire service to coordinate discount volumes of hose for interface fires, reducing costs and logistics to local fire departments	This has not been explored

Item	Priority	2019 CWPP Recommendation	2024 CWRP Follow-Up Discussion
Communication and Education			
28	High	Explore opportunities to ensure a duty officer is in place in each Fire Protection Area to provide coverage for periods of high or extreme hazard.	There is a 24/7 regional duty officer for the RDCK.
29	Moderate	Conduct fire preplan assessment for key interface areas in EA-G and Salmo. Other jurisdictions have completed assessments that prioritize fire department-specific variables, such as distance to hydrants, response time from nearest fire station, etc. to produce local risk ratings.	Some assessments have been completed
Emergency Response Evacuation and Access			
Objective: To improve access and egress to neighbourhoods at risk and natural areas within RDCK.			
30	High	Develop a Total Access Plan to create, map and inventory trail and road network in natural areas for suppression planning, identification of areas with insufficient access and to aid in strategic planning. Fire threat mapping from this CWPP should be included. The plan should be updated every five years, or more regularly, as needed to incorporate additions or changes.	This has not been done
31	High	Require that all new interface developments have access for evacuation and sufficient capacity for emergency vehicles.	As per the questionnaire
32	Moderate	Facilitate completion of emergency planning zones for interface neighbourhoods with limited access	This has not been done
Fuel Management			
Objective: Reduce wildfire threat on public lands through fuel management.			
33	High	Proceed with detailed assessment, prescription development and treatment of hazardous fuel units identified in this CWPP. Collaboration with licensees may facilitate larger projects.	Some has been completed

Item	Priority	2019 CWPP Recommendation	2024 CWRP <i>Follow-Up Discussion</i>
Communication and Education			
34	High	Prioritize Areas of Interest across Electoral Areas with updated CWPPs to ensure effective and objective treatment	Some prioritization has been done
Objective: Maintain treated areas under an acceptable level of wildfire fire threat (moderate).			
35	Moderate	As treatments are implemented, complete monitoring within 10 years of treatment (subject to site conditions) and maintenance every 15-20 years (subject to prescription and site conditions) on previously treated areas. Treated areas should be assessed by a Registered Professional Forester, specific to actions** - required to maintain treated areas in a moderate or lower hazard.	There has been no assessment for re treatment

APPENDIX B: LOCAL WILDFIRE RISK PROCESS

Wildfire Risk Assessment plot worksheets are provided in Appendix C (separate PDF package) and the field data collection and spatial analysis methodology is detailed in Appendix B-2 and B-3.

APPENDIX B-1: FUEL TYPING METHODOLOGY AND LIMITATIONS

The Canadian Forest Fire Behaviour Prediction (FBP) System outlines five major fuel groups, and sixteen fuel types based on characteristic fire behaviour under defined conditions.⁴⁵ Fuel typing is recognized as a blend of art and science. Although a subjective process, the most appropriate fuel type was assigned based on research, experience, and practical knowledge; this system has been used within BC, with continual improvement and refinement, for 20 years.⁴⁶ It should be noted that there are significant limitations with the fuel typing system which should be recognized. Major limitations include: a fuel typing system designed to describe fuels which sometimes do not occur within the WUI, fuel types which cannot accurately capture the natural variability within a polygon, and limitations in the data used to create initial fuel types.⁴⁶ There are several implications of these limitations, which include: fuel typing further from the developed areas of the study has a lower confidence, generally; and, fuel typing should be used as a starting point for more detailed assessments and as an indicator of overall wildfire risk, not as an operational, or site-level, assessment. Forested ecosystems are dynamic and change over time: fuels accumulate, stands fill in with regeneration, and forest health outbreaks occur. Regular monitoring of fuel types and wildfire risk assessment should occur every 5 – 10 years to determine the need for threat assessment updates and the timing for their implementation.

Fuel types were not updated for this CWRP. Fuel types from the 2017 CWPP were used. Where there were new areas of WUI that did not exist in 2017, the PSTA fuel type data was used.

⁴⁵ Forestry Canada Fire Danger Group. 1992. Development and Structure of the Canadian Forest Fire Behavior Prediction System: Information Report ST-X-3.

⁴⁶ Perrakis, D.B., Eade G., and Hicks, D. 2018. Natural Resources Canada. Canadian Forest Service. *British Columbia Wildfire Fuel Typing and Fuel Type Layer Description* 2018 Version.

APPENDIX B-2: WILDFIRE THREAT ASSESSMENT PLOTS

Table 23 displays a summary of all Wildfire Threat Assessment (WTA) plots completed during CWRP field work. WTAs were completed only to support the fuel treatment unit updates. The most recent 2020 WTA threat plot worksheets and methodology were used.⁴⁷ The plot forms and photos will be submitted as a separate document. The following ratings are applied to applicable point ranges:

- Wildfire Behaviour Threat Score (Coast and Mountains Ecoprovince)
 - 0 – 41 Low
 - 42 – 57 Moderate
 - 58 – 69 High
 - 70 – 100 Extreme

Table 23. Summary of WUI Threat Assessment Worksheets (2020).

WTA Plot	Geographic Location	Wildfire Threat Rating
ERIE1	Salmo	Moderate
ERIE2	Salmo	Moderate
HALL1	Hall Creek FSR	Moderate
HALL2	Hall Siding	Moderate
HALL3	Clearwater FSR	Moderate
HALL4	Whitewater Road	High
HALL5	Hall Creek FSR	Moderate
HALL6	Hall Siding	Moderate
NEL2	Nelway	High
NEL3	Nelway	Low
REM1	Remac	Low
RICO1	Porto Rico Road	High
RICO2	Stewart FSR	Moderate
RICO3	Porto Rico Road	Moderate
RICO4	Porto Rico Road	Moderate
ROSS2	Ross Spur	Low
ROSS3	Ross Spur	Moderate
ROSS4	Ross Spur	High

⁴⁷ MFLNRORD.2020 Wildfire Threat Assessment Guide and Worksheets

WTA Plot	Geographic Location	Wildfire Threat Rating
SAL2	Salmo	Moderate
SAL5	Salmo	Moderate
SAL6	Salmo	High
SAL8	Salmo Dump	Moderate
SAL9	Salmo Dump	Moderate
SSKL1	Salmo	Low
YMIR1	Quartz Creek (Ymir)	Moderate
YMIR2	Oscar FSR (Ymir)	High
YMIR3	Ymir	High
YMIR5	Ymir	Moderate
YMIR6	Boulder FSR (Ymir)	Moderate

APPENDIX B-3: FIRE RISK THREAT ASSESSMENT METHODOLOGY

The Wildfire Threat Assessment Methodology used in the development of the 2017 Electoral Area G CWPP was as follows:

As part of the CWRP process, spatial data submissions are required to meet the defined standards in the Program and Application Guide. Proponents completing a CWRP can obtain open-source BC Wildfire datasets, including Provincial Strategic Threat Analysis (PSTA) datasets from the British Columbia Data Catalogue. Wildfire spatial datasets obtained through the BC Open Data Catalogue used in the development of the CWRP include, but are not limited to:

- PSTA Spotting Impact
- PSTA Fire Density
- PSTA Fire Threat Rating
- PSTA Lighting Fire Density
- PSTA Human Fire Density
- Head Fire Intensity
- WUI Human Interface Buffer (1436m buffer from structure point data)
- Wildland Urban Interface Risk Class
- Current Fire Polygons
- Current Fire Locations
- Historical Fire Perimeters
- Historical Fire Incident Locations
- Historical Fire Burn Severity

- Fuel Type
- Eligible WUI (1 km buffer of structure density classes >6).

The required components for the spatial data submission are detailed in the Program and Application Guide Spatial Appendix – these include:

- AOI
- Proposed Treatment
- WUI (1 km buffer of structure density classes >6)

The provided PSTA data does not transfer directly into the geodatabase for submission, and several PSTA feature classes require extensive updating or correction. In addition, the Fire Threat determined in the PSTA is fundamentally different than the localized Fire Threat feature class that is included in the Local Fire Risk map required for project submission. The Fire Threat in the PSTA is based on provincial scale inputs - fire density; spotting impact; and head fire intensity, while the spatial submission Fire Threat is based on the components of the Wildland Urban Interface Threat Assessment Worksheet. For the scope

of this project, completion of updated WTA Threat Assessment plots on the entire AOI was not possible, and therefore the output of the analytical model used in 2017 was clipped to the 1-km WUI for this CWRP update. The model was built to assume Fire Threat based on spatially explicit variables that correspond to the WTA Threat Assessment worksheets.

Field Data Collection

The primary goals of field data collection are to confirm or correct the provincial fuel type, complete WUI Threat Assessment Plots, and assess other features of interest to the development of the CWRP. This is accomplished by traversing as much of the AOI and surrounding Eligible WUI as possible (within time, budget and access constraints). Threat Assessment plots are completed on the most recent form, and as per the Wildfire Threat Assessment Guide.

For clarity, the final threat ratings for the AOI were determined through the completion of the following methodological steps:

1. Update fuel-typing using orthophotography provided by the client and field verification.
2. Update structural data using critical infrastructure information provided by the client, field visits to confirm structure additions or deletions, BC Assessment, and orthophotography
3. Complete field work to ground-truth fuel typing and threat ratings (completed 8 WUI threat plots on a variety of fuel types, aspects, and slopes and an additional 250 field stops with qualitative notes, fuel type verification, and/or photographs)
4. Threat assessment analysis using field data collected and rating results of WUI threat plots – see next section.

Spatial Analysis

The field data is used to correct the fuel type polygon attributes provided in the PSTA. This corrected fuel type layer is then used as part of the spatial analysis process. The other components are developed using spatial data (BEC zone, fire history zone) or spatial analysis (aspect, slope). A scoring system was developed to categorize resultant polygons as having relatively low, moderate, high or extreme Fire Threat, or Low, Moderate, High or Extreme WUI Threat. Table 24 below summarizes the components and scores to determine the Fire Behaviour Threat.

Table 24: Components of Fire Threat Analysis

Attribute	Indicator	Score
Fuel Type	C-1	35
	C-2	
	C-3	
	C-4	
	M-3/4, >50% dead fir	20
	M-1/2, >50% conifer	
	C-7	10
	M-3/4, <50% dead fir	
	O-1a/b	
	S-1	

Attribute	Indicator	Score
	S-2	
	S-3	
	M-1/2, <50% conifer	
	C-5	5
	C-6	
	D-1/2	0
	W	0
	N	0
Weather - BEC Zone	AT, irrigated	1
	CWH, CDF, MH	3
	ICH, SBS, ESSF	7
	IDF, MS, SBPS, CWHsds1 & ds2, BWBS, SWB	10
	PP, BG	15
Historical Fire Occurrence Zone	G5, R1, R2, G6, V5, R9, V9, V3, R5, R8, V7	1
	G3, G8, R3, R4, V6, G1, G9, V8	5
	G7, C5, G4, C4, V1, C1, N6	8
	K1, K5, K3, C2, C3, N5, K6, N4, K7, N2	10
	N7, K4	15
Slope	<16	1
	16-29 (max N slopes)	5
	30-44	10
	45-54	12
	>55	15
Aspect (>15% slope)	North	0
	East	5
	<16% slope, all aspect	10
	West	12
	South	15

These attributes are summed to produce polygons with a final Fire Behavior Threat Score. To determine the WUI Risk score, only the distance to structures is used. Buffer distance classes are determined; <200m, 200m-500m and >500m) but only for polygons that had a 'high' or 'extreme' Fire Threat score from previous assessment. In order to determine WUI Risk; those aforementioned polygons within 200m are rated as 'extreme', within 500m are rated as 'high', within 2km are 'moderate', and distances over that are rated 'low'.

Limitations

There are obvious limitations in this method, most notably that not all components of the threat assessment worksheet are scalable to a GIS model, generalizing the Fire Behaviour Threat score. The WUI Risk Score is greatly simplified, as determining the position of structures on a slope, the type of development and the relative position are difficult in an automated GIS process. Structures are considered, but there is no consideration for structure type (also not included on threat assessment worksheet). This method uses the best available information to produce accurate and useable threat assessment across the study Area in a format which is required by the UBCM FCFS program.

APPENDIX B-4: PROXIMITY OF FUEL TO THE COMMUNITY

The correlation between structure loss and wildfire are described below.

Home and Critical Infrastructure Ignition Zones

Multiple studies have shown that the principal factors regarding home and structure loss to wildfire are the structure's characteristics and immediate surroundings. The area that determines the ignition potential of a structure to wildfire is referred to as (for residences) the Home Ignition Zone (HIZ) or (for critical infrastructure) the Critical Infrastructure Ignition Zone (CIIZ).^{48,49} Both the HIZ and CIIZ include the structure itself and three concentric, progressively wider Priority Zones out to 30 m from the structure. More details on priority zones can be found in the FireSmart Manual.⁵⁰

It has been found that during extreme wildfire events, most home destruction has been a result of low-intensity surface fire flame exposures, usually ignited by embers. Firebrands can be transported long distances ahead of the wildfire, across fire guards and fuel breaks, and accumulate within the HIZ in densities that can exceed 600 embers per square meter. Combustible materials found within the HIZ combine to provide fire pathways allowing spot surface fires ignited by embers to spread and carry flames or smoldering fire into contact with structures.

Because ignitability of the HIZ is the main factor driving structure loss, the intensity and rate of spread of wildland fires beyond the community has not been found to necessarily correspond to loss potential. For example, FireSmart homes with low ignitability may survive high-intensity fires, whereas highly ignitable homes may be destroyed during lower intensity surface fire events.⁴⁹ Increasing ignition resistance would reduce the number of homes simultaneously on fire; extreme wildfire conditions do not necessarily result

⁴⁸ Reinhardt, E., R. Keane, D. Calkin, J. Cohen. 2008. *Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States*. Forest Ecology and Management 256:1997 - 2006. Retrieved from: [Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States | Treesearch \(usda.gov\)](#)

⁴⁹ Cohen, J. *Preventing Disaster Home Ignitability in the Wildland-urban Interface*. Journal of Forestry. p 15 - 21. Retrieved from: [Preventing Disaster: Home Ignitability in the Wildland-Urban Interface | Journal of Forestry | Oxford Academic \(oup.com\)](#)

⁵⁰ Available for download here: [FireSmartBC HomeownersManual Printable.pdf](#)

in WUI fire disasters.⁵¹ It is for this reason that the key to reducing WUI fire structure loss is to reduce structure ignitability. Mitigation responsibility must be centered on structure owners. Risk communication, education on the range of available activities, and prioritization of activities should help homeowners to feel empowered to complete simple risk reduction activities on their property.

Table 25. Proximity to the Interface.⁵²

Proximity to the Interface	Descriptor*	Explanation
WUI 100 <i>HIZ/CIIZ and Community Zones</i>	(0-100 m)	This Zone is always located adjacent to the value at risk. Treatment would modify the wildfire behaviour near or adjacent to the value. Treatment effectiveness would be increased when the value is FireSmart.
WUI 500 <i>Community and Landscape Zones</i>	(100-500 m)	Treatment would affect wildfire behaviour approaching a value, as well as the wildfire’s ability to impact the value with short- to medium- range spotting; should also provide suppression opportunities near a value.
WUI 2000 <i>Landscape Zone</i>	(500-1000 m)	Treatment would be effective in limiting long - range spotting but short-range spotting may fall short of the value and cause a new ignition that could affect a value.
<i>Landscape Zone</i>	> 1000 m	This should form part of a landscape assessment and is generally not part of the zoning process. Treatment is relatively ineffective for threat mitigation to a value, unless used to form a part of a larger fuel break / treatment.

*Distances are based on spotting distances of high and moderate fuel type spotting potential and threshold to break crown fire potential (100m). These distances can be varied with appropriate rationale, to address areas with low or extreme fuel hazards.

⁵¹ Calkin, D., J. Cohen, M. Finney, M. Thompson. 2014. *How risk management can prevent future wildfire disasters in the wildland-urban interface*. Proc Natl Acad Sci U.S.A. Jan 14; 111(2): 746-751. Retrieved from: [How risk management can prevent future wildfire disasters in the wildland-urban interface \(nih.gov\)](http://www.nih.gov/pubs/pubmed/24471111)

⁵² Copied from Table 3: Slope Percentage and Fire Behavior Implications; “Determining Wildfire Threat and Risk at a Local Level”; Tools for Fuel Management website. <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prevention/fire-fuel-management/fuel-management>

APPENDIX C: WILDFIRE RISK ASSESSMENT – WORKSHEETS AND PHOTOS

Provided separately as a PDF package (Appendix C).

APPENDIX D: MAPS

The three submission maps below as required by the CRI FCFS program are provided separately as a PDF package (Appendix D).

- Map 1: Area of Interest (AOI) and Values at Risk (VAR)
- Map 2: Local Fire Risk
- Map 3: Proposed Fuel Treatment Units