Community Wildfire Resiliency Plan 2025

Regional District of Central Kootenay
Electoral Area J

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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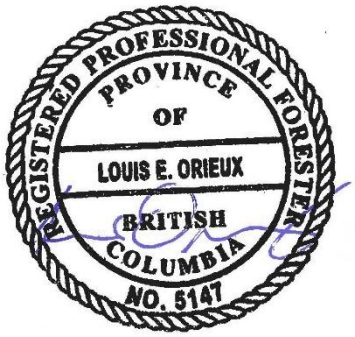	

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ACKNOWLEDGEMENTS

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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 J 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 J'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 rural Castlegar and the surrounding Lower Arrow Lake communities of Syringa, Deer Park, Brooklyn, Rentata, and Coykendahl. Outside of the Castlegar area (Ootischenia, Raspberry, Robson, and Fairview), most communities in the plan area are somewhat isolated. Communities on the south shore of Lower Arrow Lake are boat-access only, and a single dead-end road (Broadwater Road) accesses the north shore. Recommendations made within this plan are directed at the RDCK, although some recommendations involve collaboration or partnership with other local governments, agencies, or organizations.

The RDCK has a mature and successful regional FireSmart program. 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 J, there has been 108 FireSmart Assessments, 15 rebates awarded, and one Recognized FireSmart Neighbourhood.

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 Area J, 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 with regards to construction, lot preparation, and landscaping.

The RDCK 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 J. This CWRP recognizes the importance of continuing a strong emergency management program, including tabletop exercises (Action Item #) and the importance of continuing interagency cooperation at both regional and subregional levels.

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

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

Fire departments in the plan area are well prepared for interface wildfires and have recent experience working with BCWS on wildfires in the WUI.

Communities in Electoral Area J are all in a provincially defined Wildland Urban Interface (WUI) Risk Class polygon that has a Risk Class of 1 (Castlegar, Westley, Deer Park), 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 – portions of the plan area have a high fire behaviour threat due to a combination of topography, fire weather, and fuel type. Although only 22% of the assessable area is classified as a high or extreme fire behaviour threat, local BCWS representatives noted that grassy areas are a concern for high initial rates of fire spread, especially when coupled with topography and wind factors. Valley bottoms and south and west-facing slopes exhibit these fuel conditions, which are also conducive for prescribed burning. Action Item #30 addresses the potential to increase public acceptance of prescribed burning in the area with a targeted education campaign.

It is beyond the scope of the CWRP to analyze local threat on private land, which covers approximately 40% 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 Ootischenia (Tower Ridge Road), Deer Park, and Champion Lake Provincial Park, with additional areas planned for prescription along forest service roads west of Castlegar. However, there is more work to do (Action Item #26). *Although detailed field reconnaissance was not in the scope of this plan update,* 15 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 33 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 J. The RDCK 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 J - 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 J (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 20 schools (Robson, Castlegar) 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.	RDCK FireSmart / City of Castlegar/ School District 20	Annually	One FireSmart lesson delivered each year (minimum).	CRI FCFS
#5 Home Assessments	High	Continue to offer and promote the free FireSmart Home assessment and 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.	RDCK FireSmart	Annually	The number of home assessments completed and rebates awarded increases annually	CRI FCFS
#6 Park Signage	Low	Consider installing seasonal FireSmart signage at regional parks (Pass Creek, Waterloo-Eddy) – consider a QR code that links to the RDCK FireSmart website.	These regional parks are in Raspberry and Ootischenia and signage presents a good opportunity for public education. Some fuel management has been completed in Pass Creek Regional Park, which is also a campground (see Item #29)	RDCK FireSmart / Parks	5 years (signs installed)	Signage in parks is considered	CRI FCRS – staff time and sign costs
Administrative							
#7 Share CWRP Online	Moderate	Like other CWPPs, make this plan available on the RDCK website 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 FCRS – 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 FCRS – staff time

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#9 Update Website	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 webpage 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	1 year and annually	Website is reviewed annually	CRI FCRS – 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 fire halls.	RDCK FireSmart (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 (Planning/Development)	Ongoing	Number of assessments completed	CRI FCRS – staff time
#12 Review Wildfire DPA	Moderate	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 J.	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. Certain parts of Area J have small lots and dense development that could make a DPA practical (e.g. Ootischenia).	RDCK FireSmart (Planning/Development)	3 years	A Wildfire DPA in Electoral Area J is reconsidered prior to the next CWRP	CRI FCRS – staff time
#13 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 J maintains a current and acceptable CWRP.	CRI FCFS funding
#14 Update OCP	Moderate	Update the OCP for Area J to include wildfire as a natural hazard with associated mitigation policies, similar to other RDCK OCPs.	OCP policies to manage interface fire risk, including protecting accesses to water sources, encouraging FireSmart efforts, and evaluating opportunities to assist in interface forest fuel mitigation treatments can help provide the high-level directive for implementation of other CWRP actions.	RDCK Planning/Development (FireSmart)	5 years	The OCP for Area J is updated	CRI FCFS funding
Cross Training & Fire Department Resources - Section 5.4							
Training							
#15 Fire Department training	High	Continue to support fire departments to train all members in SPP-WFF1 (Wildland Firefighter – Level 1) 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. Local fire departments expressed a desire for additional training opportunities, including Engine Boss, further SPP-WFF1, and structural protection-related courses.	RDCK (Fire Departments)	Annually	All local firefighters are trained in SPP-WFF1 and most 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	Low	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. Currently both Robson and Ootischenia departments have WMS-trained members.	RDCK FireSmart/ Fire Departments	Annually	Maintain 1+ WMS and 1-2 LFRs specific to Area J	CRI FCFS funding

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#17 Cross Training	High	Continue to support RDCK fire departments in holding practical cross-training events, with BCWS when possible. Investigate whether it is feasible to support fire brigades (Renata, Deer Park) to achieve the same thing; this would be lead by BCWS (Cooperative Community Wildfire Response Program).	Practical training is essential for fire departments, and BCWS cross-training enhances the abilities of crews to work together on an interface fire. BCWS suggested that having isolated fire brigades in Area J cross-train would be beneficial. A rotating training event for RDCK fire departments is already organized by BCWS annually.	RDCK / Fire Departments and Fire Brigades / 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 are not mapped. 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 format (e.g. KMZ).	RDCK (Fire Departments)	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 fire departments in identifying and implementation possible mitigation solutions for water supply outside of hydranted area	Both fire departments expressed concerns with the availability of water to some non-hydranted parts of their response areas. Low lake levels can also pose an issue. The siting of water tanks and or standpipe installation may mitigate some issues.	RDCK Emergency Services (Fire Departments)	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 with the established Castlegar FireSmart and Resiliency Committee (CFRC) and regional Wildfire Planning Table to plan, implement, and coordinate FireSmart initiatives, including fuel management treatments.	Both regional and sub-regional FireSmart Committees are valuable. The current regional Planning Table and Castlegar CFRC are effective tools for interagency cooperation in the region.	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, continue to hold annual tabletop emergency exercises with emergency management partners. Suggest working through scenarios with potential evacuation difficulties – e.g. Robson.	Tabletop exercises provide an opportunity to identify weak spots in a plan and collaborate. The RDCK already has experience with wildfire events in Area J, but tabletop exercises are still valuable.	RDCK Emergency Management (RCMP; BCWS; Fire Departments)	2 years	Exercise involving an interface fire is completed every few years	CRI FCFS Emergency Planning. Possibly CEPF / Columbia Basin Trust
#22 Voyent Alert	High	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.	RDCK Emergency Management	2 years	Fire halls and water systems have back up power	Staff time and equipment cost
#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.	Intermix communities in the plan area e.g. Deer Park are good candidates for a Structure Protection Community Assessment due to isolation and lack of formal structural fire protection.	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

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#25 Promote Good Civic Addressing	Moderate	Continue to promote the installation of visible and reflective addresses throughout Electoral Area J. 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 (Fire Departments)	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	Moderate	Work with land manager(s) 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.	Many strategic areas of Crown land have already been implemented or are in planning. 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 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 develop interpretive signage to demonstrate pre- and post-fuel treatment forest stands conditions.	Some areas have been treated since the 2008 CWPP and the intent may not be known to all residents – e.g. Pass Creek Regional Park. Interpretive signage could include text explaining the purpose of the fuel management treatment, connection to the current 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.	Eligible for UBCM CRI funding.
#30 Prescribed Burning	Moderate	Consider a campaign to promote and educate residents on the benefits and tactics of prescribed and cultural burning, specifically targeting communities along the shore of Lower Arrow Lake.	BCWS suggested that prescribed burning is a useful strategy for fuel treatment and maintenance in the plan area – grassy areas and south-facing slopes - but that some residents are still resistant. Community support would be beneficial to achieve more treatment on private and public land.	RDCK FireSmart (BCWS)	2 years	Engagement (in-person presentation, print materials) targeting prescribed burning is distributed in the plan aera	Eligible for UBCM CRI funding.
Residential and Community FireSmart							
#31 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
#32 Free Yard Waste Disposal	Moderate	Maintain 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 Ootischenia landfill.	Having to pay tipping fees is a barrier for residents who wish to conduct FireSmart landscaping, especially during the fire season when burn bans are in place. The CFRC indicated that many residents rely on pile burning to dispose of debris.	RDCK FireSmart	Annual	Free yard waste disposal at landfill continues and other solutions are investigated	CRI FCFS funding is available for tipping fee coverage

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#33 Neighbourhood Recognition	High	Continue 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. Electoral Area J has no recognized neighbourhoods to date. 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 J 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
CFFDRS	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
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 J to the Community Wildfire Resiliency Plan (CWRP) template. This plan replaces the previous 2017 RDCK CWPP for Electoral Area J. 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 J.

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 J 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

[3] More information can be found at Modernized emergency management legislation - Province of British Columbia (gov.bc.ca)

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

coordinated response and recovery from emergencies in the RDCK, including decision-making tools 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 J Community Wildfire Protection Plan Update – 2017[5]

Beginning in 2017, B.A. Blackwell & Associates developed a Community Wildfire Protection Plan update for the Regional District of Central Kootenay Area J. 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 J that have been involved in community wildfire planning. *Strategic opportunities exist between these plans and should be considered.*

- *RDCK Electoral Area G CWRP 2024* – concurrently in development.[6]
- *RDCK Electoral Area K CWRP 2024* – concurrently in development.[6]
- *RDCK Electoral Area E CWRP 2023* – recently completed.[6]
- *RDCK Electoral Area F CWRP 2023* – recently completed.[6]
- *RDCK Electoral Area I CWRP 2023* – recently completed.[6]
- City of Nelson CWRP 2021 – recently completed.[7]
- *RDCK Electoral Area North/South H CWPP 2020* – completed,[6] due for new plans in 2025
- City of Castlegar CWPP 2020 - completed

2.3 LOCAL PLANS AND BYLAWS

The sections and policies of the Kootenay-Columbia Rivers Official Community Plan (OCP) Bylaw 1157, 1996[8] (consolidated to August 2023) are listed in Table 2 and are directly relevant to proactive wildfire resilience in the plan area. This OCP, which covers Electoral Areas J and I, was reviewed as part of this CWRP to address any gaps or limitations that inadequately address fire hazards or risk mitigation. A major gap is that FireSmart is not mentioned in any OCP policies and wildfire as a risk has a very limited scope

[5] https://rdck.ca/wp-content/uploads/2024/11/Area%20J%20CWPP%202019.pdf
[6] By B.A. Blackwell & Associates Ltd and Cathro Consulting Ltd.
[7] By B.A. Blackwell & Associates Ltd
[8] Kootenay-Columbia Rivers Official Community Plan Bylaw No. 1157, 1996

within the OCP. Updating the OCP with language on FireSmart and wildfire risk, as well as including management policies specific to single home/lot and subdivision development or renovations is recommended (see Section 5.3).

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

Section [Kootenay-Columbia Rivers Official Community Plan Bylaw No. 1157, 1996][9]	Relevant Policies
2.8 Servicing Objective	**2.8.3:** To provide for an adequate level of fire protection within the Plan Area. *This will include appropriate training, tools, and equipment for fire response area fire departments*
3.9 Community Service Policies	**3.9.1:** Community Services permitted on lots designated for Community Service on Schedule 'B' - Land Use Designations, shall include public recreation facilities, community halls, public utility structures and services, schools, universities/colleges, firehalls, greenspace, museums, hospitals and similar uses. *Imbedding policies to upgrade existing, or develop from new, Community Service structures and open/green spaces that are FireSmart will lead to reduced wildfire risk within communities as well as reduced wildfire risk to those assets designated as emergency shelters.*
	3.9.4: The Board of the Regional District will continue to maintain and enhance fire protection throughout the Plan Area. *This will include appropriate training, tools, and equipment for fire response area fire department. Wildfire protection can begin/continue by implementing recommendations within this Plan.*
	3.9.6: New and improved domestic water supply systems shall be designed and constructed to provide hydrants and sufficient flows for fire protection and the Regional District recommends to Improvement and Irrigation Districts, the City of Castlegar and the Regional District of Central Kootenay owned water systems that the same utility standards be used so that in case of emergencies, fire equipment can be interchanged and critical repairs made. *Access to reliable, local water sources is paramount for first responder and BCWS firefighting effectiveness.*

The local bylaws listed in Table 3 are directly relevant to proactive wildfire resilience in Electoral Area J. These bylaws were reviewed as part of the CWRP to address any gaps or limitations that inadequately address fire hazards or risk mitigation.

[9] https://www.rdck.ca/assets/Government/Bylaws/Land~Use-Planning/1157-I_J_OCP_Consolidated_2787.pdf

Table 3: Summary of local bylaws and their relationship to the CWRP.

Bylaws	Section	Description and *Relation to CWRP*
Electoral Areas F, I, J and K Kootenay Zoning Bylaw no. 1675, 2004	5401	Development associated with the Forest Service Fire Attack Base Operation may include office space, training facilities, service facilities for fire fighters and office staff, indoor and outdoor equipment storage areas, vehicle storage and parking areas but shall not include a heli-pad for use in conjunction with the Fire Attack Base Operation.
Building Bylaw No. 2200 (2010)	18.4	Fire stopping components must be in place before insulation and exterior sheathing are installed. *- Addresses need for fire protection in new construction.* *- To mandate materials and landscaping beyond the BC Building Code and established bylaws, Development Permit Areas can be implemented (see Section 5.3)*
Emergency Management Regulatory Use Bylaw No. 2210 (amended by Bylaw No. 2758 in 2021)	5.1	Outlines administrative structure and roles of Emergency Program *- Provides structure and guidelines in times of emergency.*
	Amended Bylaw No. 2758	Adds "mitigation" into the description of the Emergency Program and Emergency Management Plan *- RDCK to develop, coordinate and manage emergency mitigation, preparedness, response, and recovery. This would include from wildfires.*
Manufactured Home Parks Bylaw No. 1082 (1995)	8.8.3	Fires shall be made only in stoves, incinerators, or other structures designed for that purpose. *- Limits fire ignition and propagation risks in structures made largely from ignitable and combustible materials.*
	8.8.4	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 Igal) shall be provided on site in order to be accessed in case of emergency for fire protection purposes on properties serviced by Fire Protection. *- Increases assurance of useful water supply systems in the event of a fire to responding fire departments.*
Parks Regulation – Consolidated Bylaw No. 2173	22	No person shall start or maintain a fire in a park, except in facilities provided at a park for that purpose. *- Limits fire ignition and propagation risks.*
	23	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 *- Limits fire ignition and propagation risks.*

Bylaws	Section	Description and *Relation to CWRP*
	24	No person shall leave a fire in a park unattended. - *Limits fire ignition and propagation risks.*
	25	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. - *Limits fire ignition and propagation risks.*
	52	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. - *Limits fire ignition and propagation risks.*
Resource Recovery Facilities Regulatory Bylaw No. 2905	8 (15)	No person other than the Site Operator or Service Personnel or their representative shall start any fires at any Resource Recovery Facility. - *Limits fire ignition and propagation risks.*
Volunteer Fire Service Regulation Bylaw No. 2769, 2023	4.1	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 Area J's 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. - *Outlines jurisdictional limits of fire departments, which may impact rural communities with no immediate fire service (see Section 5.6).*
	4.2	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. - *Outlines jurisdictional limits of fire departments, which may impact rural communities with no immediate fire service (see Section 5.6).*

Bylaws	Section	Description and *Relation to CWRP*
	9.4	No person shall grow shrubs, hedges, plants or trees to obstruct the visibility or use of a fire hydrant, standpipe or sprinkler connection. - *Provides linkage to FireSmart activities and property preparedness.*
	10.1	Where this bylaw applies within a municipality the Regional District is authorized to enforce municipal open burning regulations. - *Limits fire ignition and propagation risks.*
	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. - *Limits fire ignition and propagation risks.*
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. - *Outlines RDCK ownership and responsibility relating to water sources.*
	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. - *Supports training opportunities for local fire fighters*

2.4 HIGHER-LEVEL PLANS AND LEGISLATION

Table 4 lists higher-level plans and legislation that are relevant to wildfire planning and risk mitigation within Electoral Area J. 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.

A Wildfire Urban Interface Wildfire Risk Reduction (WUI WRR) Plan has been completed for part of the plan area west of Castlegar (Merry Creek and Rialto FSRs). 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.[10]

Table 4: Higher level plans and legislation relevant to the plan area

Plan/Legislation	Description and Relationship to CWRP
The Forest and Range Practices Act & Government Action Regulations (GARs)	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. Multiple GARs overlap the WUI. These include: • *Non-legal Old Growth Management Areas* • *Ungulate Winter Range partial-harvest* • *Significant fish streams and rivers* • *Community watersheds* • *Regionally significant visual areas*
BC Provincial Open Burning Smoke Control Regulation	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. • *Much of the wildland-urban interface is within a Low to Medium Smoke Sensitivity Zone with only pockets of High Smoke Sensitivity Zone around the municipality of Castlegar.*
Kootenay Boundary Higher Level Plan	The Kootenay Boundary Land Use Plan Implementation Strategy was completed in 1997 and was discussed in the previous CWPP. *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 75% of the WUI (see Section 4.2.1).* 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.
Wildfire Act and Regulation	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.

[10] 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

Plan/Legislation	Description and Relationship to CWRP
Parks Act	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.
BC Parks and Protected Areas Management Plans and Strategic Statements	Outlines management objectives for a park / protected area and any special considerations. Would provide strategic direction for proposed activities in parks, including fuel management. Management plans are available for parks in the WUI: Syringa Provincial Park Management Plan (2017) • Protect representative ecosystems, species and habitats • Provide a range of recreational opportunities for the public
The Forest Act	Establishes the framework for managing forest resources, including provisions that can influence wildfire management. Key aspects include: • 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.
Emergency and Disaster Management Act	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

SECTION 3: COMMUNITY DESCRIPTION

This section defines the planning area for this CWRP and provides general demographic information about Electoral Area J. 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 J. 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.[11]

The eligible WUI was clipped to the boundaries of Electoral Area J, which 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 9,253 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.

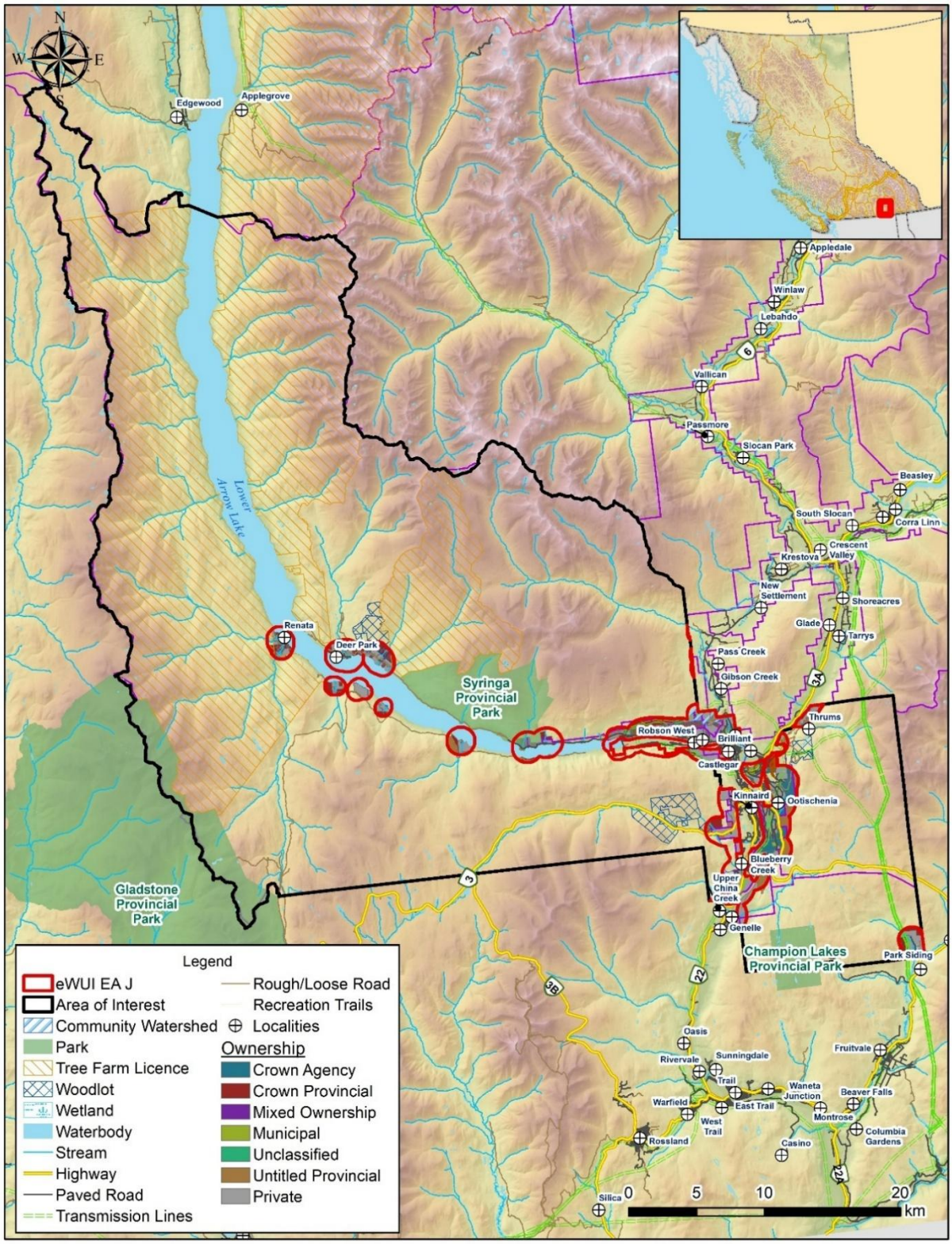
Map 1 shows an overview of the wildland urban interface (WUI) in Electoral Area J, with an approximate breakdown of land ownership type by area listed in Table 5. A large portion of the WUI consists of private land, accounting for approximately 40% of the total land area. This predominance of privately-owned 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 5: Land ownership within Electoral Area J's WUI.

Land Ownership	Area (Ha)	Percent of WUI (%)
Crown Agency	746	11%
Crown Provincial	1435	21%
Federal	0	0%
Mixed Ownership	6	0%
Municipal	36	1%

[11] Wildland Urban Interface Risk Class Maps - Province of British Columbia (gov.bc.ca)

Land Ownership	Area (Ha)	Percent of WUI (%)
Municipal - RDCK	45	1%
Untitled Provincial	3129	34%
Private/Unclassified	3856	42%
TOTAL	9253	100%



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

3.2 COMMUNITY DESCRIPTION

Electoral Area J is in the southwestern corner of the RDCK, west of Nelson and surrounding Castlegar. It includes the unincorporated communities of Syringa, Deer Park, Brooklyn, Rentata, Coykendahl, Ootischenia, Raspberry, Robson, and Fairview. Electoral Area J shares boundaries with four other RDCK Electoral Areas east and south of Castlegar and extends north along South Arrow Lake towards Edgewood. The mountains of the Christina Range (Monashees) and the Valkyr Range (Selkirks) bound the Electoral Area to the west and east respectively. The Kootenay River meets the Columbia River in Castlegar, which is dammed to form the Arrow Lakes above Castlegar.

The main community access routes are Highway 3, which runs roughly west-east through Castlegar; Highway 3A, which enters Castlegar from the north; and Highway 22, which connects Castlegar to Trail to the south. Broadwater Road runs along the east shore of Lower Arrow Lake to the communities north of Castlegar. Regional District of Kootenay Boundary abuts the plan area to the west. Electoral Area J shares a border with Electoral Area A and B of the Kootenay Boundary Regional District to the south (Fruitvale, Rossland).

The plan area is within the BC Wildfire Service (BCWS) Southeast Fire Centre and Arrow Fire Zone. Structural firefighting services are coordinated by the RDCK, with volunteer fire departments located in Ootischenia, Robson, and Pass Creek, as well as Fire Protection contracts with the City of Castlegar for the Fairview area and Regional District Kootenay Boundary for the Hudu Creek area. Medical care and ambulance service is available in Castlegar. Castlegar also has an RCMP detachment. There is an RDCK-operated landfill in Ootischenia.

Table 5 provides an overview of relevant census and socio-economic data, offering valuable insights into the demographics and characteristics of the plan area. The population of the plan area is growing, with a 12% increase recorded by Statistics Canada between 2016 and 2021.[12] Like most of the RDCK, the area has a rural character, with an average of 2.1 people per square kilometer. As of 2021, there was a total of 1460 private dwellings in the Electoral Area, with a permanent occupancy rate of 81.8% being single-detached homes. Such 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 6: Socio-economic statistics for Electoral Area J as per the 2021 census [12]

Metric	Value
Population	
Total Population	3,517
Population Density (people/km2)	2.1
Population percentage change between 2016 and 2021	+12.1%

[12] 2021 Canadian Census Data.

Metric	Value
Number of people <14 years old (% of total population for the area)	14.7%
Number of people 15-64 years old (% of total population for the area)	64.9%
Number of people >65 years old (% of total population for the area)	20.5%
Median Age (years)	44.1
Housing	
Total private dwellings (year)	1,460
Private dwellings permanently occupied	81.8%
Ownership	89.0%
Income and Employment	
Median Total Income of Households	$83,000

Figure 1. Google Earth image of Blueberry Creek/Fairview and Ootischenia, looking north.

Ootischenia

Ootischenia is a populous residential neighbourhood on the east bank of the Columbia River just outside of Castlegar municipal boundaries and south of the airport. As of the 2021 census the population was 1,320. The RDCK has designed this community for future growth. The Ootishenia landfill and Selkirk College are located here. Fire protection is provided by the RDCK-operated Ootischenia Fire Department, whose response area also includes some properties west of Castlegar (Lucas Road, Fernwood Drive, and Highway 3). The Ootischenia Improvement District operates a drinking water system; there is also a small, RDCK-operated community water system for properties on Lucas Road, across the Columbia. Highway 3 and 3A pass through Ootischenia.

Blueberry Creek / Fairview

Blueberry Creek/Fairview is a small residential neighbourhood south of Castlegar municipal boundaries and on the east bank of the Columbia River. Most homes on Fairview Road are on the west side of Highway 22. Fire protection services are provided on contract from the Castlegar Fire Department. The neighbourhood is part of the Blueberry Creek Irrigation District.

There are also Area J properties on Lucas Road and on Highway 3 that are in the Ootishenia Fire Protection Area.

Figure 2. Google Earth image of Robson and Raspberry, looking WNW.

Robson / Raspberry

Robson and Raspberry are dense residential neighbourhoods on the north side of the Columbia River, just outside of Castlegar municipal boundaries, encompassed by the Robson Fire Protection Area. As of the 2021 census the population was 451. Most of the area is serviced with hydrants and standpipes and is either part of the Robson/Raspberry Improvement District or the RDCK-operated West Robson community water system. Homes are generally on small lots, although there are also some medium sized agricultural parcels. Some intermix properties on Mountain Ridge Road, encompassed by the Pass Creek Fire Protection Area (Electoral Area I), are also within Electoral Area J, above Robson. Broadwater Road is the single access-egress route for Robson, extending along the north shore of Lower Arrow Lake past Deer Park.

Figure 3. Google Earth image of Syringa/South Arrow Lake

Syringa/South Arrow Lake

Residential density drastically decreases past Robson. Structures in the Syringa / South Arrow Lake area are concentrated around Syringa Provincial Park 10-15 km west of Robson on Broadwater Road. There is no public water or electrical service, or structural fire protection. Most homes are on medium sized lots just off Broadwater Road at the base of forested, south-facing slopes. There are two marinas south of Syringa Provincial Park, which also has a campground.

Figure 4. Google Image of Deer Park, looking north.

Deer Park

Deer Park is an isolated community past Syringa Provincial Park on the east shore of Arrow Lake. Broadwater Road provides access. No public services (electrical, structural fire protection, or water) are currently provided here, although the RDCK policy is to support future service provision.[8] Properties are mostly designated country residential; there are some agricultural properties.

Figure 5. Google Image of Renata, looking southwest.

Renata, Brooklyn, and Coykendahl

Renata, Brooklyn, and Coykendahl are isolated, primarily boat-access communities on the west shore of Arrow Lake. Seasonal road access is possible via an old railgrade as well as forest service roads to some

properties. No public services (electrical, structural fire protection, or water) are provided here. Properties are designated country residential and are mostly intermixed.

Hudu Creek

Hudu Creek is a small grouping of rural properties located at the southeastern corner of Area J, near Park Siding at the boundary with Area G. Structural fire protection is contracted to the Regional District of Kootenay Boundary.

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.[13] Table 7 (and displayed on Map 2) lists critical infrastructure in the plan area as identified by the RDCK.[14] The assets operated by the RDCK are the West Robson and Lucas Road water systems and Robson and Ootischenia Fire Halls. 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.

Table 7. Critical Infrastructure and community assets within Electoral Area J.

Name	Type	Jurisdiction	Location	Comment
Critical Infrastructure				
Ootischenia Fire Hall	Emergency Response	Central Kootenay Regional District	Ootischenia	FireSmart assessment and mitigation complete No backup power
Robson Fire Department	Emergency Response	Central Kootenay Regional District	Robson	FireSmart assessment and mitigation complete Natural gas and propane backup power
Volunteer Fire Brigade Station	Emergency Response	Crown Provincial	Deer Park	
Water Dam	Utilities	Arrow Lakes Power Corp	Castlegar	

[13] FireSmart BC. Community Wildfire Resiliency Plan Instruction Guide 2023. November 2023. LGPS_CRI_FCFS2023CWRPInstructionGuideV1.pdf

[14] 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
Water Distribution Systems (Lucas Road)	Utilities	Central Kootenay Regional District	Robson	
Water Distribution Systems (wells, reservoir, pump houses)	Utilities	Robson-Raspberry Improvement District	Robson	CFRC noted the pump house is a concern for wildfire
Water Distribution Systems (West Robson)	Utilities	Central Kootenay Regional District	Robson	Backup power for pump stations
		Community Assets		
Elementary School - Robson	Community	Kootenay-Columbia School District #20	Robson	
Robson Recreation Society	Community	Robson Recreation Society	Robson	
Selkirk College	Community	Selkirk College - Private	Ootischenia	

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.[15]

BC Hydro and FortisBC provides electrical service in the plan area through a network of transmission and distribution lines. Several transmission lines intersect the WUI, originating from the Arrow Generating Station on the Columbia River west of Robson, and passing south through Ootischenia. 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 J.

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

[15] https://globalnews.ca/news/9129496/jasper-chetamon-wildfire-power-restored-september-14/

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 J is provided by a combination of community water systems, improvement districts, and private wells or surface water intakes. The RDCK operates water systems in West Robson and on Lucas Road west of Castlegar. Detailed information on each RDCK water system is provided on the RDCK website or on individual improvement district websites and is summarized in Table 10.[16] There are no sewer or wastewater treatment systems within Electoral Area J; residents rely on private septic systems. The development of additional community water, waste, and sewer systems is encouraged by the RDCK to sustainable support the region's growing population.[8]

There are two designated community watersheds in Electoral Area K:

- Norns Community Watershed (Norns Creek, north of Robson; Robson Raspberry Improvement District)
- Deer Community Watershed (Deer Creek, north side of Lower Arrow Lake; Deer Park Water Users Community)

Table 8. Water systems in the WUI

Water System	Description	Location
RDCK – West Robson	114 active connections, source water from two groundwater wells. 318,000 L bolted steel reservoir. Fire hydrants	West Robson
Ootischenia Improvement District	498 active connections; groundwater source. Fire hydrants	Ootischenia
Robson Raspberry Improvement District	500 active connections, source water from Pass Creek. Water treatment (UV/chlorine). Bolted steel reservoir storage and gravity feed. Fire hydrants.	Robson Raspberry
RDCK – Lucas Road	6 connections, no system storage. Intake above Keenleyside dam on Arrow Lake	Outside Castlegar

Some parts of the WUI have hydrant coverage to provide water for firefighting, although no systems provide rated coverage for residents under the Fire Underwriters Survey. There are fire hydrants in Robson, Ootischenia, and within Castlegar municipal boundaries. For the many areas not serviced by hydrants, the provision of water suppression for firefighting relies on drafting from natural water sources,

[16] https://www.rdck.ca/EN/main/services/water/rdck-water-systems.html

which include the Kootenay River, Columbia River, and South Arrow Lake. 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 J includes the Ootischenia landfill and the Interfor sawmill on Arrow Lakes Drive west of Castlegar, which may store a substantial amount of wood fiber fuel at any given time. Gas stations, and farms that may store fuel or fertilizer can also be considered hazardous infrastructure.

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 J. Syringa Provincial Park is a large protected area on the east shore of Arrow Lake that offers front-country camping as well as day-use facilities for visitors. Gladstone Provincial Park and Champion Lake Provincial Park are also within Electoral Area J, but outside the WUI. RDCK operates Waterloo-Eddy Regional Park in Ootischenia and Pass Creek Regional Park, which also offers camping, in Raspberry. The RDCK has not designated any environmental Development Permit Areas in Electoral Area J. There are also over 10,000 hectares of mostly Crown land managed under the Conservation Lands program in Deer Park, adjacent to Syringa Provincial Park.

There are significant overlaps with species and ecosystems at risk identified through the B.C. Conservation Data Center (Table 9). 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 Ungulate Winter Range (UWR), Wildlife Habitat Areas (WHA), or federally-mapped critical habitat. Large portions of the WUI overlap with a WHA for grizzly bear and UWR for mule deer.

Table 9: Species and Ecosystems at Risk in the WUI – BC Conservation Data Center.

English Name	Scientific Name	BC List	Category	Habitat Type
Banded Tigersnail	*Anguispira kochi*	Blue	Invertebrate Animal	TERRESTRIAL: Forest Mixed
Canyon Wren	*Catherpes mexicanus*	Blue	Vertebrate Animal	TERRESTRIAL; CLIFF
Coeur D'Alene Salamander	*Plethodon idahoensis*	Blue	Vertebrate Animal	RIVERINE; CREEK; HIGH GRADIENT; RIPARIAN
Columbia Quillwort	*Isoetes minima*	Red	Vascular Plant	TERRESTRIAL: Seepage
Columbia Sculpin	*Cottus hubbsi*	Blue	Vertebrate Animal	RIVERINE; BIG RIVER
Dwarf Hesperochiron	*Hesperochiron pumilus*	Red	Vascular Plant	TERRESTRIAL: Seepage, Grassland/Herbaceous
Howell'S Quillwort	*Isoetes howellii*	Blue	Vascular Plant	RIVERINE: Sand/Gravel Bars, Floodplain
Lewis's Woodpecker	*Melanerpes lewis*	Blue	Vertebrate Animal	RIVERINE: Riparian; TERRESTRIAL: Snag/Hollow Tree; Old Field; Suburban/Orchard; Roadside
Magnum Mantleslug	*Magnipelta mycophaga*	Blue	Invertebrate Animal	TERRESTRIAL: Forest Needleleaf
Miner's-Lettuce	*Claytonia perfoliata ssp. intermontana*	Blue	Vascular Plant	TERRESTRIAL: Sand/Dune
Mountain Blue-Curls	*Trichostema oblongum*	Unknown	Vascular Plant	TERRESTRIAL; TEMPORARY POOL
Painted Turtle - Intermountain - Rocky Mountain Population	*Chrysemys picta pop. 2*	Blue	Vertebrate Animal	LACUSTRINE: Shallow Water; RIVERINE: Slough
Pygmy Slug	*Kootenaia burkei*	Blue	Invertebrate Animal	TERRESTRIAL: Forest Needleleaf, Mature Forest
Shorthead Sculpin	*Cottus confusus*	Blue	Vertebrate Animal	RIVERINE: Creek
Silver Hair Moss	*Fabronia pusilla*	Red	Nonvascular Plant	TERRESTRIAL: Rock Outcrop
Smooth Goldenrod	*Solidago gigantea var. shinnersii*	Blue	Vascular Plant	RIVERINE: Riparian
Umatilla Dace	*Rhinichthys umatilla*	Red	Vertebrate Animal	RIVERINE; BIG RIVER
Western Bumble Bee	*Bombus occidentalis*	Yellow	Invertebrate Animal	TERRESTRIAL: Woodland Mixed

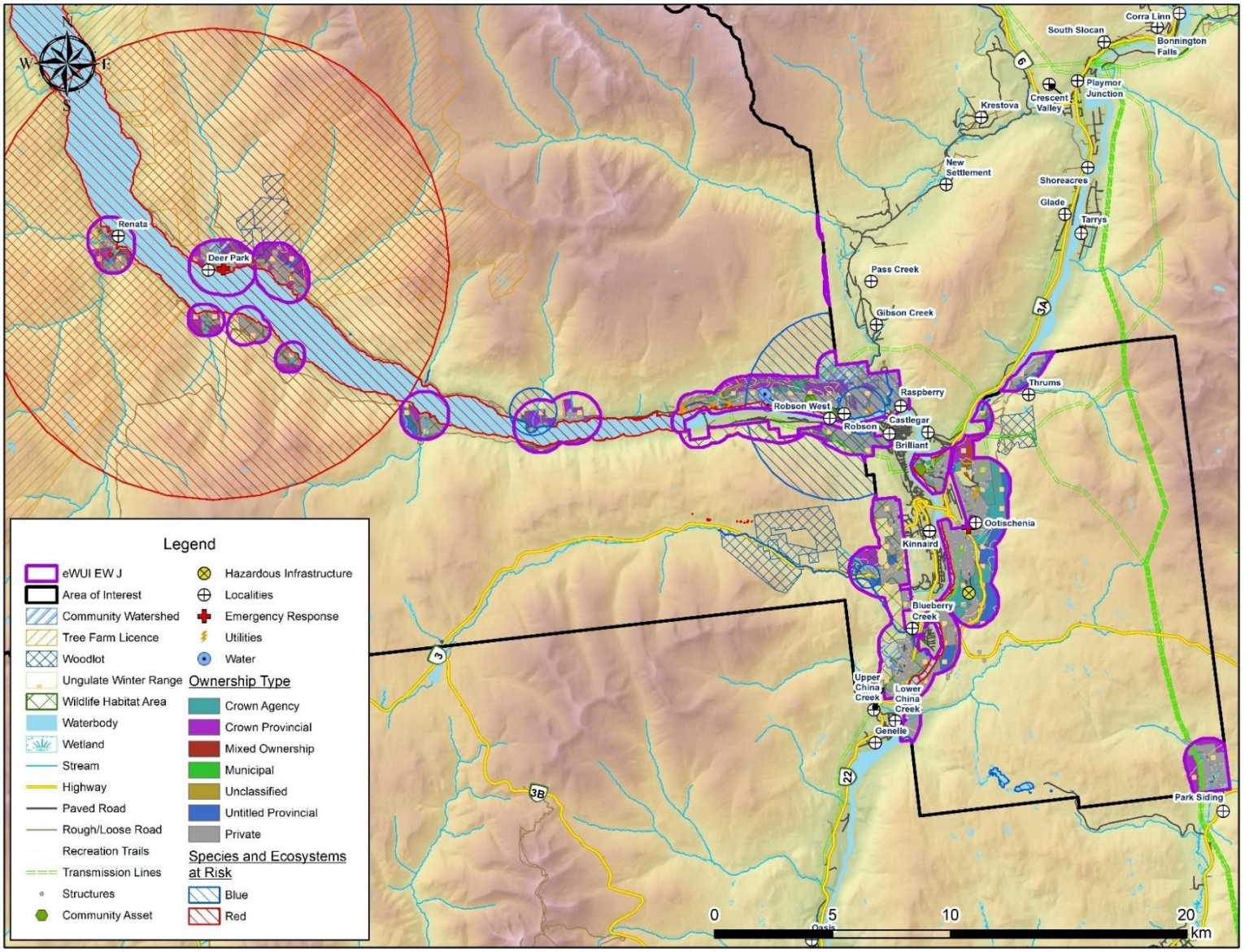
English Name	Scientific Name	BC List	Category	Habitat Type
Western Screech-Owl, Macfarlanei Subspecies	*Megascops kennicottii macfarlanei*	Blue	Vertebrate Animal	TERRESTRIAL: Forest Broadleaf, Roadside, Woodland Mixed; RIVERINE: Riparian
Western Skink	*Plestiodon skiltonianus*	Blue	Vertebrate Animal	TERRESTRIAL: Roadside
Western Skink	*Plestiodon skiltonianus*	Blue	Vertebrate Animal	TERRESTRIAL: ROCK OUTCROP, COARSE TALUS/BOULDERS, GRASSLAND/HERBACEOUS, FOREST NEEDLELEAF
White-Throated Swift	*Aeronautes saxatalis*	Blue	Vertebrate Animal	TERRESTRIAL; CLIFF
White Sturgeon (Upper Columbia River Population)	*Acipenser transmontanus pop. 2*	Red	Vertebrate Animal	RIVERINE: Big River; High Gradient; Moderate Gradient; Pool
Wild Licorice	*Glycyrrhiza lepidota*	Blue	Vascular Plant	TERRESTRIAL: Grassland/Herbaceous

3.3.7 OTHER RESOURCE VALUES

There are other important resource values associated with the land base, including forestry, industry, recreation and tourism. Lower Arrow Lake is a hydroelectric reservoir formed by the damming of the Columbia River west of Castlegar. In addition to the BC Hydro Arrow Lake Generation Station and associated infrastructure, there are two industrial sites on the Columbia River near Castlegar: the Interfor sawmill and LaFarge cement plant. There is some agricultural production in the area, mostly on small hobby farms in Robson. Forest tenure overlap includes woodlots around Blueberry Creek and Syringa.

Multiple areas on Lower Arrow Lake are managed as provincial recreation sites. Merry Creek and 24 Mile Snowmobile Area are recreation polygons west to Castlegar, and the Columbia and Western rail trail extends through the WUI along the west shore of Lower Arrow Lake.

Any fuel management within Electoral Area J 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 J. 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 summaries 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:

Wildfire Risk = Probability X 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.

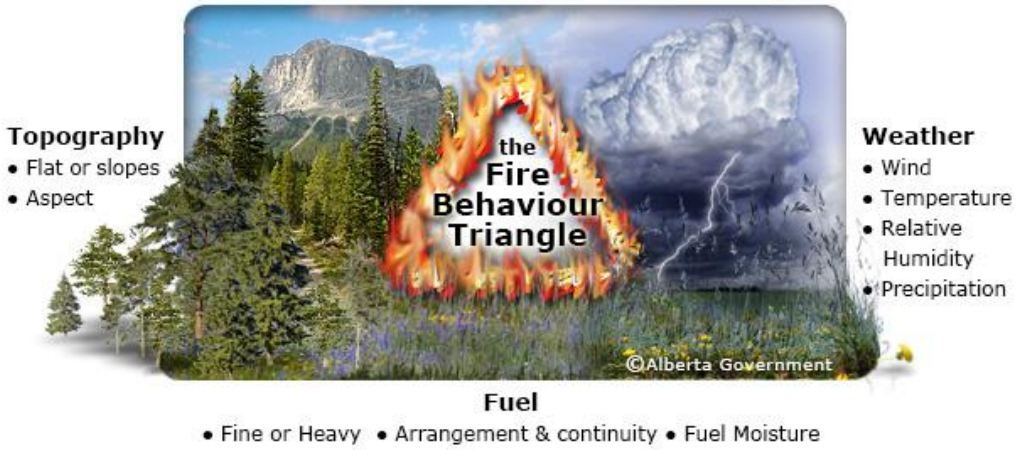


Figure 6. Graphic display of the fire behaviour triangle, and a subset of characteristics within each component.[17]

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 J are situated along the shores of Lower Arrow Lake and on the banks of the Columbia River, at the foothills of the Monashee (west) and Selkirk (east) mountains. 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 10 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 (56%) is on greater than 30% slope, where flame tilt and flame and fuel interaction contribute to a higher rate of spread.

[17] Graphic adopted from the Province of Alberta.

Table 10: Slope Percentage and Fire Behaviour Implications.[18]

Slope	Percent of Eligible WUI	Fire Behaviour Implications
<20%	38%	Very little flame and fuel interaction caused by slope, normal rate of spread.
21-30%	16%	Flame tilt begins to preheat fuel, increase rate of spread.
31-45%	20%	Flame tilt preheats fuel and begins to bathe flames into fuel, high rate of spread.
46-60%	13%	Flame tilt preheats fuel and bathes flames into fuel, very high rate of spread.
>60%	13%	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 11). 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 J are located on or near valley bottom, on slopes <30%, so would not have increased fire behaviour influenced by topography and slope position alone. A small number of values in Electoral Area J's WUI are located mid-slope; this includes homes on Tower Ridge Road in Ootischenia, Fairview Drive in Fairview, and Mountain Ridge Road above Raspberry. These locations could 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.

Lower Arrow Lake and the Columbia River represents a topographic barrier to fire spread from the west, but recent fires in the Okanagan and Shuswap have shown that during intense fire weather conditions, ember showers can result in fires 'jumping' hundreds of meters across lakes to start fires on the other side. Therefore, for Electoral Area J, the key topographical feature affecting potential fire behaviour is the presence of continuous forest fuels on all slopes and aspects of the surrounding mountains, with the potential for accelerated rates of fire spread due to slope.

Table 11: Slope Position of Value and Fire Behaviour Implications.[19]

Slope Position of Value	Fire Behaviour Implications
Bottom of Slope/ Valley Bottom	Impacted by normal rates of spread.

[18] 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

[19] 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 - Bench	Impacted by increase rates of spread. Position on a bench may reduce the preheating near the value. (Value is offset from the slope).
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 J'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 J's WUI.

Electoral Area J 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. Slope aspect has a strong influence on fuel type and distribution in the area. The south and west-facing slopes above Raspberry, Robson, and Lower Arrow Lake have visibly less fuel continuity and more exposed rock. Conversely, the north and east-aspect slopes on the opposite side of the lake have continuous, lusher forest cover. As mentioned in the previous section, aspect influences the moisture properties of forest fuel – south slopes dry out quicker. Valley bottom areas also tend to be drier and support grassier, open forest fuel types.

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 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.[20] 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 stands[21] in the interior moist belt, within which Electoral Area J'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

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

[21] 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.

poor match with any fuel type.[22] 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 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.[23] In some areas, aerial imagery is of low spatial resolution and/or ground access was impossible, making fuel type assessment difficult. Table 12 lists the percentage of fuel types and associated wildfire behaviour within the WUI; fuel types are displayed on Map 3.

BCWS indicated that like some other parts of the RDCK, fuel volatility (observed fire behavior) depends more on wind and topography than fuel type. However, grassy areas and open C-7 forests that dry out quickly in the spring and summer can be a concern for firefighters, especially since these fuels tend to be in the interface. These fuel types can support high rates of fire spread.

Table 12: Fuel types in Electoral Area J's WUI

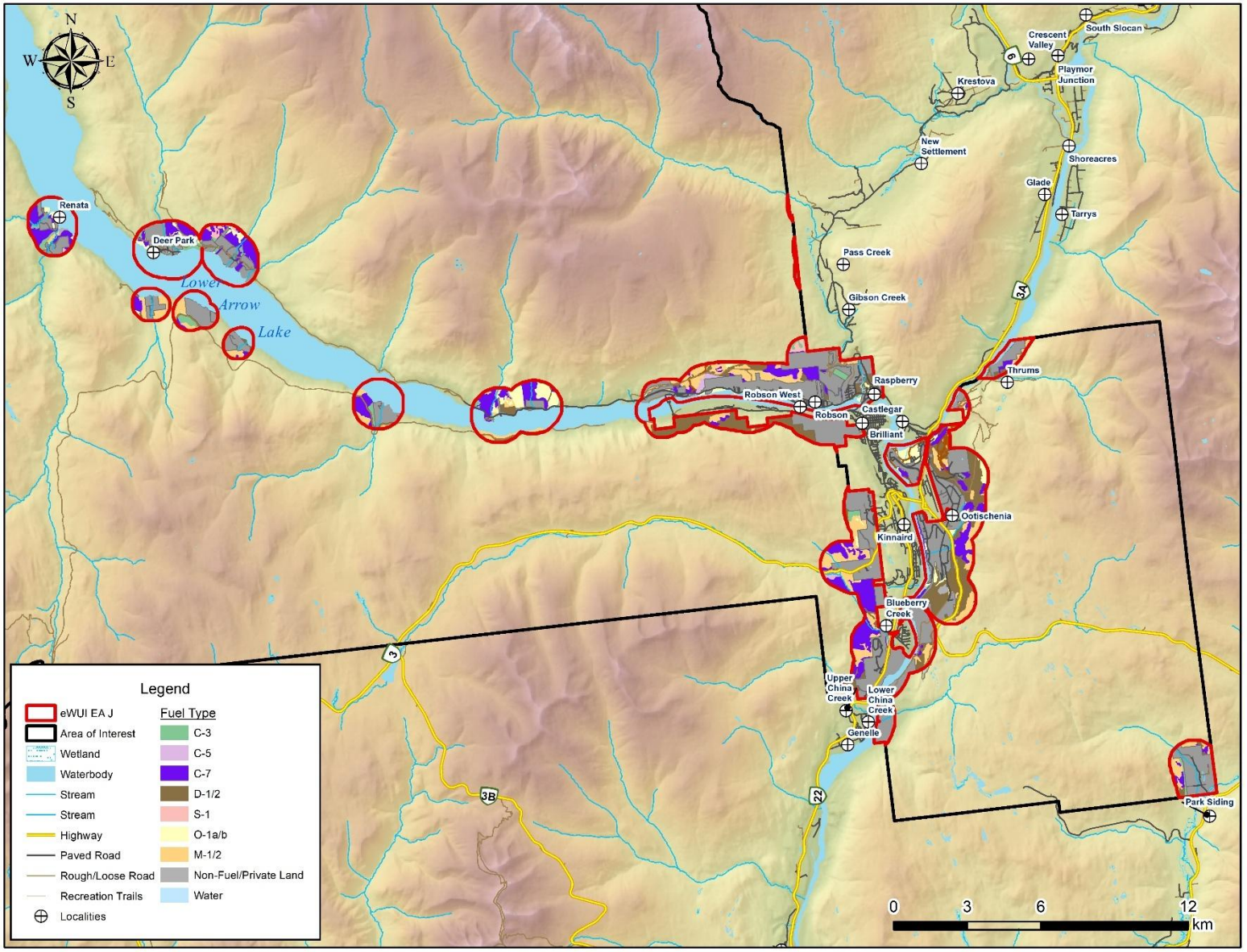
Fuel Type	Fuel Type Description	Wildfire Behaviour Under High Wildfire Danger Level	Area (ha)	Percent (%) of public land
C-3	Fully stocked, mature conifer stands with crowns separated from the ground.	Surface and crown fire, low to very high fire intensity and rate of spread.	209	4%
C-5	Well-stocked 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.	50	1%
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.	1240	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.	1038	18%
M-1/2	Moderately well-stocked mixed stands of conifer and deciduous, low to moderate dead stems and down woody fuels. Often transition to become more conifer dominated as	Surface, torching and crowning, moderate to very high intensity and spread rate (depending on slope and percent conifer and season (in leaf vs leafless).	1078	19%

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

[23] 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
	pioneer deciduous species die out if disturbance is excluded.[24]			
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.	506	9%
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.	39	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	106	2%
Water	Water and riparian features (e.g., rivers, streams, waterbodies, wetlands	N/A	1408	25%
Private			*3579*	-

[24] Larch was treated as deciduous during fuel typing to account for its high moisture content.



Map 3. Updated fuel types in Electoral Area J'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 J is 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 communities in Electoral Area J 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 J 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 89% of the WUI (Table 13 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.

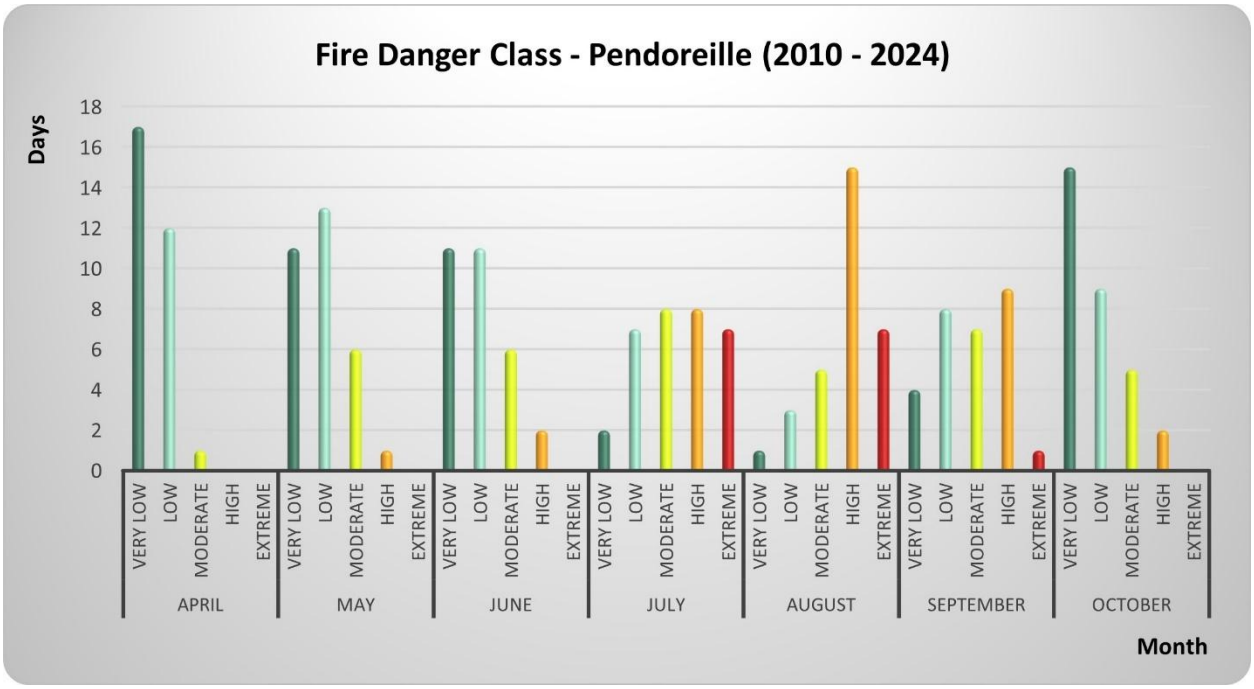


Figure 7. The average number of days by Fire Danger Class for the past 14 years, based on data from the BC Wildfire Services Pend Oreille weather station.

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).

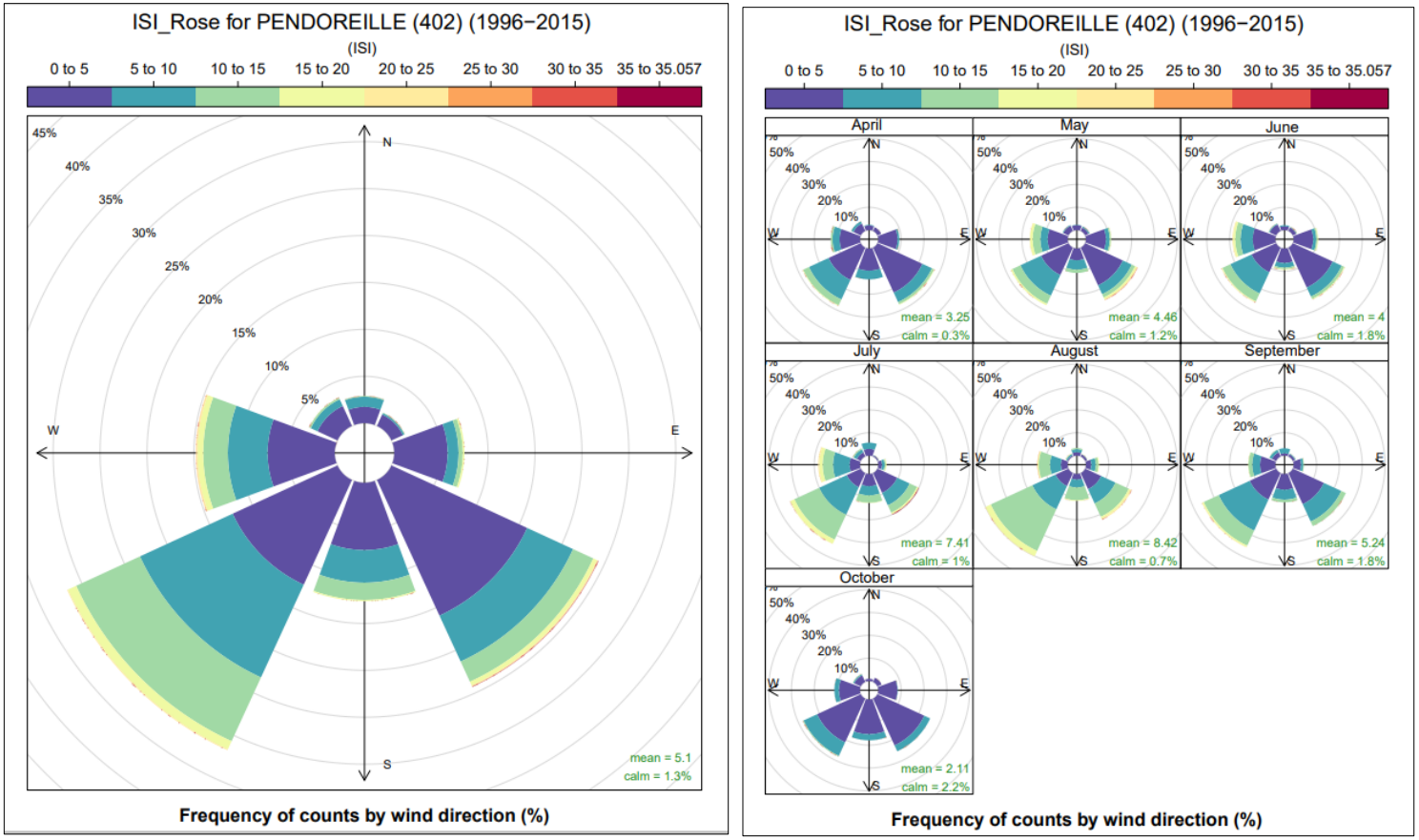


Figure 8. Average daily (right) and monthly (left) ISI values during the fire season (April to October) for the Pend Orielle weather station.

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 5 and summarized below in Table 13. Situated mainly in the valley bottom at lower elevation, the WUI is predominantly (89%) within the ICHxw subzone. The ICHxwa variant represents a hotter, drier areas of this subzone, occurring along southern aspects.[25] These are both associated with an NDT4 regime – ecosystems with frequent stand-maintaining fires. This (historically) low-severity fire regime would have maintained existing forest structure, while modulating surface fuel build-up and understory saplings that would otherwise allow wildfire to move from surface to crown. These subzones are characterized by very hot, dry summers and mild, dry winters.

A small portion (11%) of the WUI is 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.[26] 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.

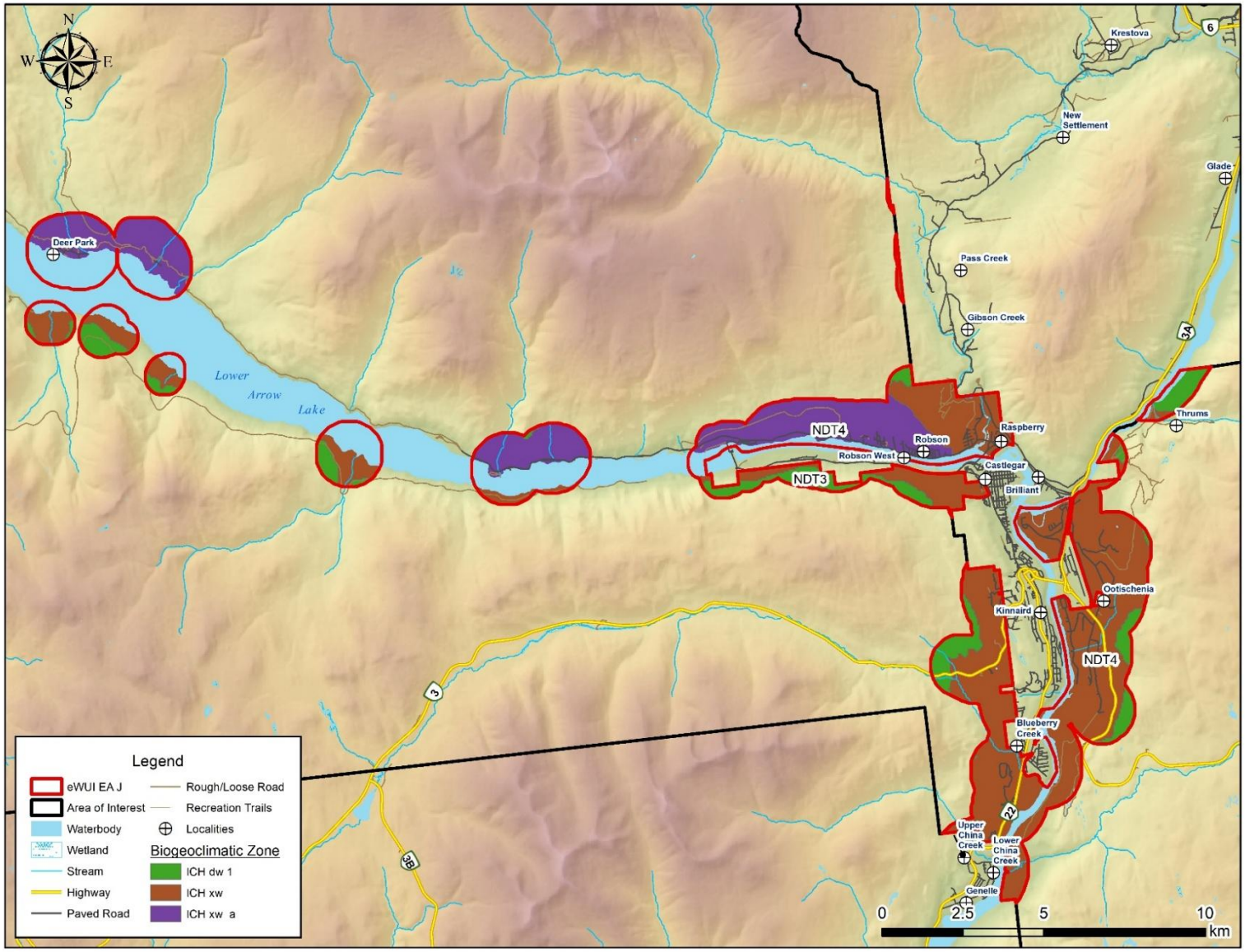
It is important to consider that fire regimes in the region were likely shaped in part by pre-settlement cultural burning practices by First Nations. It is also important to consider that, in the future, BEC (and associated NDT) distributions will likely shift because of climate change.

Table 13. Biogeoclimatic Zone and associated Natural Disturbance Types (NDTs) of Electoral Area J's WUI.

Biogeoclimatic Zone	Natural Disturbance Type	Area (ha)	Percent of Eligible WUI (%)
ICHdw1	NDT3	1001	11%
ICHxw	NDT4	5746	62%
ICHxwa	NDT4	2506	27%

[25] MacKillop, D.J., and A.J. Ehman. 2016. A field guide to site classification and identification for southeast British Columbia: the south-central Columbia Mountains. Prov. B.C., Victoria, B.C. Land Manag. Handb. 70

[26] Forest Practices Code of BC. September 1995. BC Biodiversity Guidebook. https://www.for.gov.bc.ca/hfd/library/documents/bib19715.pdf



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

4.2.2 HISTORICAL WILDFIRE OCCURENCES

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 fire in 2015 that burned 1230 ha northeast of Deer Park, as well as the 2018 Syringa Complex wildfires and the 2021 Arrow Lake Complex wildfires, both described in detail below. Figure 9 below displays ignitions, based on source, resulting in large fires (i.e., greater than 100 ha) from 1900 to 2023.

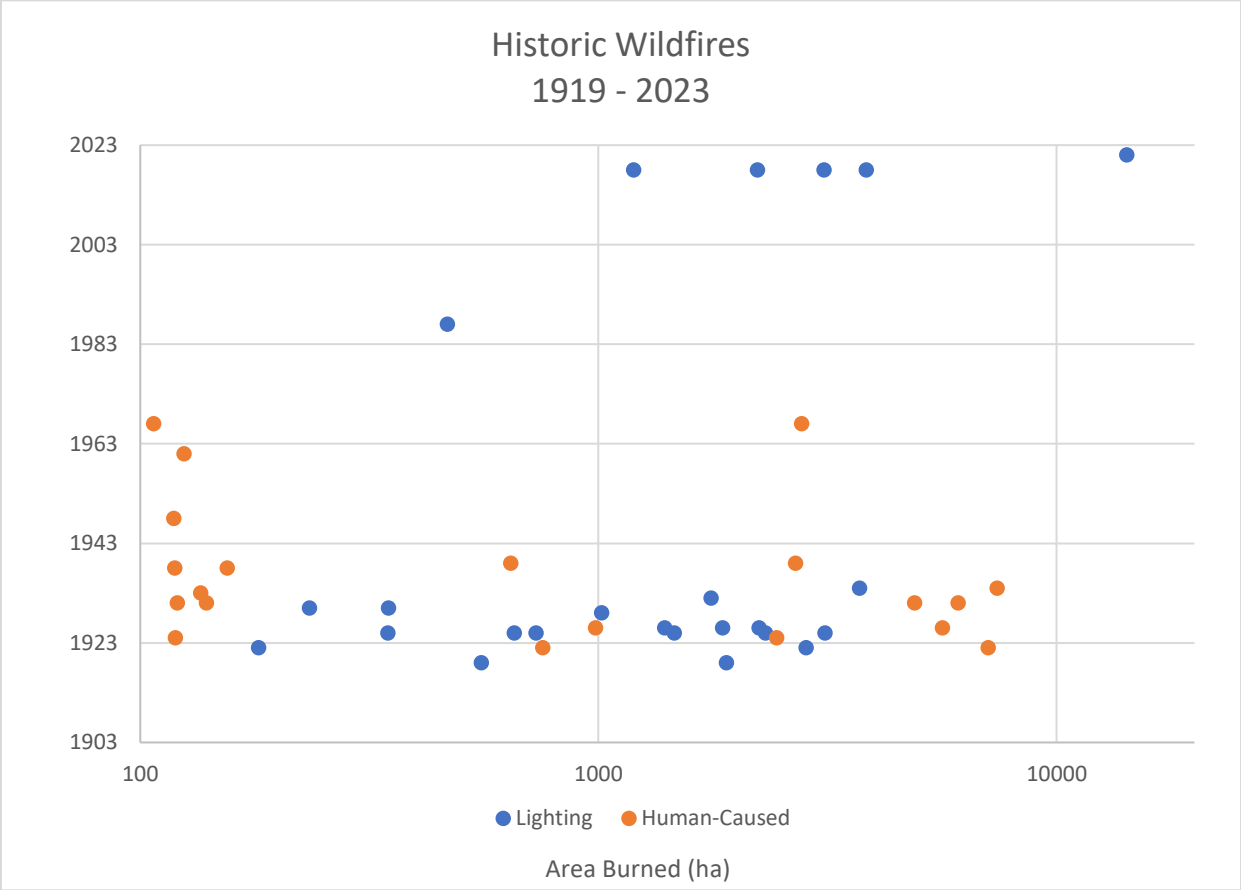


Figure 9. Historic wildfires over 100 ha in size from 1900 to 2023.

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 34% of ignition starts, 51% are human-caused, and 15% unknown. Figure 10 below displays the frequency of wildfire ignitions, grouped by ignition source, from 1950 to 2023. This chart shows the increase in lightning

strikes and decrease in human-caused fires. Historic wildfire perimeters and ignition sources, from 1912-2022, are displayed below on Map 5 for an area within five kilometers of the WUI.

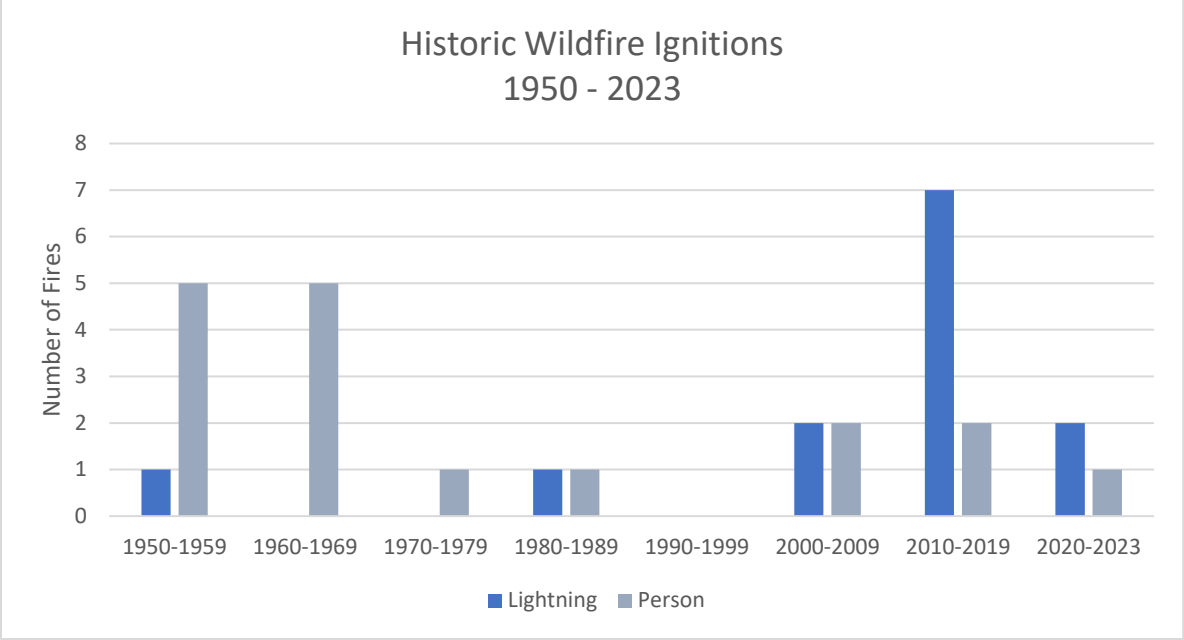


Figure 10. Historic wildfire ignitions from 1950 -2020 by ignition source.

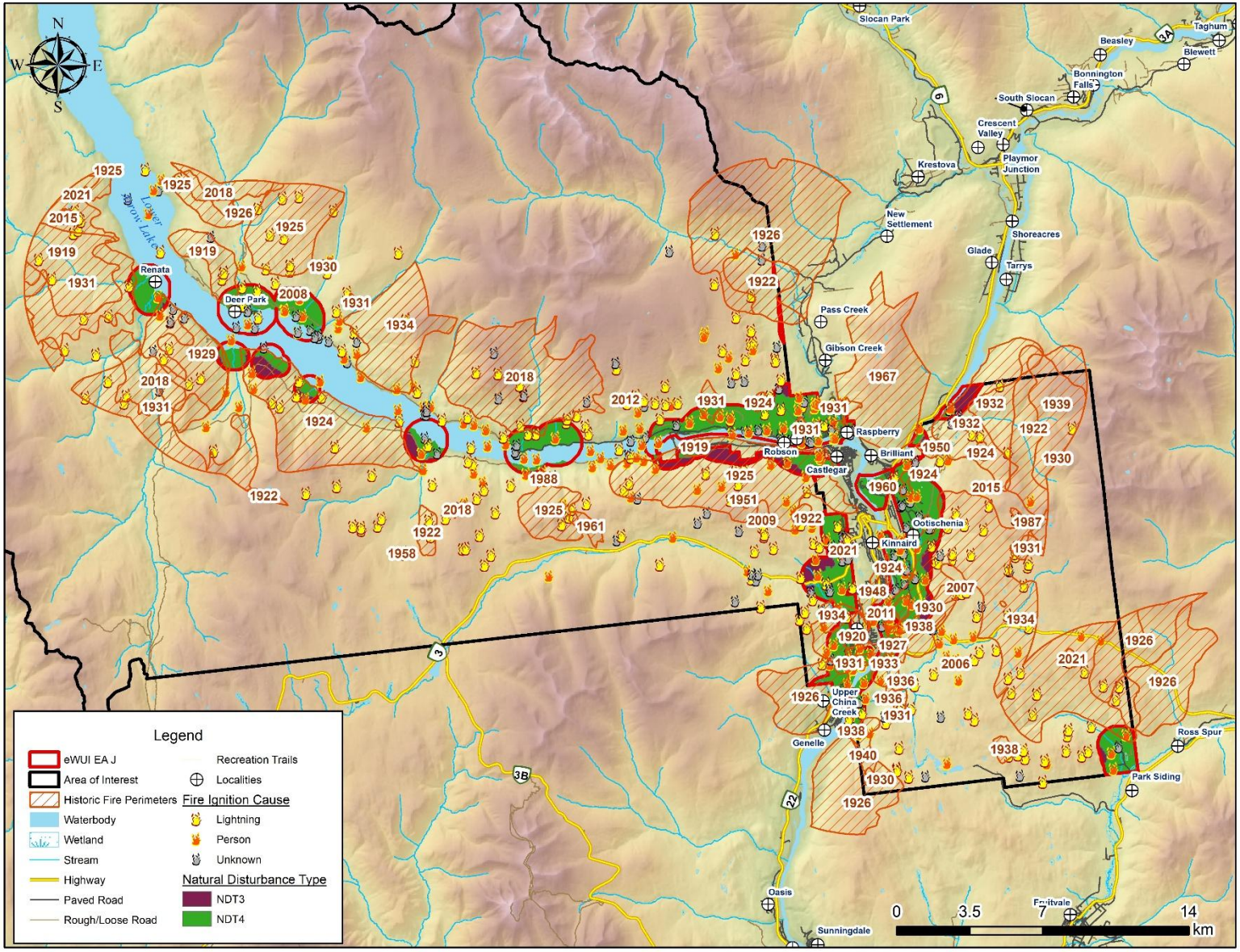
In 2018, a group of wildfires (N52548 Syringa Creek, N52489 Deer Creek, N52497 Bulldog Mountain, N52723 North Bowman Creek, N53039 Michaud Creek) known as the Syringa Complex burned from 11 August to 12 September. In total, they burned 9,269 ha along the east and west shores of Lower Arrow Lake. The area burned included major waterways (Syringa, Tulip, Deer, and Dog Creeks), Syringa Provincial Park, immature plantations, and recent clearcuts, mostly within the ICHxwa, ICHdw1, and ICHmw5 BEC subzones. A post-fire terrain risk analysis was commissioned by the Ministry of Forests and conducted in November 2018 to assess burn severity and identify opportunities to mitigate the risk of debris flow, flooding, and soil erosion to properties and ecosystems. [27] Values at risk included private homes and properties within the communities of Renata and Brooklyn, as well as a number of isolated locations; Syringa Provincial Park facilities; domestic water quality downstream of burned areas; and recreation trails around Bulldog Mountain.

Also in 2018, the Mountain O'Leary wildfire (N52566) resulted in an evacuation alert for residents of Edgewood and the south portion of Needles (north of Electoral Area J), on the west shore of Lower Arrow Lake, on August 24th. The lightning-caused wildfire burned 1195.4 ha.

[27] SNT Geotechnical Ltd. BC Ministry of Forests, Lands, And Natural Resource Operations and Rural Development. 13 December 2018. *Post-Wildfire Natural Hazards Risk Analysis Syringa Complex Fires (N52497, N52489, N52548 – 2018).* Syringa Complex (Bulldog, Deer Park, Syringa) - Wildfires 2018.pdf

In 2021, the Arrow Lake Complex of wildfires (N51765 Michaud Lake, N51800 Octopus Creek, and N71245 Renata Creek) burned 14,248 ha approximately 20 km south of Edgewood. An evacuation alert and orders were issued for numerous communities and properties in the surrounding areas. Suppression activities were complicated by smoke obstruction.[28] Hot temperatures, dry conditions, and strong, gusty winds contributed to extreme and aggressive fire behaviour.

[28] Regional District of Central Kootenays. 2021. "Information Bulletin – RDCK Wildfires July 26." https://www.rdck.ca/information-bulletin-rdck-wildfires-july-26/



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

4.2.3 WILDFIRE RESPONSE

Local fire departments respond frequently to wildland fire callouts in their response area. This is reflected in the level of preparation to respond to wildland fires – as summarized in Section 5.4, both fire departments (Ootischenia, Robson) have wildland-specific response vehicles, portable pumps and water tanks, hose and accessories, and wildland-specific Personal Protective Equipment (PPE) for their members. Members from the Robson and Ootsichenia Fire Departments have been involved with major complex fires in their protection areas (e.g. Syringa Complex above Robson).

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

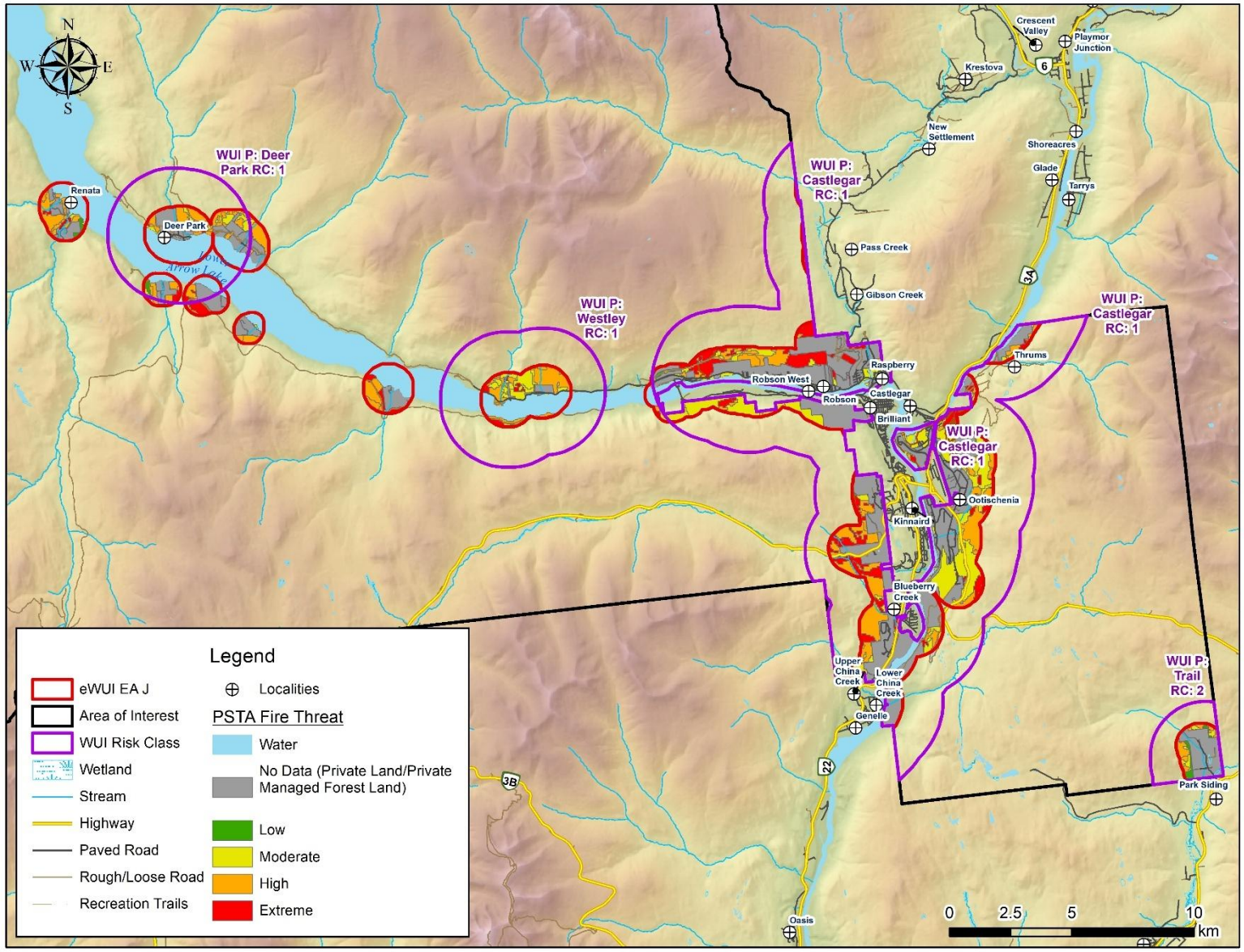
The Province of BC produces a Provincial Strategic Threat Analysis (PSTA, updated in 2021) for all non-private land parcels in BC, designed to consistently assess and map different aspects of wildfire threat and risk around the province.[29] This high-level assessment of relative wildfire threat throughout 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

[29] 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 J are all in provincially defined Risk Class 1 Wildland Urban Interface (WUI) Risk Class polygons (Castlegar, Westley, Deer Park), 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 10 Table 11) - 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 14 below. The local threat analysis shows that, for the assessable area (i.e., not private land and removing large water bodies like Lower Arrow Lake), a moderate proportion – 22% - is in a High or Extreme wildfire threat class. 49% of the landscape is classified as a Moderate wildfire behaviour threat, represented by a mosaic of open-grown forests and grasslands, often on lower and gentler slopes. Overall, private land totals 43% of the 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 14: Wildfire threat summary for Electoral Area J's eligible WUI

Wildfire Threat			
Threat Class	**Hectares**	**% of WUI**	**% of Assessable Public Land**
Extreme	70	1%	2%
High	747	8%	20%
Moderate	1876	21%	49%
Low	1133	12%	30%
Very Low/No Threat (Water)	1371	15%	-
No Data (Private Land)	3919	43%	-

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:

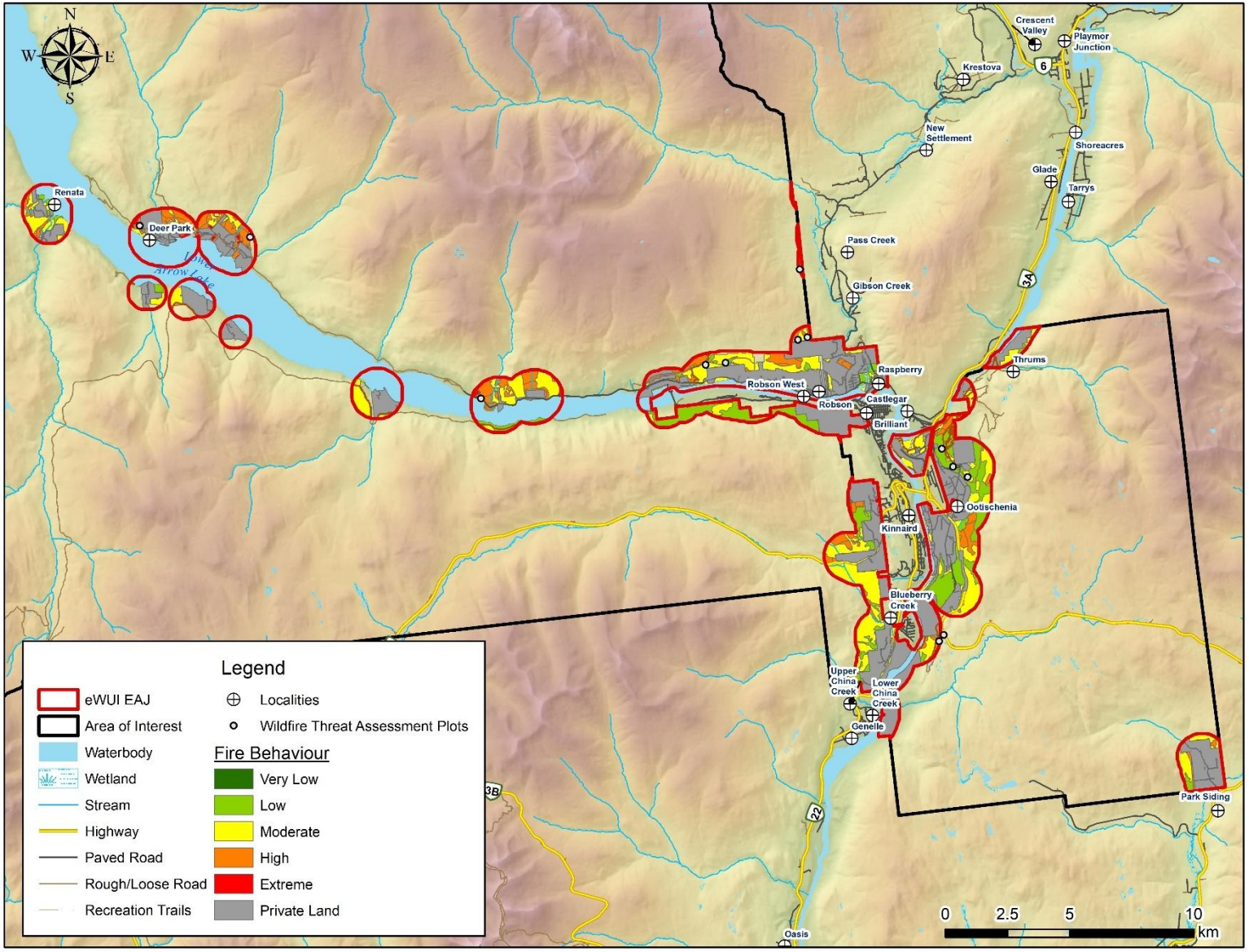
- **Low**: The high or extreme threat is sufficiently distant from developments, having no direct impact of the community and is located over 2 km from structures;
- **Moderate**: The high or extreme threat is sufficiently distant from developments, having no direct impact of the community and is located 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 15 below (and displayed on Map 7) summarizes the risk class ratings within the WUI. Of the 817 ha assigned a High or Extreme wildfire threat class, 425 ha (52%) have a High or Extreme WUI risk. This represents 2% 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 15: WUI risk class ratings within the eligible WUI of the Electoral Area J

WUI Risk			
Risk Class	**Hectares**	**% of WUI**	**% Assessable Public Land**
Extreme	97	1%	2%
High	328	4%	6%
N/A (Moderate, Low, Very Low *Wildfire Threat Class*)	5112	56%	92%
Private / No Data	*3579*	*39%*	-



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.[30]

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 J (or the RDCK as a whole), the RDCK should look to the most recent CWRPs and reference their completed wildfire threat class analyses as well as recommendations.

[30] 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, 18 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.[31] Increasing ignition resistance would reduce the number of homes simultaneously on fire; extreme wildfire conditions do not necessarily result in WUI fire disasters.[32] 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 16). This incorporates field observations, the local risk assessment, and information from local government meetings and consultation.

Table 16: FireSmart vulnerability and resilience factors by neighbourhood.

Community	Vulnerability	Resilience
Ootischenia	- Forested interface - Some structures (Tower Ridge Road) are mid-slope - Dense residential development increases risk of structure-to-structure fire transmission	- Serviced by a fire department w/ hydrants - Good arterial access/egress route (Highway 3)
Blueberry Creek/Fairview	- Homes on Fairview Drive are intermixed and mid-slope - Single access/egress to Highway 3 from 200th Avenue	- Serviced by a fire department (no hydrants) - Component of deciduous shrub vegetation

[31] Cohen, J. Preventing Disaster Home Ignitability in the Wildland-urban Interface. Journal of Forestry. p 15 - 21.
[32] 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
Robson/Raspberry	- Dense residential development increases risk of structure-to-structure fire transmission - No access/egress west on Broadwater Road	- Serviced by a fire department w/ hydrants - Defensible space on flat bench, small to medium size agricultural lots
Deer Park/Little Cayuse Creek	- Most homes are intermixed - No fire service - No access/egress west on Broadwater Road - Some structures are mid-slope	- Defensible space around homes in Deer Park; cleared areas on flat land near lake shore
Renata, Brooklyn, Coykendahl	- Boat access/egress with seasonal FSR and rail bed access to some properties - Most homes are intermixed - No fire service	- Low structure density lowers risk of structure-to-structure fire transmission
Hudu Creek	- Forest interface - Single access/egress on Hudu Creek Road	- Fire protection provided on contract by the Regional District Kootenay Boundary - Defensible space; agricultural properties

The sections to follow provide information on each FireSmart discipline as it relates to Electoral Area J. 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 J. 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 communities in Electoral Area J through a well-developed FireSmart program which began over 17 years ago with the completion of CWPPs in 2008 for Robson and Ootischenia.[33] Specifically in Electoral Area J to date, there has been 108 FireSmart Assessments, 15rebates awarded, and one Recognized FireSmart Neighbourhood. 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 (108 in Electoral Area J 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

[33] Regional District of Central Kootenay. 2017. Electoral Area J Community Wildfire Protection Plan Update.

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 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 J.

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:[34]

- 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.

The Official Community Plan for Electoral Area J does not contain OCP language relating to wildfire risk or risk mitigation.[35] Other RDCK OCPs, including OCPs for Electoral Areas A, B, C and G contain 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. This was identified as a FireSmart planning gap for Electoral Area J.

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.[36] A lack of staff capacity and poor response from elected officials and residents has

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

[35] Kootenay-Columbia Rivers Official Community Plan Bylaw No. 1157, 1996

[36] Urban 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

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 have been identified as supporting medium and higher density residential development, like Ootischenia and Robson, Wildfire Protection DPAs help ensure that new developments are designed to minimize wildfire hazard and contribute to the fire safety of the neighbourhood, thus limiting property damage should a wildfire occur. Since Castlegar is a population hub for the region and the RDCK is supporting growth or at least additional service provision in most parts of this Electoral Area, a Wildfire DPA might be applicable.

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.

The lack of a bylaw regulating open burning across the RDCK 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 7) 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. 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. Local fire departments, particularly Robson Fire Department, have good working relationships with BCWS and have jointly responded to interface fires in the area. Interagency meetings also take place semi-annually. BCWS indicated that Arrow Fire Zone staff arrange an annual training event with RDCK fire departments, rotating between departments every year.

All structural fire departments should maintain a level of wildland-specific training and equipment. Both Robson and Ootischenia Fire Departments indicated that their members are well trained and resourced in wildland firefighting equipment. Members are trained annually in SPP-WFF1 (Wildland Firefighter Level 1) and additional members have WFF-115. However, both fire departments would like to see additional course opportunities, including Engine Boss, routine refresher courses, and structural protection courses. Table 17 lists the capacity, training level, wildland firefighting equipment, and deficiencies of fire departments that provide fire protection services in Electoral Area J. Fire brigades that operate in some isolated communities in the plan area (i.e. Deer Park and Renata) are not included as these societies

operate independently of the RDCK. Nonetheless, BCWS representatives suggested that some level of cross-training might increase the resilience of these communities, as access is difficult, and BCWS crew response times can be delayed as a result.

Table 17. Capacity, training, and resources of fire departments in Electoral Area J.

Fire Department	Personnel	Wildland Training	Wildland Equipment
Robson	28	SPP-WFF-1 – all annually, 16 currently Some SPP-115	Engine 1000 gal 1500 gpm, tender 1200 gal 1500 gpm, bush truck 300 gal high pressure [skid], rescue truck 200 gal CAFS, car 125 gal 125 gmp [skid]; UTV 75 gal 125 gpm [skid]; 8 portable pumps and >2000' hose, porta tanks, monitors, sprinklers and accessories.
Ootischenia	24	SPP-WFF-1 – all annually, 12 currently Some SPP-115	Engine 500 gal 1250 gpm, tender 1000 gal 1250 gpm, rescue 250 gal high pressure [skid] 6 portable pumps, porta tanks, >2500' hose, monitors, sprinklers and accessories.

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 in Oostischenia and part of Robson. 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. Fire departments indicated that there are places within the response areas where water supply for fire suppression is a challenge. Crews are aware of natural water sources and routinely practice using them. However, the CFRC reported that accesses are unmaintained. Arrow Lake is a key water source, but low summer lake levels can pose a challenge.

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 scare 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 then 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.

Electoral Area J is represented by both a regional and sub-regional FireSmart Committee. Castlegar and Areas I and J have an active Community FireSmart Resiliency Committee with membership from the RDCK, local fire chiefs, and community stakeholders. One member from the Castlegar, Area I and J CFRC also sits on the 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.[37] 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 (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.

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[37] 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 J include:

- Evacuation of livestock from farms;
- Evacuation of isolated boat-access communities on the west shore of Lower Arrow Lake
- Recreation users on Lower Arrow Lake, both day use and at campgrounds, including Syringa Provincial Park; vehicle and boat-access
- Evacuation of Lower Arrow Lake communities e.g. Deer Park from single-access, non-public Broadwater Road

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 a type of detailed pre-incident plan called a Structure Protection Community Assessment developed for communities in Electoral Area J with particular emergency planning complications – such as Deer Park (single access-egress intermix neighbourhood). 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.[38]

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

[38] 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 11 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 11: 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 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 and the CFRC indicated that most of Electoral Area J relies on pile burning to dispose of woody debris. Yard debris can be dropped off for free at the Ootischenia landfill during the months of May and October.[39]

FireSmart landscaping is also an eligible activity under the RDCK FireSmart rebate program. 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. One community in Electoral Area J has 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,[40] 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)

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[39] 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/

[40] 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 2015 – 2024, approximately 506 ha of fuel treatment was completed in the plan area, including a 487-ha prescribed burn west of Deer Park in 2020 (Table 18). 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, the Ministry of Forests staff indicated that there is an active fuel treatment operation around the golf course and Tower Ridge Road subdivision in Ootischenia, with a second phase starting up in 2025. Additionally, fuel management prescriptions are planned for areas along the Merry Creek FSR (2025, ~119 ha) and Rialto FSR (2026-2027, ~58 ha) that were identified as high priority areas in the WUI WRR Plan for the area. The 2017 MERR1 proposed treatment unit (PTU) overlaps the proposed Merry Creek FSR prescription area, and as such that PTU was not carried forward in this plan. PTU ROB 1 overlaps the Rialto FSR FMP planning area, but that PTU was retained in this plan as the overlap is small.

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 18. Fuel treatments completed and prescribed in the plan area.

Treatment Unit Name	Community	Year	Area (ha)	Comment
SWPI805	Raspberry	2015	0.9	SWPI/CRI – RDCK project, Pass Creek Regional Park
N/A	Deer Park	2020	487	Broadcast burn west of Deer Park – WRR funding. Overlap with 2017 DEER2 PTU
WRSE0018	Champion Lakes Provincial Park	2021	18	FES funding – road/campsite

A full reconnaissance of the WUI was not in the scope of this plan update, so most PTUs are carried forwards from the 2017 plan and then clipped to the 1-km eligible WUI or otherwise altered in minor ways. PTUs that were completed outside of the 1km WUI or completely inaccessible due to private land were dropped. Using field notes and satellite imagery, features were removed or boundaries updated 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 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 19

BC Timber Sales, Atco Lumber Ltd., and Kalesnikoff Lumber Company are the major forest licensees with tenure overlaps in Electoral Area J'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 heterogenous 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 Ootischenia, Raspberry, and the central part of Deer Park 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 J, creative solutions to incentivize forest treatment on private land even outside of the Home Ignition Zone (30 m buffer) may be required. Many properties on Fairview Drive, Lower Arrow Lake, and in West Robson 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. BCWS also recommended increasing homeowner education around prescribed burning.

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

Table 19: Summary of Proposed Fuel Treatment Units

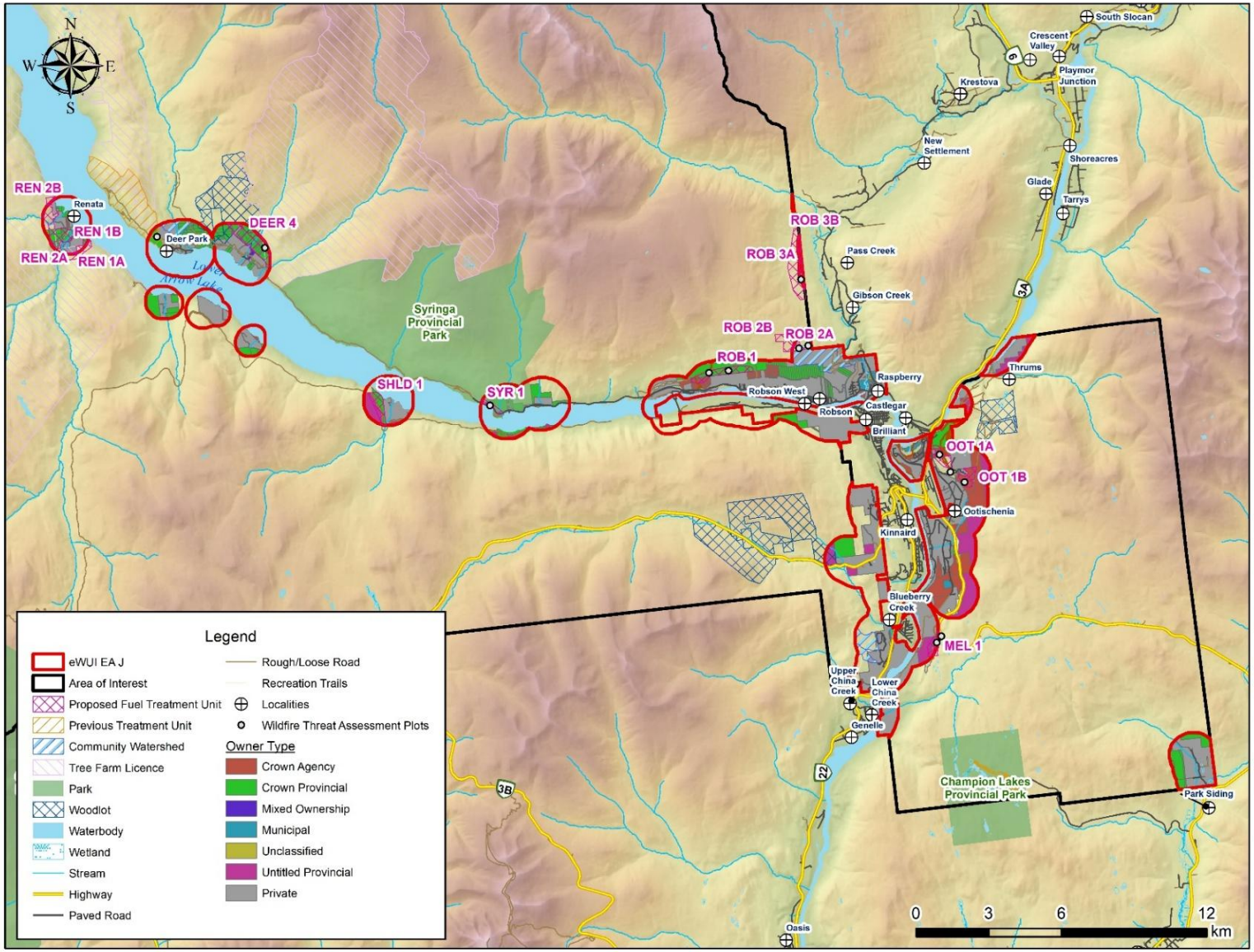
PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
DEER 4	High	104.6	Crown Provincial Land. Community of Deer Park less than 1 km away. Majority overlap Woodlot W0407; eastern edge overlaps Interfor TFL3.	New PTU as of 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of Fd, Py and Lw overstory with patchy dense Fd understory. Low amounts of surface and ladder fuels. Mechanized treatment is possible however access may be an issue due to proximity to private and. As a result, the treatment regime lends itself towards a non-commercial thin, pruning retained trees, and pile and burning ladder and surface fuels.
MEL 1	Moderate	31.7	Crown Provincial Land. Highway adjacent. Truck waystation less than 1 km away. South of Ootischenia.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of Cw, Hw, Lw and Fd overstory with 25% deciduous. Moderate amount of understory stems, surface fuels and ladder fuels. The treatment unit is gently sloped with benches and machine access is possible. As a result, the treatment regime lends itself towards a commercial thin, pruning retained trees, and pile and burning ladder and surface fuels.
OOT 1A	Low	39.5	Entirely on Crown Provincial land within RDCK Electoral Area J. Adjacent to residents and the Castlegar Golf Club. Rec trail network throughout PTU. Southern half overlaps Section 16 First Nation area 4409046, northern half overlaps Crown agency parcel.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. This PTU is located across a heterogeneous area with diverse forest structures and terrain features. Overall wildfire risk is low, with some areas previously treated. The forest is primarily composed of white pine, aspen, and paper birch, with higher concentrations of lodgepole pine and pockets of fir in certain areas. Surface fuels are generally sparse but include a substantial herb and shrub layer, dominated by bracken fern and other deciduous species. A manual thinning treatment is recommended to remove understory ingress, followed by pruning and pile burning of remaining debris. This area would also benefit from a prescribed burn
OOT 1B	Low	36.7	Entirely on Crown Provincial land within RDCK Electoral Area J. Adjacent to residents (directly adjacent to private property) and the Castlegar Golf Club. Rec trail network throughout PTU. Overlaps Section 16 First Nation area 4409046.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. This PTU is located across a heterogeneous area with diverse forest structures and terrain features. Overall wildfire risk is low, with some areas previously treated. The forest is primarily composed of white pine, aspen, and paper birch, with higher concentrations of lodgepole pine and pockets of fir in certain areas. Surface fuels are generally sparse but include a substantial herb and shrub layer, dominated by bracken fern and other deciduous species. A manual thinning treatment is recommended to remove understory ingress, followed by pruning and pile burning of remaining debris. This area would also benefit from a prescribed burn

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
REN 1A	High	27.7	Crown Provincial Land. Community of Renata less than 1 km away. Overlap with 2021 wildfire perimeter.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. This unit is largely C-5/C-3 fuel types with low to moderate accumulations of surface fuels and coarse woody debris, moderate (500-1500sph) of understory ingress, and a moderate crown base height. The PTU has moderate to steep slopes with west and north facing aspects, deep draws and gullies. Treatment should target understory thinning targeting the dense patches of Fdi, surface fuel reduction, blowdown and coarse wood management. This area has considerable riparian features with known Screech Owl habitat.
REN 1B	Moderate	35.1	Crown Provincial Land. Community of Renata less than 1 km away. Overlap with 2021 wildfire perimeter. Outside the 1km EWUI.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. This unit is largely C-5/C-3 fuel types with low to moderate accumulations of surface fuels and coarse woody debris, moderate (500-1500sph) of understory ingress, and a moderate crown base height. The PTU has moderate to steep slopes with west and north facing aspects, deep draws and gullies. Treatment should target understory thinning targeting the dense patches of Fdi, surface fuel reduction, blowdown and coarse wood management. This area has considerable riparian features with known Screech Owl habitat.
REN 2A	High	94.1	Crown Provincial Land. W half overlaps Interfor TFL 23. Community of Renata less than 1 km away	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. This unit is largely east facing aspect with moderate to steep slopes, C-7 fuel types, with patches of dense Fdi ingress intermixed, moderate to high concertation of surface fuels with considerable blowdown sites through the unit. Treatment should target understory thinning targeting the dense patches of Fdi, surface fuel reduction, blowdown and coarse wood manipulation. This area has considerable riparian features with known Screech Owl habitat.
REN 2B	Low	8	Crown Provincial Land. Majority overlaps Interfor TFL 23. Community of Renata less than 1 km away	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. This unit is largely east facing aspect with moderate to steep slopes, C-7 fuel types, with patches of dense Fdi ingress intermixed, moderate to high concertation of surface fuels with considerable blowdown sites through the unit. Treatment should target understory thinning targeting the dense patches of Fdi, surface fuel reduction, blowdown and coarse wood manipulation. This area has considerable riparian features with known Screech Owl habitat.

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
ROB 1	Low	69.5	Crown Provincial Land, approximately 200m from residences to the south. Adjacent to West Robson RDCK community water system to the south.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of mature Doulgas fir, ponderosa pine and larch overstory with minimal understory and surface fuel. This PTU is a low to moderate priority for treatment, bordered by a power line to the north, private land to the south, and creeks to the east and west. Due to terrain limitations, the prescribed treatment regime involves manual thinning, focusing on the removal of understory trees, clearing any blowdown, and limbing mature trees to improve overall forest health and reduce fire risk.
ROB 2A	Low	9.4	Crown Provincial Land. Located in a community watershed (Norns) and adjacent to private land.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The stand, consisting of mature and healthy Douglas fir, western larch, and ponderosa pine on a south-facing slope, is in good overall condition with no major concerns and spare ground fuels . Classified as a low-priority treatment unit, the prescribed treatment regime involves manual thinning due to terrain limitations. This includes removing understory trees, clearing any blowdown, and limbing mature trees to enhance forest health and reduce fire risk.
ROB 2B	Low	31.3	Crown Provincial Land. Located in a community watershed (Norns) and adjacent to private land. Outside the 1km EWUI.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. The stand, consisting of mature and healthy Douglas fir, western larch, and ponderosa pine on a south-facing slope, is in good overall condition with no major concerns and spare ground fuels . Classified as a low-priority treatment unit, the prescribed treatment regime involves manual thinning due to terrain limitations. This includes removing understory trees, clearing any blowdown, and limbing mature trees to enhance forest health and reduce fire risk.
ROB 3A	Moderate	20.9	Crown Provincial land. Less than 1 km west of residences. Norns community watershed.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of Cw and Hw with some Fd overstory. Understory is sparse with moderate to heavy surface fuel loading in patches. This treatment unit has moderate slopes with some steeper sections. As a result, the treatment regime lends itself towards a non-commercial thin, pruning retained trees, and pile and burning ladder and surface fuels.
ROB 3B	Low	108.5	Crown Provincial land. Less than 1 km west of residences. Outside the 1km EWUI. Norns community watershed.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of Cw and Hw with some Fd overstory. Understory is sparse with moderate to heavy surface fuel loading in patches. This treatment unit has moderate slopes with some steeper sections. As a result, the treatment regime lends itself towards a non-commercial thin, pruning retained trees, and pile and burning ladder and surface fuels.

PTU Name	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
SHLD 1	Moderate	48	Entirely on Crown Provincial land; overlap 24 Mile Recreation Site (RSTBC) on west edge. Adjacent to the Columbia and Western rail trail.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of Fd, Lw overstory with scattered understory and low to moderate surface and ladder fuels. CWD is moderate. The treatment unit is predominately flat benches with some steep terrain. 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.
SYR1A	Moderate	14.4	Entirely on Crown Provincial land and majority (excluding only the road right of way) overlaps Syringa Provincial Park.[41] Campground less than 1 km away. Hiking trails are present throughout the PTU.	PTU existing from 2017 and included in 2024 update Treat to reduce wildfire threat within the WUI adjacent to private property. Composed of Fd, Lw overstory with scattered understory and low to moderate surface and ladder fuels. CWD is moderate. The treatment unit is predominately flat benches with some steep terrain. As a result, the treatment regime lends itself to thinning treatment with recommend pruning of retained trees, and debris removal / management.

[41] Prioritization, planning, implementation and maintenance of fuel treatments in provincial Parks and Protected Areas will be the responsibility of BC Parks.



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 12 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.[42]

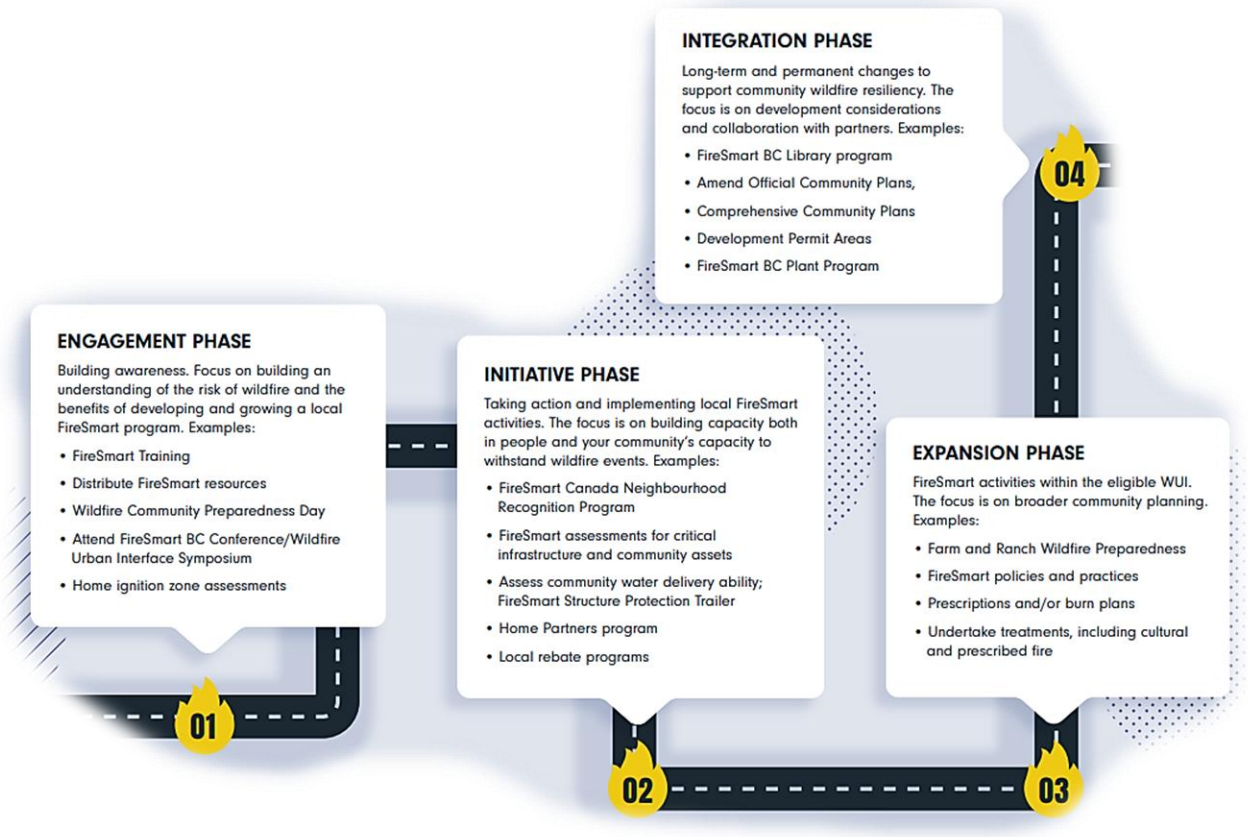


Figure 12. Graphic representation of the FireSmart Roadmap concept. [43]

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

[42] 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

[43] Copied from FireSmart BC – The FireSmart Roadmap. https://firesmartbc.ca/resource/the-firesmart-roadmap/

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

The RDCK has all three elements in place and is engaging in late-stage activities on the Roadmap, such as fuel treatments. Table 1 in the Executive Summary details the Action Plan for the RDCK. 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 works 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 Area J 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
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

Item	Priority	2019 CWPP Recommendation	2024 CWRP *Follow-Up Discussion*
Communication and Education			
7	High	Develop a coordinated approach to fuel management and hazard reduction within and adjacent to Area J 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 Area J. 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 *Follow-Up Discussion*
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
Objective: Encourage private homeowners to voluntarily adopt FireSmart principles on their properties.			
13	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.			
14	High	Complete OCP review and implement and / or strengthen zoning to expand reach of the existing.	Not as it pertains to wildfire
15	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 response
16	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.	

Item	Priority	2019 CWPP Recommendation	2024 CWRP *Follow-Up Discussion*
Communication and Education			
17	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 response
18	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
19	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
20	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.
21	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.			

Item	Priority	2019 CWPP Recommendation	2024 CWRP *Follow-Up Discussion*
Communication and Education			
22	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
23	High	Ensure RDCK Wildfire Mitigation Coordinator act as liaison between the RDCK Collaborative Planning Group and the Emergency Preparedness Committee for Area J. 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
24	Moderate	Review and clarify SPU request procedures with RDCK fire Chiefs and ensure robust SPP115 training for fire fighters.	This is in place
25	Moderate	Develop Regional Service to fund additional SPUs and maintain existing SPUs.	This is in place
26	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
27	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
28	Moderate	Conduct fire preplan assessment for key interface areas in Area J. 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.			

Item	Priority	2019 CWPP Recommendation	2024 CWRP *Follow-Up Discussion*
Communication and Education			
29	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
30	High	Require that all new interface developments have access for evacuation and sufficient capacity for emergency vehicles.	As per the Questionnaire
31	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.			
32	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 prescription work has been completed.[44]
33	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).			

[44] Prioritization, planning, implementation and maintenance of fuel treatments in provincial Parks and Protected Areas will be the responsibility of BC Parks.

Item	Priority	2019 CWPP Recommendation	2024 CWRP *Follow-Up Discussion*
Communication and Education			
34	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 actions9**- 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); 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 20 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 20. Summary of WUI Threat Assessment Worksheets (2020).

WTA Plot	Geographic Location	Wildfire Threat Rating
UNIT 3-1	Renata Unit 3	Moderate
UNIT 3-2	Renata Unit 3	Moderate
DEER4	Deer Park	Moderate
MEL1	Castlegar	Moderate
OOT1	Castlegar	Low
ROB1	Rialto FSR	Moderate
ROB2	Robson	Moderate
ROB3	Rialto FSR	Moderate
SHLD1	Shields West	Moderate
SYR1	Syringa	Moderate

[47] MFLNRORD.2020 Wildfire Threat Assessment Guide and Worksheets

APPENDIX B-3: FIRE RISK THREAT ASSESSMENT METHODOLOGY

The Wildfire Threat Assessment Methodology used in the development of the 2017 Electoral Area J 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 21 below summarizes the components and scores to determine the Fire Behaviour Threat.

Table 21: 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	
	M-1/2, >50% conifer	20
	C-7	
	M-3/4, <50% dead fir	
	O-1a/b	10
	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 the 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

[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

necessarily result 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 22. Proximity to the Interface.[52]

Proximity to the Interface	Descriptor*	Explanation
WUI 100 *HIZ/CIIZ and Community Zones*	(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 *Community and Landscape Zones*	(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 *Landscape Zone*	(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.
Landscape Zone	> 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)

[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