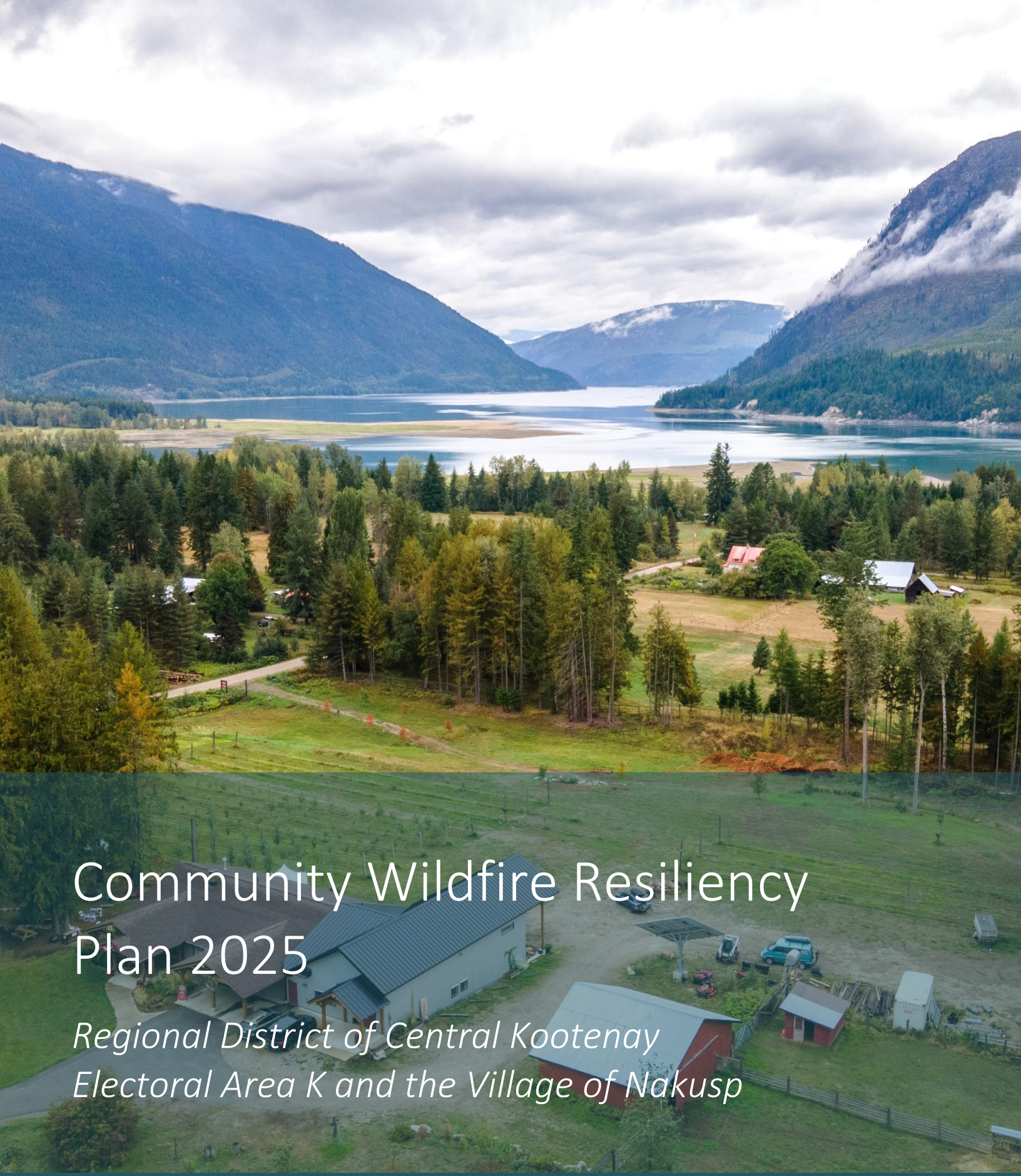
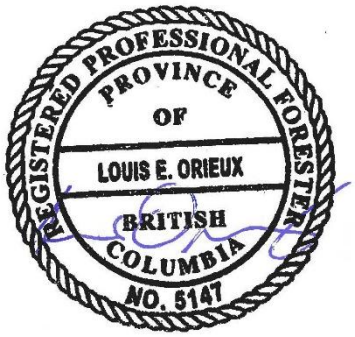


Community Wildfire Resiliency Plan 2025

Regional District of Central Kootenay
Electoral Area K and the Village of Nakusp

April 2025

REGISTERED PROFESSIONAL SIGN AND SEAL

RPF PRINTED NAME	
Louis Orieux	RPF #5147
DATE SIGNED	
May 14, 2025	
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.	
Registered Professional Forester Signature and Seal	
	

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This report would not be possible without the Community Resiliency Investment Program and funding from the Union of British Columbia Municipalities.

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 K and the Village of Nakusp 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 K's Wildland-Urban Interface (WUI). This plan 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 the Village of Nakusp, rural Nakusp (Brouse/Glenbank, Box Lake) and surrounding Upper Arrow Lake communities of Edgewood, Fauquier, Burton, Arrow Park, Whatshan Lake, Needles, and Halcyon. Recommendations made within this plan are directed at the RDCK and the Village of Nakusp, although some recommendations involve collaboration or partnership with other agencies or organizations.

Both the RDCK and the Village of Nakusp have successful FireSmart programs. 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. The RDCK and the Village of Nakusp collaborate on a FireSmart Home Assessment and rebate program, which has seen year over year growth in uptake. 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 K, there has been an impressive 221 FireSmart Assessments, 66 rebates awarded, and 5 recognized FireSmart Neighbourhoods. The high level of engagement in FireSmart may be attributed in part to wildfires in 2017, 2018, and 2021 that disrupted communities in the plan area. Nakusp has also been very active in implementing fuel treatments since the development of their first CWPP in 2008.

Since the last CWPP was completed for the area, the RDCK has also explored implementing a Wildfire Hazard Development Permit Area (DPA) policy. Although the RDCK has opted not to implement a Wildfire Hazard DPA in Electoral Area K at this time, development concerns have been partially addressed through the RDCK Bare Land FireSmart assessment program, offered throughout the region to residents who are planning to build on undeveloped lots. This free, voluntary assessment educates residents on FireSmart principles and advises best practices regarding construction, lot preparation, and landscaping. The Village of Nakusp is currently in the process of creating a Wildfire Hazard DPA.

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[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.* https://www.rdck.ca/assets/Services/Land~Use~and~Planning/Documents/2023-01-06-Wildfire_DPA-Final_Report-Redacted.pdf

The RDCK, Village of Nakusp, 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 K. This CWRP recognizes the importance of continuing a strong emergency management program, including tabletop exercises (Action Item #18) and the importance of maintaining interagency cooperation at both regional and subregional levels (Item #17).

Communities in Electoral Area K and the Village of Nakusp are all in a provincially defined Wildland Urban Interface (WUI) Risk Class polygon that has a Risk Class of 1 (Galena Bay, Nakusp, East Arrow Park, Burton, Fauquier, Edgewood), 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 assessable area (22%) have a high or extreme fire behaviour threat due to a combination of topography, fire weather, and fuel type. Local BCWS representatives noted that in the plan area, steep topography and high-speed wind events are more significant drivers of fire behavior than fuel type.

It is beyond the scope of the CWRP to analyze local threat on private land, which covers approximately 41% of the WUI. This highlights the need to implement risk mitigation programs on private land if community resilience is to be achieved. Since the last CWPP, fuel treatments have been completed around Burton, Arrow Park, Edgewood, Nakusp, Brouse, and Mt. Abriel. However, there is still more work to do (Action Item #23). *Although detailed field reconnaissance was not in the scope of this plan update,* 35 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 30 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 K. 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 K + Nakusp - 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 and in the Village of Nakusp.	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. The same may be true in Nakusp (1 WMS / FireSmart Coordinator).	RDCK, Nakusp FireSmart	1 year and annually	Sufficient staff capacity in the RDCK and the Village of Nakusp is maintained to support the programs	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 FireSmart BC print resources. Consider a FireSmart Community Preparedness Day or combined Emergency Preparedness Day. Include local first responders if possible, including fire brigades.	Community events are a great opportunity to increase awareness of FireSmart programming and FireSmart BC resources present a unified message. The Village of Nakusp has had good attendance at FireSmart workshops.	RDCK, Nakusp FireSmart (first responders)	1 year and annually	Continued uptake of the RDCK FireSmart program in the plan area (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 to advertise FireSmart 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 or fire brigades (Edgewood, Fauquier, Burton) 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, Nakusp FireSmart	Annually	Funding is allocated each year to FireSmart communication in local/social media	CRI FCFS – FireSmart staff and costs
#4 FireSmart in Schools	High	Continue to implement the FireSmart Education Program in School District 10 schools (Nakusp) and consider bringing the program to more schools (Burton, Edgewood). Invite local first responders or forestry staff if possible and continue the WRR fuel management 'field day' in Nakusp.	Engaging local students in FireSmart may increase uptake with all residents. Implementation of the FireSmart Education Program in Nakusp schools has been successful.	RDCK, Nakusp FireSmart (School District 10)	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, Nakusp FireSmart	Annually	The number of home assessments completed and rebates awarded increases annually	CRI FCFS
Administrative							
#6 Share CWRP Online	Moderate	Like other CWPPs, make this plan available on the RDCK and the Village of Nakusp websites and communicate its completion to residents.	Plan implementation will be most successful with buy-in from the public, as action on private land is required.	RDCK, Nakusp FireSmart	1 year	Plan is available online	CRI FCFS – staff time
#7 Annual Progress Report	Moderate	Consider releasing an annual FireSmart report to elected officials and the public that tracks community-specific uptake in various FireSmart initiatives	As the program grows, reporting allows the FireSmart program(s) to track challenges and successes, further promote the programs, and tailor outreach methods to achieve the most uptake.	RDCK, Nakusp FireSmart	Annual	An annual report is published.	CRI FCFS – staff time

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#8 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 for both the RDCK and the Village of Nakusp 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, Nakusp	1 year and annually	Website is reviewed annually	CRI FCFS – staff time
Legislation, Planning and Development - Section 5.3							
#9 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 any water utilities operating in the plan area to follow suit.	Protecting community assets and infrastructure is critical to wildfire response and recovery. Assessments have been completed for multiple buildings in Nakusp. There are no RDCK fire halls in the plan area but there are RDCK water systems.	RDCK, Nakusp FireSmart (Community Groups)	Ongoing	Number of assessments completed and mitigation hours/investment	CRI FCFS – public or non-profit society owned only
#10 Bare Land Program	Moderate	Continue to offer the voluntary Bare Land FireSmart assessment program (for undeveloped land where residents are planning to build). Ensure that the program is promoted through the planning department as well.	The free bare land assessment by Wildfire Mitigation Specialist is an excellent educational tool to regulate construction and landscaping without a Wildfire Hazard DPA.	RDCK FireSmart (Development)	Ongoing	Number of assessments completed	CRI FCFS – staff time
#11 Wildfire DPA	Moderate	After the implementation of a Wildfire DPA in Electoral Area I (RDCK 'pilot) and in the Village of Nakusp, the RDCK should review the applicability of a Wildfire DPA in some of Electoral Area K – potentially in the Nakusp Fire Protection Boundary, but outside of Village bounds.	A Wildfire Hazard DPA remains a good tool to regulate development, and lessons learned from Area I and from Nakusp may make for more buy-in / smoother roll out in other areas.	RDCK FireSmart (Development)	3 years	A Wildfire DPA in Electoral Area K is reconsidered prior to the next CWRP	CRI FCFS – staff time
#12 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. Recommend applying for funding to have a separate plan document completed for the Village of Nakusp (although ideally it would be completed concurrently).	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. The Village of Nakusp has its own FireSmart program and a separate plan may provide clearer direction to the local government.	RDCK, Nakusp FireSmart (Consultant)	5 years	Area K and the Nakusp each maintain a current and acceptable CWRP.	CRI FCFS funding
Cross Training & Fire Department Resources - Section 5.4							
Training							
#13 Fire Department Training	High	For Nakusp VFD, maintain annual training in SPP-WFF1 (Wildland Firefighter – Level 1) or S-100/1-185 and work towards training all members in WSPP-115 (Structural Protection Unit Deployment). Continue to send members to additional training (Wildfire Resiliency & Training Summit, TFL-1 (Task Force/Strike Team Leader), S-231 (Engine Boss Course), Structural Protection Crew Team Leader, and Large Water Supply Operations) as feasible.	SPP-WFF-1 is specific for structural fire fighters who respond to wildland fires in their service area. The Nakusp VFD is targeting all members with SPP-WFF1 and SPP-115, and ~6 members with additional courses.	Village of Nakusp	Annually	All Nakusp VFD members are trained in SPP-WFF1 and WSPP-115; ~6 members with additional training	Compensation for course instructor/facilitation of spring training courses; CRI FCFS funding
#14 FireSmart Training	Moderate	Encourage FireSmart training within local fire departments: FireSmart 101, Local FireSmart Representative (LFR), and Wildfire Mitigation Specialists (WMS). Look to 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. Edgewood has two WMS; Burton has no LFRs. Nakusp has one WMS/LFR.	Village of Nakusp	2 years	Target 2 LFRs in each fire department/brigade	CRI FCFS funding

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#15 Cross Training	Moderate	Look for ways to support Nakusp VFD/local fire brigades in holding annual practical training with wildland fire equipment, including structural protection scenarios. Include BCWS if possible.	Practical training is essential for fire departments, and BCWS cross-training enhances the abilities of crews to work together on an interface fire. BCWS indicated that cross-training events have taken place with Nakusp VFD and with the local fire brigades, but not since 2019.	Nakusp Fire Department (BCWS)	2 years	All fire departments participate in a training event with at least one other agency bi-annually	Staff and volunteer time
Water / Other							
#16 Response Map	High	Work with local fire brigades to identify and digitally map 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.	Burton and Edgewood fire brigades have natural water sources mapped on paper. In an interface wildfire scenario it would be helpful if this information, including notes on access and seasonable reliability was digital (e.g. KMZ) so it could be shared with BCWS response personnel, as well as included in the pre-planning of emergency community water delivery systems. The CFRC indicated that an access map would be helpful.	RDCK (fire brigades)	2 years and ongoing	A digital file or PDF response map is produced and shared	Incremental staff time; funding possible
Interagency Cooperation - Section 5.5							
#17 FireSmart Committees	High	Continue to engage the regional Wildfire Planning Table to plan, to plan, implement, and coordinate FireSmart initiatives, including fuel management treatments. Support a local (Nakusp area) FireSmart and Resiliency Committee (CFRC) if it is formed.	Both regional and sub-regional FireSmart Committees are valuable. The current Planning Table is working well and the RDCK should look for opportunities to support a sub-regional committee.	RDCK FireSmart, Nakusp	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							
#18 Tabletop Exercises	Moderate	As part of the RDCK Emergency Program (Nakusp is included), continue to hold annual tabletop emergency exercises with emergency management partners. Suggest practicing a wildfire scenario involving road blockages in Electoral Area K.	Tabletop exercises provide an opportunity to identify weak spots in a plan and collaborate. The RDCK already has experience with wildfire evacuations, but tabletop exercises are still valuable.	RDCK Emergency Management (RCMP; SAR; BCWS; Fire Departments)	3 years	Exercise involving a fire in Area K is completed	CRI FCFS Emergency Planning. Possibly CEPF / Columbia Basin Trust
#19 Voyent Alert	Moderate	RDCK and Village of Nakusp 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, Village of Nakusp	Ongoing	Continued uptake of the Voyent Alert! System (can track downloads from app providers).	RDCK staff time
#20 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. Most infrastructure in Nakusp has backup power, although the Emergency Reception Centre does not	RDCK Emergency Management, Village of Nakusp	2 years	Fire halls, Emergency Reception Centres, and water systems have back up power	Staff time and equipment cost
#21 Pre-incident Plan	Moderate	The RDCK and Naksup should consider requesting additional Structure Protection Community Assessments through the BCWS Provincial Structure Protection Coordination office.	Intermix communities along Arrow Lakes are good candidates for a Structure Protection Community Assessment due to reliance on natural water sources (which can be poor late in the fire season) and lack of formal structural fire services. Shuttling or pumping water from lakes and rivers to fill bladders may be planned in advance, including tender access points, traffic control, permanent large-volume pumps and piping. Assessments have been completed for: Fauquier, Burton and Edgewood.	RDCK, Nakusp (BCWS) (OFC) (Fire Departments)	5 years	Additional Structure Protection Community Assessments are 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
#22 Promote Good Civic Addressing	Low	Continue to promote the installation of visible and reflective addresses throughout Electoral Area K. Consider including a link to purchase recommended signage on the RDCK Emergency Management webpage.	The CFRC noted that address visibility was poor in rural Nakusp (outside municipal boundaries) and in Edgewood. Reflective signs help emergency responders find properties during response or evacuation events. Consider providing discounted signs (Edgewood is seeking funding) and/or free delivery and installation along with a FireSmart Home Assessment.	RDCK FireSmart (fire departments)	2 years	Most properties have visible addresses	Promotion campaign; consider providing discounted signs (e.g., 40-60 hours and $20-30 per sign)
Vegetation Management - Section 5.7							
Fuel Management Treatments							
#23 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. 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.	RDCK, Naksup FireSmart (CRI FCFS); Ministry of Forests WRR	5 years	Previously treated areas are maintained in a lower hazard state and additional treatments are completed.	CRI (FCFS, WRR) or CBT
#24 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. This would be especially useful in the Nakusp area, where many treatments have been completed under different funding programs over the last 10-15 years.	RDCK / Planning Table	Annual	A useful regional fuel treatment dashboard is maintained.	Funding may be available.
#25 Support Fuel Treatment on Private Land	Moderate	Engage with the Ministry of Forests to discuss a strategy to enable owners of large forested properties to undertake meaningfully-sized fuel treatments. A strategy could involve education, free guidance and potentially an incentive program. Look to Washington State Department of Natural Resources' Small Forest Landowner Regulation Assistance Program for a possible framework.	Even the most dedicated residents will likely have difficulty (time, cost) undertaking fuel treatments beyond the 30 m Home Ignition Zone. However, effectively reducing wildfire risk from structures-out will involve forest treatments on private land on a broad scale. Residents may benefit from a program that helps them plan and undertake such treatments in compliance with local and provincial legislation, and in a cost-effective and possibly income generating manner.	RDCK (Ministry of Forests)	4 years	Meetings take place	Incremental staff hours; possibly part of ongoing interagency communications
#26 Interpretive Signage	Moderate	As part of fuel treatment implementation and maintenance, the RDCK and the Village of Nakusp should consider installing interpretive signage.	Many areas have been treated since the 2008 CWPP and the intent may not be known to all residents. 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, Nakusp FireSmart	5 years	Signage installed during implementation phases.	CRI FCFS
Residential and Community FireSmart							
#27 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 mitiation 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
#28 Free Yard Waste Disposal	Moderate	Continue providing options for the disposal of yard waste. Currently, this includes having tipping fees waived (May and October) for yard waste at the RDCK transfer stations/landfills, and running a free pick-up program in the spring (Nakusp)	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.	RDCK, Nakusp FireSmart	Annual	Free yard waste disposal continues	CRI FCFS funding is available for tipping fee coverage

Item	Priority	Recommendation	Rationale	Lead (Involved)	Timeframe	Metric for Success	Funding Source
#30 Neighbourhood Recognition	High	Continue to promote the FireSmart Canada Neighbourhood Recognition Program, including offering support from local Wildfire Mitigation Specialist(s) or Local FireSmart Representatives (LFRs) for Neighbourhood Assessments and Plans. Continue offering the Neighborhood Champion Grant.	The RDCK provides step-by-step information online for interested neighbourhoods. Electoral Area K has 5 recognized neighbourhoods to date. The Neighborhood Champion Grant provides a valuable incentive for program participation.	RDCK FireSmart	2 years	Number of recognized neighbourhoods increases	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 K and the Village of Nakusp to the Community Wildfire Resiliency Plan (CWRP) template. This plan replaces the previous CWPP for Electoral Area K. 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 K and the Village of Nakusp.

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 K is provided under the RDCK Emergency Management Program. The designated Regional Emergency Operations Centre (EOC) is in Nelson. 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

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

and Recovery Plan (2015)[4] outlines structural and organizational requirements for coordinated response and recovery from emergencies in the RDCK, including decision-making tools for evacuation or shelter in place; 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 K Community Wildfire Protection Plan Update – 2017[5]

Beginning in 2017, Nakusp and Area Community Forest developed a Community Wildfire Protection Plan update for the Regional District of Central Kootenay Area K and the Village of Nakusp. 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 K that have been involved in community wildfire planning. *Strategic opportunities exist between these plans and should be considered.*

- *RDCK Electoral Area J CWRP 2024* – concurrently in development.[6]
- RDCK Electoral Area North/South H CWPP 2020 – completed.
- CSRD Electoral Area B CWRP 2022 – completed.
- RDNO North and East Okanagan CWPP 2020 (Electoral Areas D, E, F) – completed and RFP released for 2025 update

2.3 LOCAL PLANS AND BYLAWS

The sections and policies of the Electoral Area 'K' – The Arrow Lakes Official Community Plan Bylaw No. 2022[7] (consolidated to July 2023) and the Village of Nakusp Official Community Plan Bylaw No. 697, 2021[8] are listed in Table 2 and are directly relevant to proactive wildfire resilience in the plan area. These OCPs was reviewed as part of this CWRP to address any gaps or limitations that inadequately address fire

[4] https://www.rdck.ca/assets/Services/Fire~Services/Documents/2015-04-31_RDCK_Emergency_Response_Recovery_Plan%20V22.pdf

[5] RDCK EMERGENCY RESPONSE AND RECOVERY PLAN

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

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

[8] https://developnakusp.com/wp-content/uploads/2021/08/Schedule-A-Offical-Community-Plan-Reduced.pdf

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

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

Section [The Electoral Area 'K' - The Arrow Lakes Official Community Plan Bylaw No.2022, 2009][9]	Relevant Policies
9.0 Servicing Objective	**Objectives:** *2. To ensure that land use decisions accommodate emergency response through adequate access to developments and facilities for fire protection services and first response.* **Policies:** *2. Supports the location and development of fire halls and community halls and parks in the rural area as development requires; and the needs of the community change.*
11.0 Servicing and Transportation	**Servicing Objectives:** *5. To ensure that new developments are subject to the requirements of adequate water supply for both domestic and fire protection purposes, where applicable.* **Servicing Policies:** 3. *Requires that new and improved domestic community water systems be designed and constructed to provide hydrants with sufficient flows for the provision of fire protection.*
14.0 Hazard Lands	**Hazard Land Policies:** *2. The watersheds upstream of the alluvial fans of Heart Creek, Inonoaklin Creek, Eagle Creek and Caribou Creek are sensitive to future change caused by extreme meteorological events, logging or wildfire. The extent and severity of the flood hazard on these alluvial fans of these creeks could be modified by such changes upstream.* **Fire Management Policies the Regional Board:** *1. Supports protection of accesses to water sources such as hydrants, standpipes, lakes, and streams to remain free of obstructions for fire protection purposes.* *2. Encourages local volunteer fire departments to work with the RDCK to keep up to date with emergency preparedness and with the identification of increased risk as a result of natural or man-made events.*

[9] https://rdck.ca/wp-content/uploads/2024/11/2022-K_OCP_Consolidated_2756_and_2852.pdf

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

Section [Nakusp Official Community Plan, 2021][10]	Relevant Policies
Growth Strategy Policy 3.5	*Continue to foster relationship building with the Regional District of Central Kootenay through the development of regional-oriented plans, such as emergency planning and wildfire management.*
Environmental Policy 4.1.5	*All development must show an understanding of and incorporate FireSmart Canada principles and design standards.*
Floodplain and Steep Slope DPA Policy 5.3.1	*vi. Design developments to allow for the continuation of ecological processes that are essential for ecosystem sustainability (erosion, slip and subsidence, flooding, fire, etc.);*
Village Core DPA Policy 5.4.17	*Landscaping should incorporate plants native to British Columbia and the Nakusp area and should be selected in accordance to FireSmart Canada standards wherever possible.*
5.5 Gateway DPA Policy 5.5.16	
5.6 Hot Springs DPA Policy 5.6.16	
6.0 Energy Consumption and Greenhouse Gas Emissions **Policy 6.3**	*Encourage, promote, and support design that maximizes FireSmart compliant tree planting and green space retention with an emphasis on open space and street trees to reduce building energy demand.*
7.0 Implementation and Action Plan **Policy 7.1.5**	*The Village has created and adopted an Emergency Management Plan, which includes wildfire evacuation protocol and wildfire evacuation signage.*
7.3 Strategic Implementation **Policy 7.3.8**	*The Village should create and review an Emergency Management Plan, preferably in collaboration with the RDCK, that is informed by wildfire best practices and guidelines established by FireSmart Canada and should be updated every 5 years after its adoption.*

The local bylaws listed below are directly relevant to proactive wildfire resilience in Electoral Area K and the Village of Nakusp (Table 4). These bylaws were reviewed as part of the CWRP to address any gaps or limitations that inadequately address fire hazards or risk mitigation.

[10] https://developnakusp.com/wp-content/uploads/2021/08/Schedule-A-Offical-Community-Plan-Reduced.pdf

Table 4. Summary of relevant bylaws in Area K and the Village of Nakusp and their relationship to the CWRP

Bylaws	Section	Description and *Relation to CWRP*
Village of Nakusp Good Neighbour By-law No 640, 2011:	2.6 (d) 2.8 (a)	an accumulation of dead landscaping, brush, vegetation, weeds, or other growths on the property - *Addresses the accumulation of dead landscaping debris, brush, vegetation, weeds or other growths on the property and Requires property owners to maintain vegetation and debris on boulevards adjacent to their property.*
Village of Nakusp Water Rates and Regulations By-law No. 656, 2015:	7.1	No person shall operate any hydrant, stand-pipe or valve or use water there from other than an employee of the Village in the course of his or her employment, unless the person has first obtained a hydrant use permit under the Village's Cross Connection Control Bylaw as amended or replaced from time to time - Regulates water use and restricts the use of fire hydrants and standpipes to employees of the Village or persons with a hydrant use permit.
Fire Regulation Village of Nakusp Bylaw No.588, 2004:	14.0 (a-d) 15 (a-p)	14a. No person, anywhere within the geographical boundaries of the Municipality shall light or start or knowingly permit or cause to start or ignite any fire, other than a campfire, in the open air without first obtaining a Burning Permit from the Public Safety Officer, attached as Schedule 'F'. A competent person shall always remain in charge of such fire until such fire is extinguished. 15a. The Public Safety Officer or any person under his authority is hereby authorized to inspect premises for conditions which may cause a fire or increase the danger of a fire or increase the danger to persons. - *Regulates outdoor burning within municipality limits and lays out burn permit requirements. Additionally assigns responsibility for fire prevention and response.*
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

Bylaws	Section	Description and *Relation to CWRP*
		- 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.*
	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.*

Bylaws	Section	Description and *Relation to CWRP*
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 EA-K and Nakusp'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).*
	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.*

Bylaws	Section	Description and *Relation to CWRP*
	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*

The local plans listed in Table 5 were also reviewed as part of the CWRP to address any gaps or limitations that inadequately address fire hazards or risk mitigation.

Table 5: Summary of local plans and policies that are directly relevant to the CWRP.

Plan	Description and *Relationship to CWRP*
Nakusp and Arrow Lakes Trails Master Plan, 2017	Provides a framework and strategy for the management and development of trails in Nakusp and Area K. The plan does not include specific sections regarding wildfire prevention, response, or evacuation on trails. During trail maintenance and development, consideration should be given to wildfire mitigation including the use of signage for fire prevention and reporting. Trails can also provide critical access for wildfire suppression crews, creating an opportunity to coordinate trail development into wildfire mitigation efforts. Trail locations should also be considered when planning fuel treatments to ensure activities are consistent with recreation objectives in the area.
Village of Nakusp Water System Source Protection Plan, and Water System and Emergency Response Plan, 2016	In 2016 an in-depth review by Austin Engineering Ltd. assessed the major risks facing Nakusp's surface water sources. The protection plan identifies wildfires as posing a "Very High Risk" to village's water source, with the potential for "Major Consequence" (Austin Engineering Ltd., 2016). The emergency response plan provides procedures to be implemented during an interface fire, which include: increasing reservoir levels to maintain maximum fill capacity for firefighting, working with the Fire Department to provide required pressures and flows, and implementing water restrictions as necessary. As part of the emergency response plan, the Village maintains an up-to-date Emergency Response Contact List.

2.4 HIGHER-LEVEL PLANS AND LEGISLATION

Table 6 lists higher-level plans and legislation that are relevant to wildfire planning and risk mitigation within Electoral Area K. These plans help guide where and how activities like resource extraction occur on the landscape, which can affect both wildfire threat and consequence. Depending on the location of any proposed fuel management treatments, fuel management prescriptions and prescribed / cultural burn plans may need to address these plans as they relate to on-the-ground restrictions and policies for forest modification.

To date there has been no Wildfire Urban Interface Wildfire Risk Reduction (WUI WRR) Plan completed for the plan area. WUI WRR plans are led by the Ministry of Forests Crown Land WRR program. They are

the next generation of Tactical Plan and serve as the primary wildfire risk reduction planning mechanism for Crown land in the interface.[11]

Table 6: 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. - *The majority of the wildland-urban interface around Nakusp is within a High Smoke Sensitivity Zone while the remainder is in a Medium Smoke Sensitivity Zone.*
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 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.

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

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: McDonald Creek Provincial Park Purpose Statement and Zoning Plan (2003) - Maintain recreational opportunities oriented to a forested lakeside setting - Protect lakeshore riparian habitat, kokanee spawning habitat
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 K. 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 K and the Village of Nakusp. Only a portion of this is within the Wildland-Urban Interface (WUI). The WUI is defined by FireSmart Canada as the zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. For the FireSmart Community Funding and Supports (FCFS) program, the 'Eligible WUI' is considered as the area 1 km from a structure density class greater than six structures per square kilometer. This is a departure from the 2017 CWPP, which used a 2-km buffer on the same structure density class. BC Wildfire Service generates WUI spatial layers and WUI Risk Class maps to assist with initiatives related to wildfire risk reduction, including the CRI FCFS program.[12]

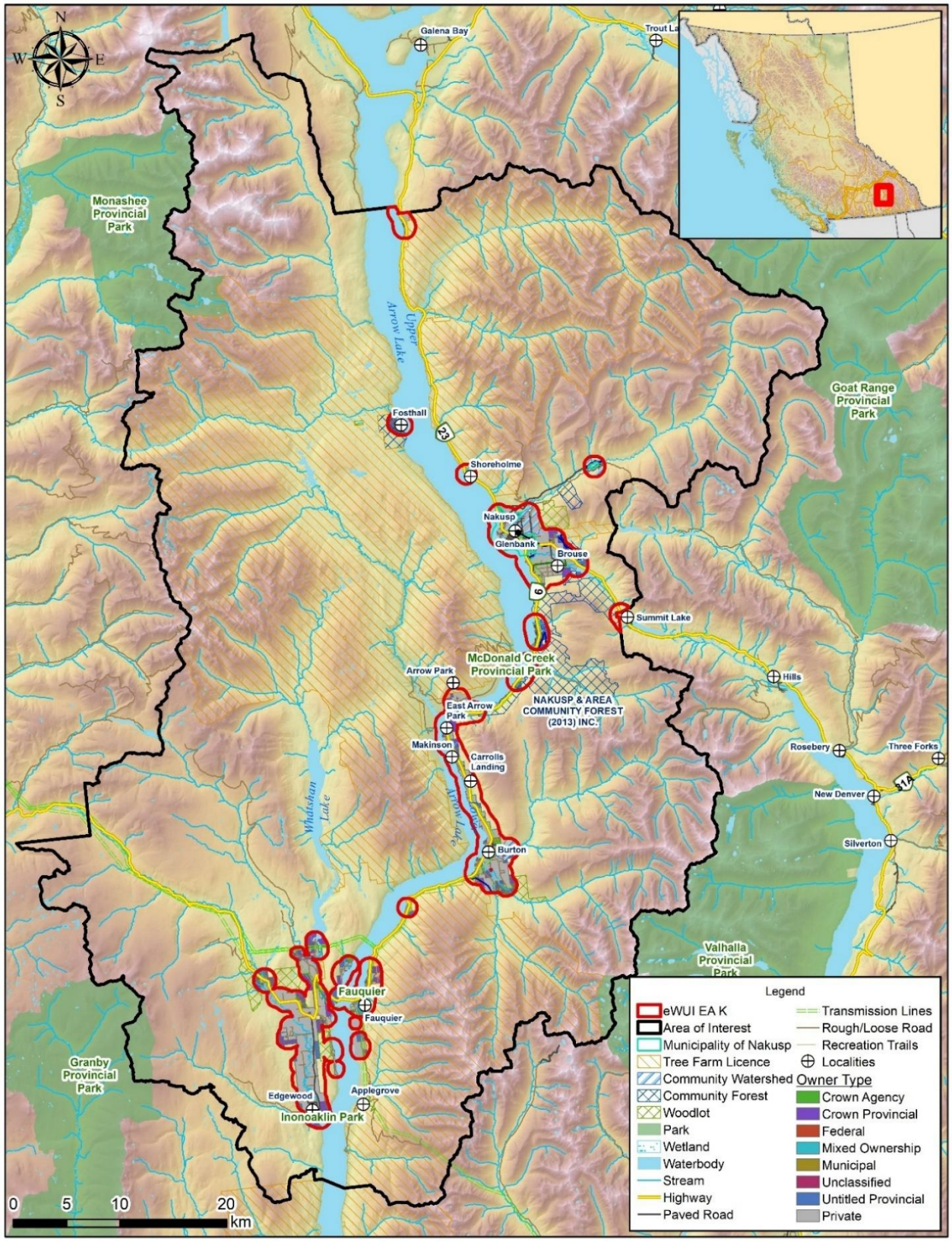
The Eligible WUI was clipped to the boundaries of Electoral Area K and the Village of Nakusp, which forms the Area of Interest (AOI) for the CWRP. Field work, GIS analysis, and the recommendations for this CWRP cover only this one kilometer 'Eligible WUI' which covers a total of 22,269 hectares. If development 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 K, with an approximate breakdown of land ownership type by area listed in Table 7. 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 7: Land ownership within the WUI.

Land Ownership	Area (Ha)	Percent of WUI (%)
Crown Agency	867	4%
Crown Provincial	3673	16%
Federal	1	0%
Mixed Ownership	3	0%
Municipal	257	1%
Municipal - RDCK	47	0%
Untitled Provincial	8388	38%
Private/Unclassified	9033	41%
TOTAL	22,269	100%

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



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

3.2 COMMUNITY DESCRIPTION

Electoral Area K is in the northwestern corner of the RDCK, north of Castlegar and south of Revelstoke. It extends along Lower Arrow Lake and Upper Arrow Lake and includes the unincorporated communities of Brouse, Glenbank, Box Lake, Edgewood, Fauquier, Burton, Arrow Park, Whatshan Lake, Needles, and Halcyon. Electoral Area K shares a boundary with Electoral Area J (Lower Arrow Lake) to the south and with Electoral Area B of the Columbia Shuswap Regional District (CSRD) to the north. Multiple sub-ranges of the Monashees (west) and Selkirk Mountains bound the Electoral Area to the west and east respectively. The Village of Nakusp is the hub for Electoral Area K.

The main community access routes are Highway 6 and Highway 23. Highway 6 connects Vernon to Nakusp, crossing Arrow Lake at the Needles-Fauquier ferry. From Nakusp, Highway 6 heads south along the shore of Slocan Lake towards Nelson. Highway 23 heads north from Nakusp along the east shore of Upper Arrow Lake, crossing the lake at the Shelter Bay-Galena Bay ferry and heading to Revelstoke. Inonoaklin Valley Road connects Edgewater to Highway 6, south of Fauquier, and Arrow Park / Saddle Mountain Road connects communities on the west side of Upper Arrow Lake to Highway 6 via a cable ferry.

The plan area is within the BC Wildfire Service (BCWS) Southeast Fire Centre and Arrow Fire Zone. A small portion of the area southwest of Galena Bay is in the Columbia Fire Zone. Structural firefighting services are provided on contract in the area surrounding Nakusp from the Village of Nakusp, and by volunteer fire brigades (not associated with the RDCK, established as fire protection areas or dispatched by 911) in Edgewood, Fauquier, and Burton. There are BC Ambulance stations and medical clinics in Edgewood and Nakusp (Arrow Lake Hospital). Nakusp also has an RCMP detachment. There is an RDCK-operated landfill in Nakusp and transfer stations in Edgewood and Burton.

Table 7 provides an overview of relevant census and socio-economic data, offering valuable insights into the demographics and characteristics of the plan area. Approximately the same number of people live in rural Electoral Area K as in the Village of Nakusp. The population of the plan area is growing slightly, with a 6% increase recorded by Statistics Canada between 2016 and 2021.[13] Like most of the RDCK, the area outside of the Village of Nakusp is rural, with an average of only 0.4 people per square kilometer. As of 2021, there was a total of 870 private dwellings, with a permanent occupancy rate of 89.0% 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 8: Socio-economic statistics for Electoral Area K as per the 2021 census [13]

Metric	Value
Population	
Total Population	1,784

[13] 2021 Canadian Census Data.

Metric	Value
Population Density (people/km2)	0.4
Population percentage change between 2016 and 2021	+6.1%
Number of people <14 years old (% of total population for the area)	9.2%
Number of people 15-64 years old (% of total population for the area)	54.9%
Number of people >65 years old (% of total population for the area)	35.9%
Median Age (years)	52.8
Housing	
Total private dwellings (year)	870
Private dwellings permanently occupied	89.0%
Ownership	89.7%
Income and Employment	
Median Total Income of Households	$57,200

Table 9. Socio-economic statistics for Nakusp, as per the 2021 census.[13]

Metric	Value
Population	
Total Population	1,589
Population Density (people/km2)	197.7
Population percentage change between 2016 and 2021	-1.0%
Number of people <14 years old (% of total population for the area)	11.3%
Number of people 15-64 years old (% of total population for the area)	56.3%
Number of people >65 years old (% of total population for the area)	32.1%
Median Age (years)	48.6
Housing	
Total private dwellings (in 2021)	760
Private dwellings permanently occupied	80.9%
Ownership	76.3%
Income and Employment	
Median Total Income of Households (2020)	$59,200

Figure 1. Google Earth image of Edgewood and the Inonoaklin Valley, looking north.

Edgewood / Inonoaklin Valley

With a population of about 235, Edgewood is the most populous community in Electoral Area K outside of Nakusp.[14] Edgewood is a small community on the west side of Arrow Lake. Access is from Highway 6 via the Inonoaklin Valley Road, which traverses the wide, agricultural Inonoaklin Creek valley. The RDCK operates a community water system in Edgewood. Properties in Edgewood are mainly private residences on small lots surrounded by forest. There is a rough secondary egress route from Edgewood south to Grand Forks on the Worthington Creek / Burrell Creek Forest Service Road(s). Edgewood has a volunteer fire brigade.

Whatshan Lake

North of Edgewood there are scattered, highly intermixed residential properties along the Whatshan River and the south end of Whatshan Lake, including a retreat centre with campground and cabins. BC Hydro operates a dam on the river; the associated powerhouse (tunnel-fed) is on the west shore of Arrow Lake.

Needles

Highway 6 crosses Arrow Lake at the Needles-Fauquier ferry. Some properties are located on Highway 6, but closer to Whatshan Lake.

[14] Statistics Canada 2021 and Electoral Area K OCP.

Figure 2. Google Earth image of Fauquier and Needles, looking north. Whatshan Lake is in the top left corner of the image.

Fauquier

Fauquier is on the east shore of Arrow Lake, accessed via Highway 6. As of the 2021 census the population was 142. Fauquier is a small community with residential properties clustered on the lakeshore and some commercial amenities, including a golf course. There also intermixed properties scattered north along Highway 6. The RDCK operates a community water system in Fauquier with hydrants for fire suppression. There is a volunteer fire brigade in Fauquier.

Figure 3. Google Earth image of Burton, looking north.

Burton

Burton is a small community on the east shore of Arrow Lake between Fauquier and Nakusp. As of the 2021 census the population was 132. The community is serviced by an RDCK-operated community water system complete with standpipes for fire suppression. There are some commercial amenities as well as an elementary school. Homes are generally on medium sized lots with some intermixed roads and some cleared/agricultural areas. Burton has an active community association and a volunteer fire brigade.[15]

Figure 4. Google Earth image of Arrow Park, looking east.

Arrow Park

North of Burton, rural residential properties are scattered along Highway 6 and the east shore of Arrow Lake. Arrow Park is a concentration of homes at the bend in the lake. A cable ferry provides access between East Arrow Park and Arrow Park on the west side of the lake. Properties are located on the flat forested benches adjacent to the lake. Some areas are cleared for agriculture or other purposes.

[15] https://burtonbc.ca/burton-community-association/

Figure 5. Google Image of Nakusp and surrounding communities of Brouse and Glenbank, looking east. Nakusp Hot Springs is towards the top left of the frame.

Nakusp

The Village of Nakusp is located at the junction of Highway 6 and Highway 23. Municipal boundaries encompass densely developed residential and commercial areas on the shore of Upper Arrow Lake, forest and farmland east of town, and forest and industrial area around the airport north of town. Municipal boundaries also include Nakusp Hot Springs approximately 15 km east of the Village on Hot Springs Road in the densely forested Kuskanax Creek drainage. With a 2021 census population of over 1,500, Nakusp is easily the commercial hub of the area. Services provided at the municipal level include fire protection, drinking water, and sewage treatment.

Bayview/Morton Beach is a neighbourhood south of the municipality but within the Nakusp Fire Protection Area. McDonald Provincial Park is to the south. Likewise, Shoreholm is outside of municipal boundaries to the north, close to Mt. Abriel recreation area, and is also within the Nakusp Fire Protection Area.

Brouse / Glenbank

The communities of Brouse and Glenbank are just outside of Nakusp municipal boundaries. Both areas are primarily rural residential, with forested properties and some areas cleared for development or agriculture. Both neighbourhoods are connected to the Nakusp municipal water system and are within the Nakusp Fire Department response area, which extends outside of municipal boundaries north on Highway 23 and south on Highway 6. Fire hydrants are located within the portion of the community connected to the water system, with a standpipe in Brouse at Wilson Lake Road.

Box Lake

Box Lake is just south of Brouse. There are a few properties at the west end of the lake, as well as Box Lake lumber (split rail fencing manufacturers).

Halycon

Halycon Hot Springs is a small resort just off Highway 6 on the east shore of Arrow Lake, approximately 35 km north of Nakusp.

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.[16] Table 10 (and displayed on Map 2) lists critical infrastructure in the plan area as identified by the RDCK or the Village of Nakusp.[17] The Village of Nakusp has confirmed that FireSmart assessments and backup power are in place for most of their critical infrastructure. The assets operated by the RDCK are the Burton, Fauquier, and Edgewood water systems; fire halls in Electoral Area K are operated by independent societies not associated with the RDCK.

Water and electric systems are discussed in more detail in Sections 3.3.2 and 3.3.3.

Table 10. Critical Infrastructure and community assets within Electoral Area K.

Name	Type	Jurisdiction	Municipality / Community	Comment
Critical Infrastructure				
Ambulance Station	Emergency Response	BC Ambulance Service	Edgewood	
Edgewood Fire Hall 1	Emergency Response	Edgewood Fire Brigade	Edgewood	410 Monashee Ave, Edgewood, BC V0G 1J0
Edgewood Fire Hall 2	Emergency Response	Edgewood Fire Brigade	Edgewood	9310 BC-6, Fauquier, BC V0G 1K0
Burton Fire Hall	Emergency Response	Burton Fire Brigade	Burton	

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

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

Name	Type	Jurisdiction	Municipality / Community	Comment
Fauquier Fire Hall	Emergency Response	Fauquier Fire Brigade	Fauquier	
Nakusp Emergency Services Building (BC Ambulance, Arrow Lake Search and Rescue, Emergency Support Services, and Nakusp Volunteer Fire Department)	Emergency Response	Village of Nakusp	Nakusp	FireSmart Assessment complete; backup diesel generator
Nakusp & District Sports Complex (designated Emergency Reception Centre)	Emergency Response	Village of Nakusp	Nakusp	FireSmart Assessment complete
Nakusp Village Office	Emergency Response / Administration	Village of Nakusp	Nakusp	
Royal Canadian Mounted Police	Emergency Response	Crown Federal	Nakusp	
Health Care Unit	Medical Facilities	Interior Health Authority	Edgewood	
Arrow Lakes Hospital	Medical Facilities	Interior Health Authority	Nakusp	Backup diesel generator
Burton Water System (Wells, Pump House, Reservoir)	Utilities	Regional District of Central Kootenay	Burton	
Edgewood Water System (Pump House 1 and 2, Reservoir)	Utilities	Regional District of Central Kootenay	Edgewood	
Fauquier Water System (Pump House, Reservoir, Treatment Plant)		Regional District of Central Kootenay	Fauquier	
Nakusp water system (treatment plant and pump stations)	Utilities	Nakusp (Village)	Nakusp	Backup diesel generators in place; treatment plant has FireSmart assessment completed.
Nakusp wastewater treatment plant/lagoons	Utilities	Nakusp (Village)	Nakusp	FireSmart assessment completed
Cell Tower	Utilities	Telus	Nakusp	FireSmart assessment completed; backup diesel generator and battery
Nakusp substation	Utilities	BC Hydro	Naksup	Across Highway 6 from Arrow Lake Hospital. CFRC expressed concern with proximity of forest
Whatshan dam powerhouse	Utilities	BC Hydro	Needles	Outside of the WUI
Community Assets				

Name	Type	Jurisdiction	Municipality / Community	Comment
Nakusp Public Works Yard	Public Works	Nakusp (Village)	Nakusp	FireSmart assessment completed
Burton Community Hall	Community	Burton Community Hall Association	Burton	
Fauquier Community Club (Old School)	Community	Fauquier Community Club	Fauquier	
Doukhobor Heritage Retreat Society	Community	Doukhobor Heritage Retreat Society	Needles	
Burton Elementary School	Community	Arrow Lakes School District #10	Burton	
Edgewood Elementary School	Community	Arrow Lakes School District #10	Edgewood	
Nakusp Elementary School	Community	Arrow Lakes School District #10	Nakusp	
Nakusp Secondary School	Community	Arrow Lakes School District #10	Nakusp	

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.[18]

BC Hydro provides electrical service in the plan area through a network of transmission and distribution lines. Several transmission lines intersect the WUI, paralleling Highway 6 and crossing Arrow Lake at Fauquier. Related infrastructure includes the Nakusp substation (listed in Table 10) at the intersection of Highway 6 and 1st Ave in Nakusp, and Whatshan dam powerhouse on the west shore of Arrow Lake, north of Needles. In the event of a wildfire, BC Hydro will work with BCWS crews to protect and monitor

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

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.

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

3.3.3 WATER AND SEWAGE

Drinking water supply in Electoral Area K is provided by a combination of community/municipal water systems and private wells or surface water intakes. The RDCK operates water systems in Edgewood, Fauquier, and Burton. Detailed information on each RDCK water system is provided on the RDCK website and is summarized below in Table 11.[19] The Village of Nakusp also operates a municipal water and sewer system which also supplies water to Brouse and Glenbank. The main Village water sources are two community wells located within the Village center and the Brouse and Halfway community watersheds in Upper Brouse. The Kuskanax River Watershed serves as a back-up source. A water treatment plant serving the Brouse and Halfway sources is located on Upper Brouse Loop Road. The septic lagoon for the Village of Nakusp is located north of town center.

There are several community watersheds in Electoral Area K:

- Heart Community Watershed (Heart Creek, south and east of Fauquier)
- Caribou Community Watershed (Caribou Creek, east of Burton)
- Dog and Baerg Community Watersheds (Dog Creek and Baerg Creeks, by Bayview Road)
- Halfway and Brouse Community Watersheds (Brouse Creek and Halfway Creek, east of Nakusp)
- Kuskanax Creek Community Watershed (Kuskanax Creek, north and east of Nakusp)

Table 11. Summary of [RDCK] water systems in the WUI

Water System	Description	Location
RDCK - Edgewood	92 active connections, source water from two wells located off Eagle Crescent. 600,000 L insulated bolted steel tank reservoir	Edgewood

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

Water System	Description	Location
RDCK - Fauquier	93 active connections, 1,135,000 L concrete reservoir and a second 50,000 L steel tank for residents at higher elevations	Fauquier
RDCK - Burton	54 active connections, 102,000 L insulated bolted steel tank reservoir	Burton

Fire hydrants and/or standpipes are located in Edgewood, Fauquier, Burton, Nakusp, and in some parts of Brouse/Glenbank. The CFRC indicated that neither the Edgewood or Burton system provides rated coverage under the Fire Underwriters Survey. For the areas not adequately serviced by a water system, the provision of water suppression for firefighting relies on drafting from natural water sources, which include the Arrow Lakes and many creeks. Local fire departments and the RDCK expressed concerns with water supply for fire fighting – specifically, the variable water level of Arrow Lake can make drafting difficult or impossible, especially late in the fire season. See Section 5.4 for recommendations related to fire department resources, including water source mapping.

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 K includes the Nakusp landfill, transfer stations in Burton and Edgewood, and the log yard in Nakusp, 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.

Table 12. Hazardous infrastructure identified in the WUI

Name	Type	Jurisdiction	Location
Burton Transfer Station	Hazardous	Regional District of Central Kootenay	Burton
Edgewood Transfer Station	Hazardous	Regional District of Central Kootenay	Edgewood
Nakusp Landfill	Hazardous	Regional District of Central Kootenay	Nakusp
Mercer-Celgar log yard[20]	Hazardous	Private	Nakusp

[20] https://www.nakuspcommunityforest.com/log-marketing/

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 K and Nakusp. McDonald Creek Provincial Park is a large protected area on the west and east shores of Upper Arrow Lake south of Nakusp that offers front-country camping as well as day use facilities for visitors. There are small provincial parks near the lakeshore in Burton, Edgewood, and Fauquier, and portions of Granby, Monashees, and Valhalla Provincial Parks are also within Electoral Area K, but outside the WUI. The RDCK does not operate any regional parks in the plan area.

The RDCK has designated an Environmentally Sensitive Residential Cluster Development Permit (ESRC DP) Area in Electoral Area K to protect riparian areas and overall aesthetics. There are also over some areas of Crown land managed under the Conservation Lands program in Arrow Park and Edgewood.

There are overlaps with species and ecosystems at risk identified through the B.C. Conservation Data Center (Table 13). 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 UWR for mule deer.

Table 13: Species and Ecosystems at Risk in the WUI – BC Conservation Data Center.

English Name	Scientific Name	BC List	Category	Habitat Type
American Badger	*Taxidea taxus*	Red	Vertebrate Animal	TERRESTRIAL: Grassland/Herbaceous, Forest Needleleaf, Shrubland, Roadside
Caribou (Southern Mountain Population)	*Rangifer tarandus pop. 1*	Red	Vertebrate Animal	TERRESTRIAL; FOREST NEEDLELEAF
Coeur D'Alene Salamander	*Plethodon idahoensis*	Blue	Vertebrate Animal	<Null>
Cryptic Paw	*Nephroma occultum*	Blue	Fungus	TERRESTRIAL: Epiphytic

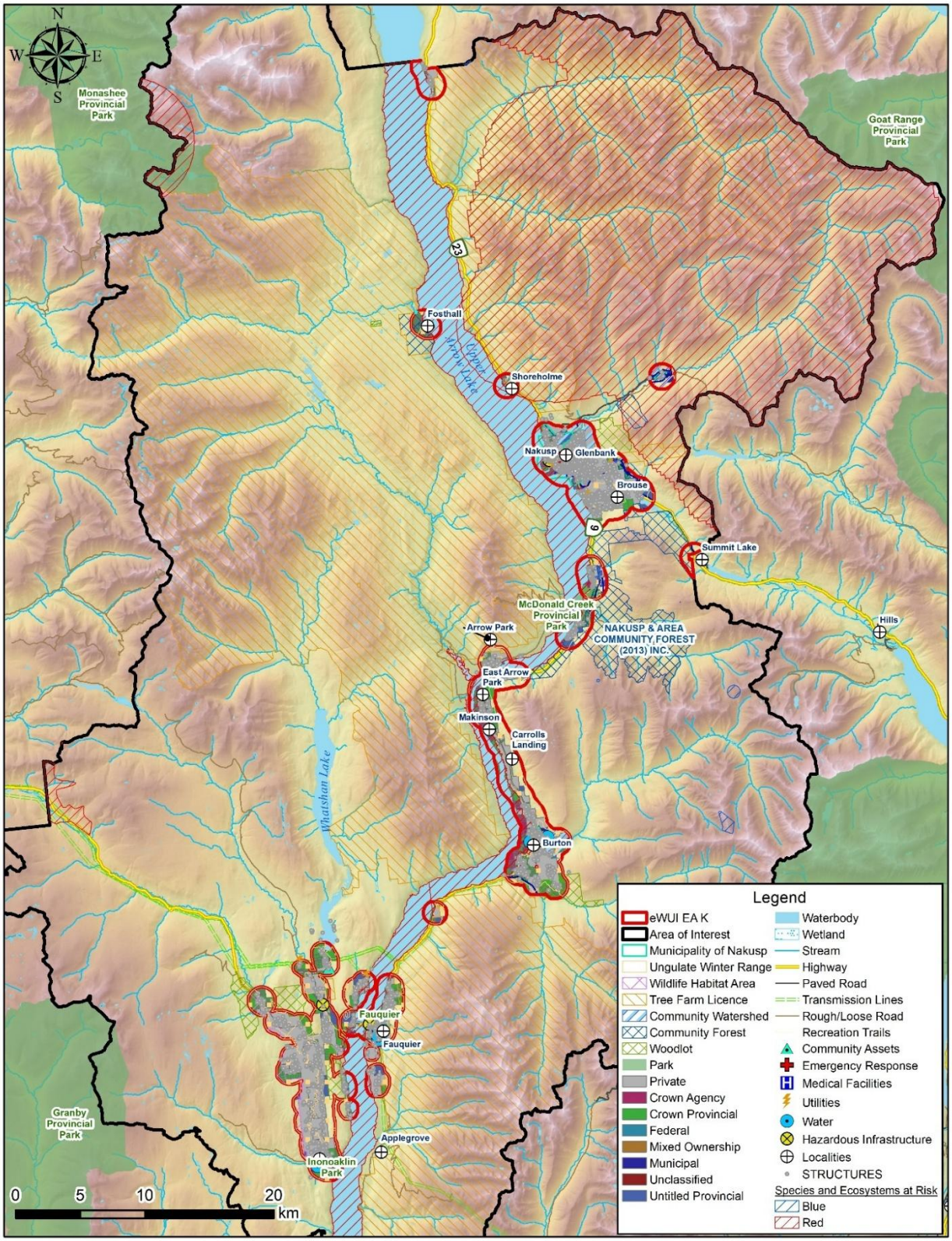
English Name	Scientific Name	BC List	Category	Habitat Type
Gypsy Cuckoo Bumble Bee	*Bombus bohemicus*	Red	Invertebrate Animal	TERRESTRIAL
Mountain Moonwort	*Botrychium montanum*	Blue	Vascular Plant	TERRESTRIAL: Forest Mixed, Grassland/Herbaceous
Pygmy Slug	*Kootenaia burkei*	Blue	Invertebrate Animal	TERRESTRIAL: Forest Mixed; RIVERINE: Riparian
Vivid Dancer	*Argia vivida*	Blue	Invertebrate Animal	RIVERINE: Creek, Hotsprings
Western Bumble Bee	*Bombus occidentalis*	Yellow	Invertebrate Animal	TERRESTRIAL: Shrubland; LACUSTRINE: Beach, Riparian, Forest Mixed
White Sturgeon (Upper Columbia River Population)	*Acipenser transmontanus pop. 2*	Red	Vertebrate Animal	RIVERINE: Big River; High Gradient; Moderate Gradient; Pool
Whitebark Pine	*Pinus albicaulis*	Blue	Vascular Plant	TERRESTRIAL: Forest Needleleaf, Subalpine

3.3.7 OTHER RESOURCE VALUES

There are other important resource values associated with the land base, including industry, recreation, tourism, and forestry. The Nakusp and Area Community Forest (NACFOR) is one of the most important land managers in the WUI, with a large amount of tenure overlap south of Nakusp. Interfor operates both a volume-based forest license and a large area-based forest license, Tree Farm License (TFL), on both sides of Arrow Lake around Nakusp. Other licensees operating in the area include Stella-Jones and BC Timber Sales. There are also woodlots in the interface around Edgewood, Burton, and Nakusp. There is also some agricultural production in the area.

Multiple areas are managed as provincial recreation sites and polygons, including Box Lake and Wensley Cross Country in Browse, and Mount Abriel north of Nakusp.

Any fuel management within Electoral Area K 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 K. 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.

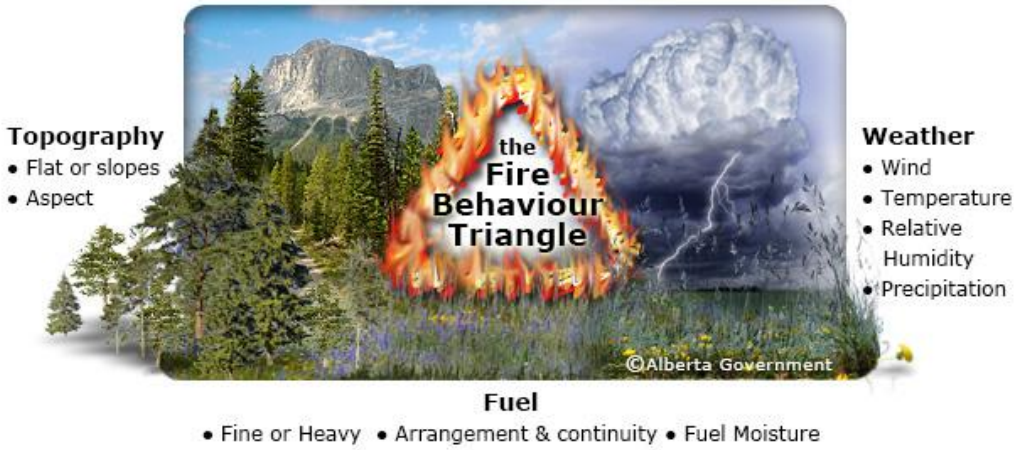


Figure 6. Graphic display of the fire behaviour triangle, and a subset of characteristics within each component.[21]

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 K are situated along the shores of the Arrow Lakes, in the foothills between the Monashee and Selkirk Ranges. 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.

BCWS staff indicated that topography (as well as wind) is a major driver of fire behavior in the region. Wind funneling can occur in rugged areas, resulting in rapid rates of spread. Additionally, the steep, mountainous terrain of Electoral Area K poses a huge challenge for Initial Attack – crews are often unable to get on the ground to action fires. According to BCWS, aerial support (fire retardant, heli-bucketing) is often relied upon to slow down fires until they move downslope to flatter ground, where containment lines using ground-based resources (hand guard or heavy equipment with water delivery system) can be put in place.

[21] Graphic adopted from the Province of Alberta.

The percentage of the WUI by slope steepness class was not calculated in 2017 and such an analysis was outside the scope of this plan update. Note that generally, valley slopes are greater than 30%, where flame tilt and flame and fuel interaction contribute to a higher rate of spread.

Slope-associated *fire risk* is dependent upon the slope position of values (Table 14). Values located at mid to upper slope have a heightened wildfire risk due to the pre-heating of fuels from fire below and longer flame lengths reaching uphill. As discussed above, most communities in Electoral Area K 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 K's WUI are located mid-slope or on a bench above a slope; this includes properties on Highway 6 between Edgewood and Needles, Robinson Road in Edgewood, and Billings Road in Browse. These locations could be threatened by faster rates of slope-driven fire spread. Nakusp Hot Springs is located in a vulnerable position partway up the steep Kuskanax Creek drainage. It should be noted that fires can also spread downhill, due to downslope winds or rolling debris.

The Arrow Lakes represents a topographic barrier to fire spread, 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. In fact, the CFRC noted that in July 2021, spot fire patrols were put in place around Edgewood due to embers falling from fires on the other side of the lake. For Electoral Area K, 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 14: Slope Position of Value and Fire Behaviour Implications.[22]

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

[22] 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

4.1.2 FUEL

Understanding the distribution, type, and management of wildland fuels within Electoral Area K'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 K's WUI.

Electoral Area K 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 along the lakeshores. This process has resulted in swaths of cleared and/or irrigated farmland and lawns intermixed with forested areas. If well-maintained, these clearings effectively reduce the wildfire threat, creating natural firebreaks within the community. Additionally, riparian influence along the waterways results in typically deciduous or mixed vegetation. Deciduous vegetation, with its high moisture content and low volatility characteristics, can reduce fire behaviour and mitigate wildfire risk.

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

The Canadian Forest Fire Behaviour Prediction (FBP) System outlines sixteen fuel types based on characteristic fire behaviour under defined conditions.[23] 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[24] in the interior moist belt, within which Electoral Area K's WUI is located, are one of the specifically identified areas of uncertainty and knowledge gaps within the FBP system and are considered, at best, a poor match with any fuel type.[25] 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.[26] In some areas, aerial imagery is of low spatial resolution and/or ground access was impossible, making fuel type

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

[24] 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.

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

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

assessment difficult. Table 15 lists the percentage of fuel types and associated wildfire behaviour within the WUI; fuel types are displayed on Map 3.

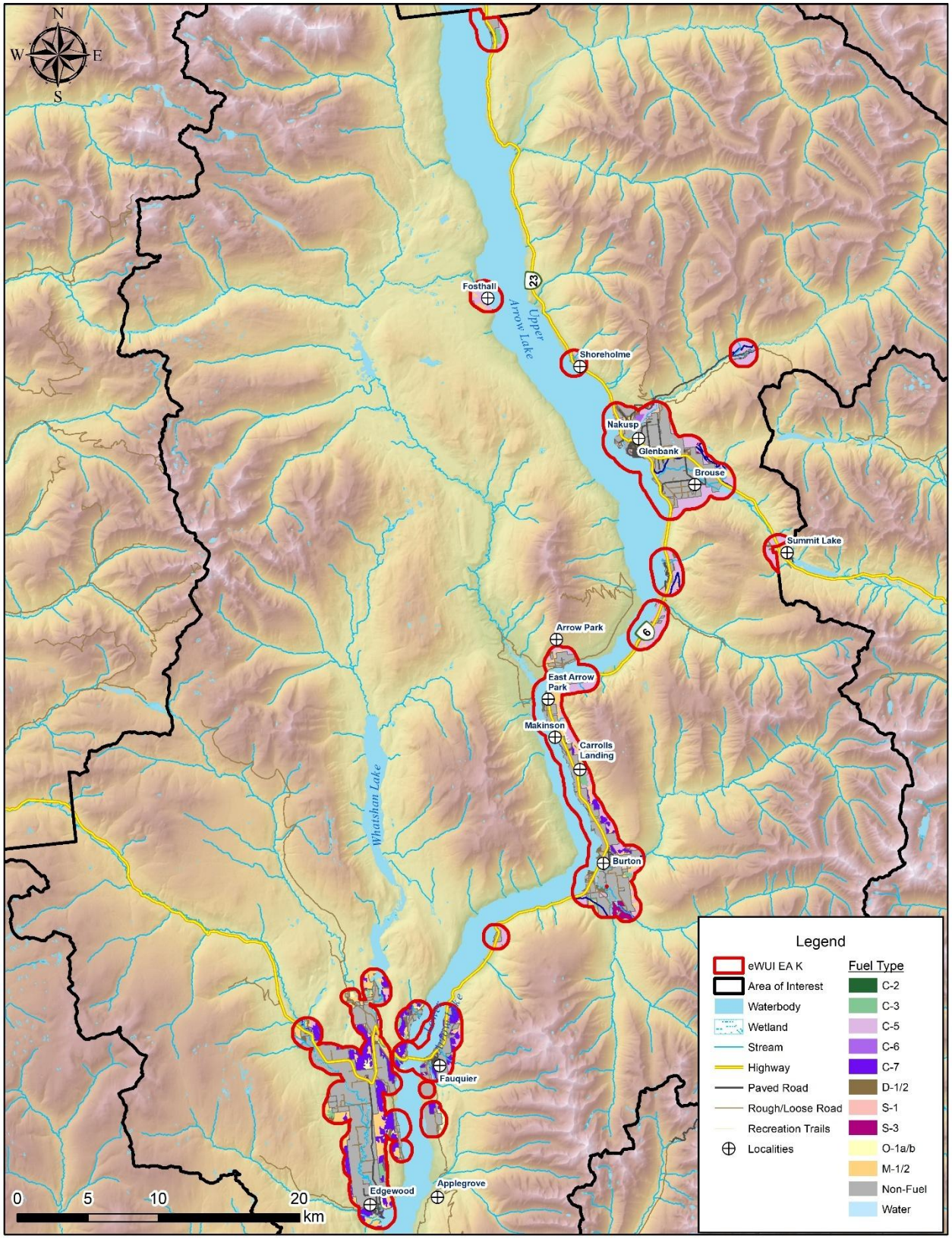
BCWS indicated that like other parts of the RDCK, fuel volatility (observed fire behavior) depends more on wind and topography than fuel type. However, M-1/2 and C-5 forests (e.g. west of Arrow Lake) with high amounts of surface fuel loading and continuous ladder fuels were cited as exhibiting particularly high fire behavior. According to BCWS these forests are often characterized by large diameter trees with low crown base heights.

Table 15: Fuel types in the plan area's WUI

Fuel Type	Fuel Type Description	Wildfire Behaviour Under High Wildfire Danger Level	Area (ha)	Percent (%) of public land, excluding water
C-2	Plantations older than 20 years. High density with high canopy closure and low crowns.	Almost always crown fire, high to very high fire intensity and rate of spread.	19	0%
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.	3754	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.	33030	38%
C-6	Fully stocked conifer plantation. Complete crown closure, absent understory, continuous needle litter.	Rate of spread and crowning are controlled by mean stand crown base height, which is variable.	259	<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.	17750	20%
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.	11098	13%
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 pioneer deciduous species die out if disturbance is excluded.[27]	Surface, torching and crowning, moderate to very high intensity and spread rate (depending on slope and percent conifer and season (in leaf vs leafless).	16656	19%

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

Fuel Type	Fuel Type Description	Wildfire Behaviour Under High Wildfire Danger Level	Area (ha)	Percent (%) of public land, excluding water
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.	1732	2%
S-1 / S-3	Continuous and uncompacted slath types with large fuel loads and deep slash depth. Varies depending on species composition of slash.	Ranges from surface fire, low to moderate intensity to moderate to high rate of spread and high to very high intensity surface fire.	2088	2%
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	288	<1%
Water	Water and riparian features (e.g., rivers, streams, waterbodies, wetlands	N/A	45894	-
Private			*90121*	-



Map 3. Updated fuel types in the 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 K 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 K and Nakusp 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 K and Nakusp can be determined from representative BC Wildfire Services (BCWS) fire weather stations. The Falls Creek weather station, located on the west aspect slopes south 15 km north of Nakusp at 790 m elevation, was selected as the most representative, although most communities in the AOI are located several hundred meters lower, at valley bottom. The weather station is situated within the ICHmw, which covers approximately 49% of the WUI (Table 16 in the next section). Average fire danger class data for the past 14 years is presented in below in Figure 7.

Data from the Falls Creek 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 17 days, and September averaging 9 days for both High and Extreme. When combined, 45% of days in those three months exhibit High or Extreme fire danger. It is important to note that High fire danger days occur in May, June, and October, as well.

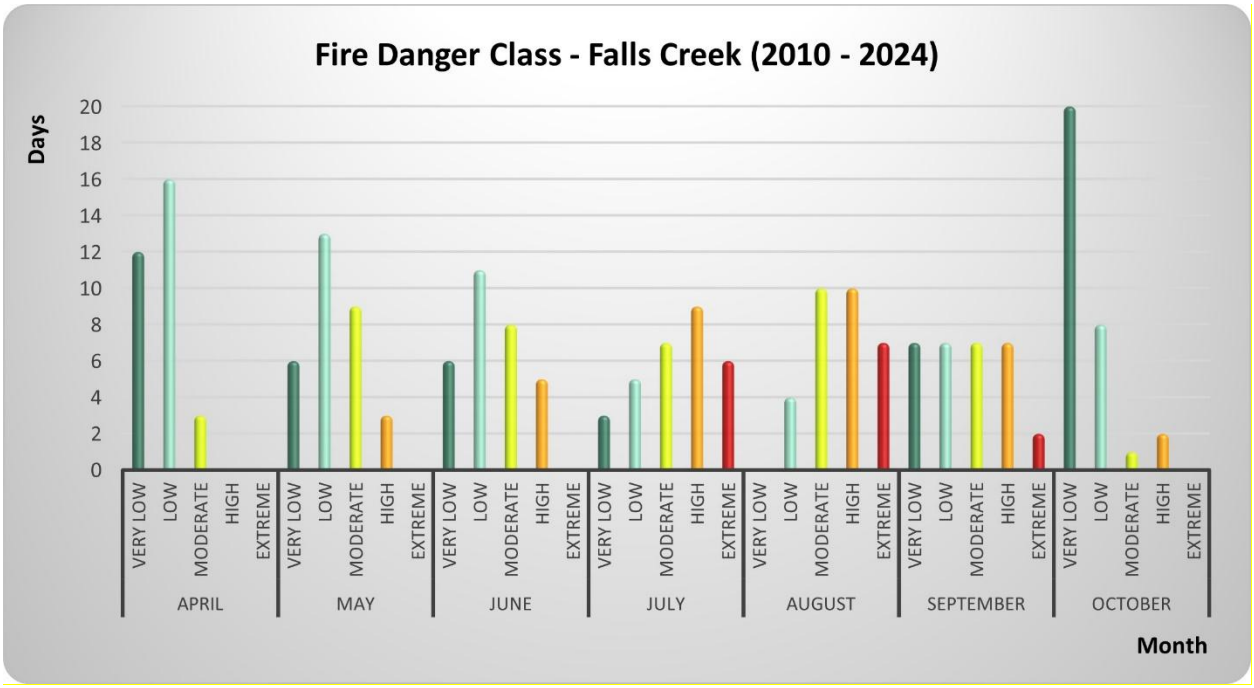


Figure 7. The average number of days by Fire Danger Class for the past 14 years, based on data from the BC Wildfire Services Falls Creek weather station.

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 greater threat to that value than one which occurs downwind.

During the fire season (July to September), the Falls Creek fire weather station's hourly averages indicate that the plan area primarily experiences strong diurnal winds that originate from the west and northwest during the daytime and shift to eastern winds at night. Peak ISI values typically occur during the afternoons and nights. As per Figure 8 below, May to August are peak months for high ISI values (dry and/or windy conditions).

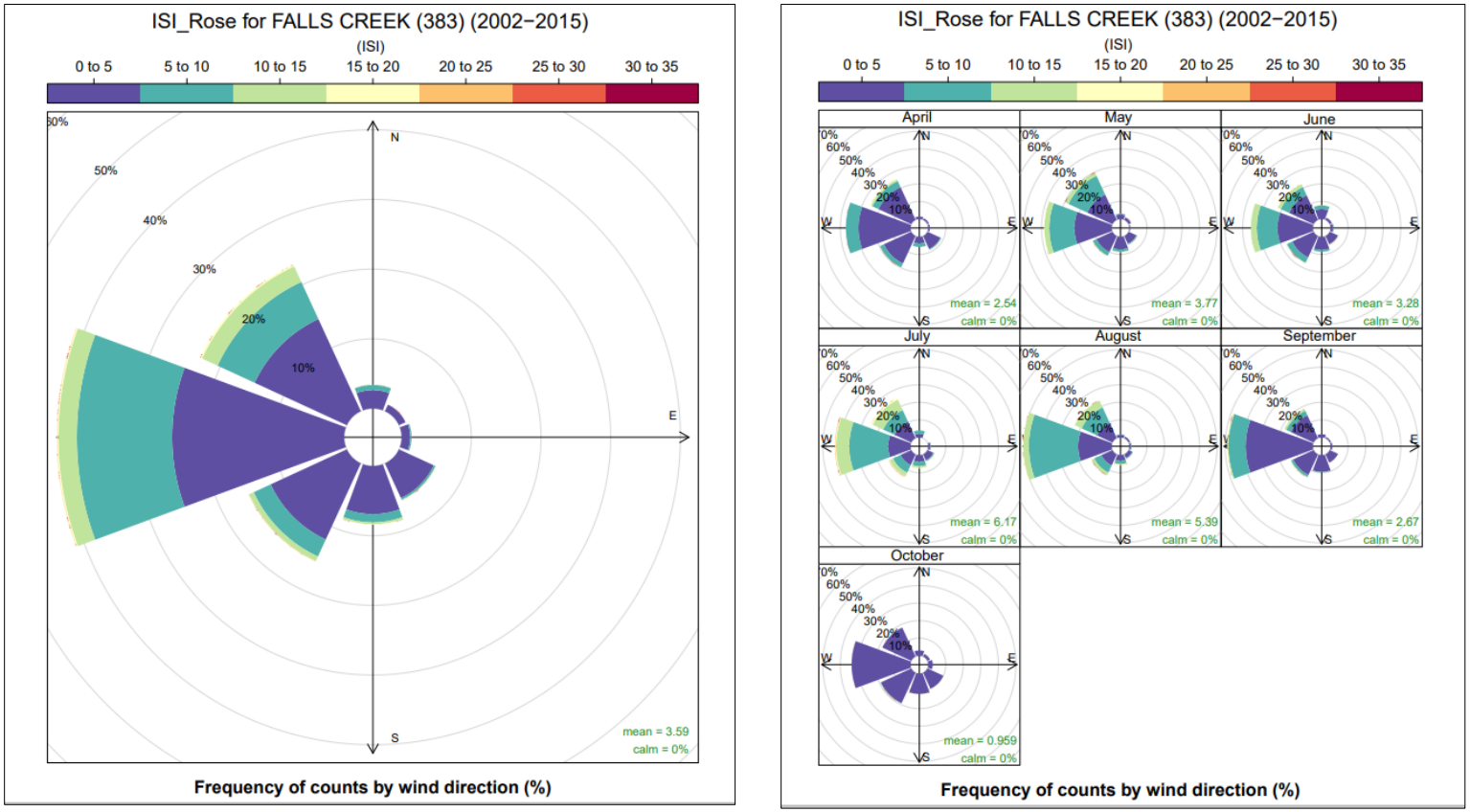


Figure 8. Average daily (left) and monthly (right) ISI values during the fire season (April to October) for the Falls Creek weather station.

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 16. Most of the southern portion of Electoral Area K and Nakusp's WUI (50% of the entire WUI) is within the Interior Cedar Hemlock dry warm (ICH dw 1) subzone. This is associated with an NDT3 – 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.[28] 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.

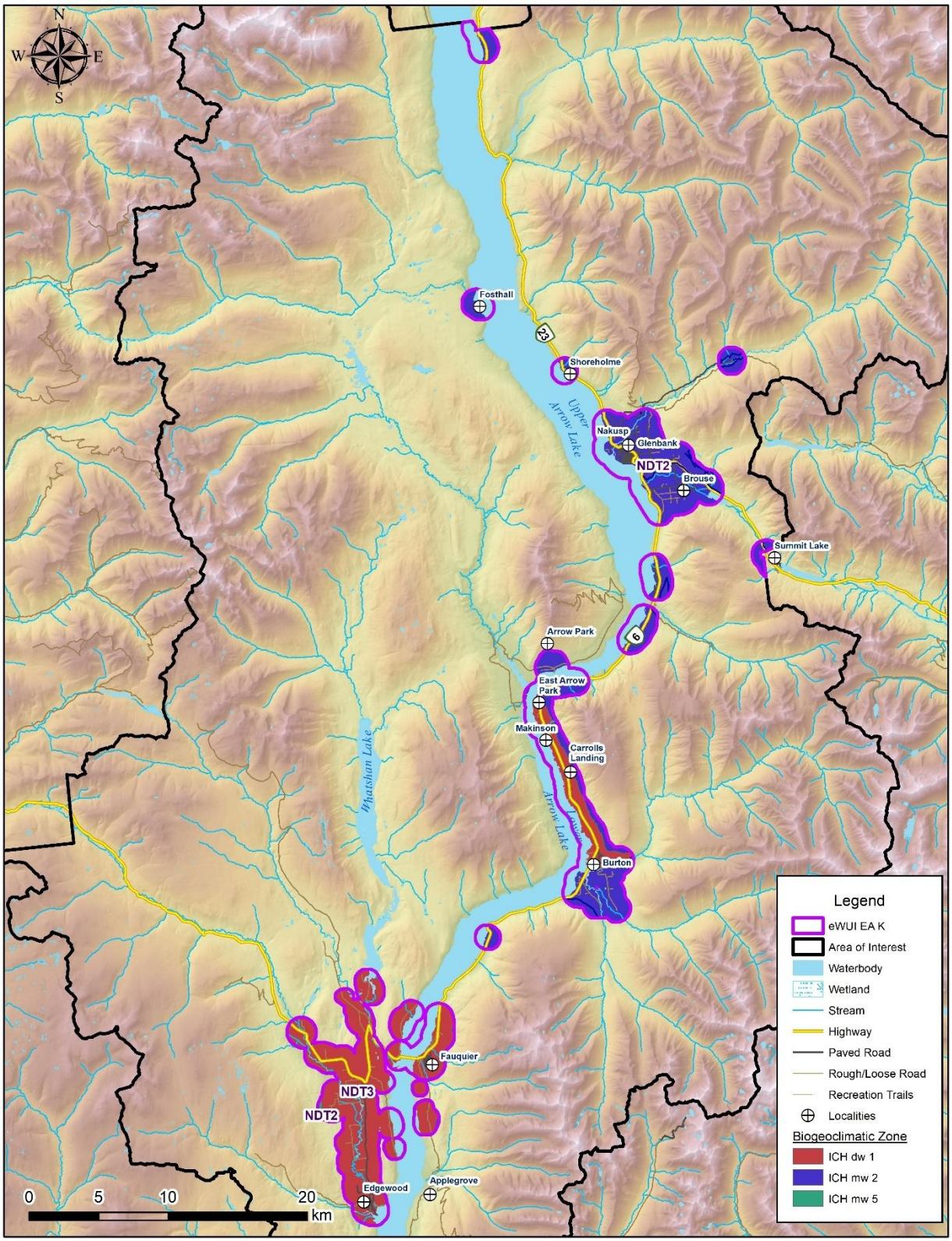
Almost the entire remainder of the WUI (49%) is within the Interior Cedar Hemlock moist warm (ICH mw 2) subzone with an associated NDT2 classification – ecosystems with infrequent, stand-initiating fires.[28] This subzone occurs on the valley bottom and mid-slope, above the ICH dw 1, and is characterized by warm, moist summers and cool or mild moist winters with moderate snowfall. Less than 1% of the WUI is within the Interior Cedar Hemlock moist warm (ICH mw 5) subzone, also associated with an NDT2 regime. This subzone extends upslope and outside the WUI.

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

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

Biogeoclimatic Zone	Natural Disturbance Type	Area (ha)	Percent of Eligible WUI (%)
ICH dw 1	NDT3	11241	50%
ICH mw 2	NDT2	10943	49%
ICH mw 5	NDT2	85	<1%

[28] 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, predominately due to lightning strikes. 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 and visibility of the underlying geology. Figure 9 below displays ignitions, based on source, resulting in large fires (i.e., greater than 100 ha) from the last century (1920-2020).

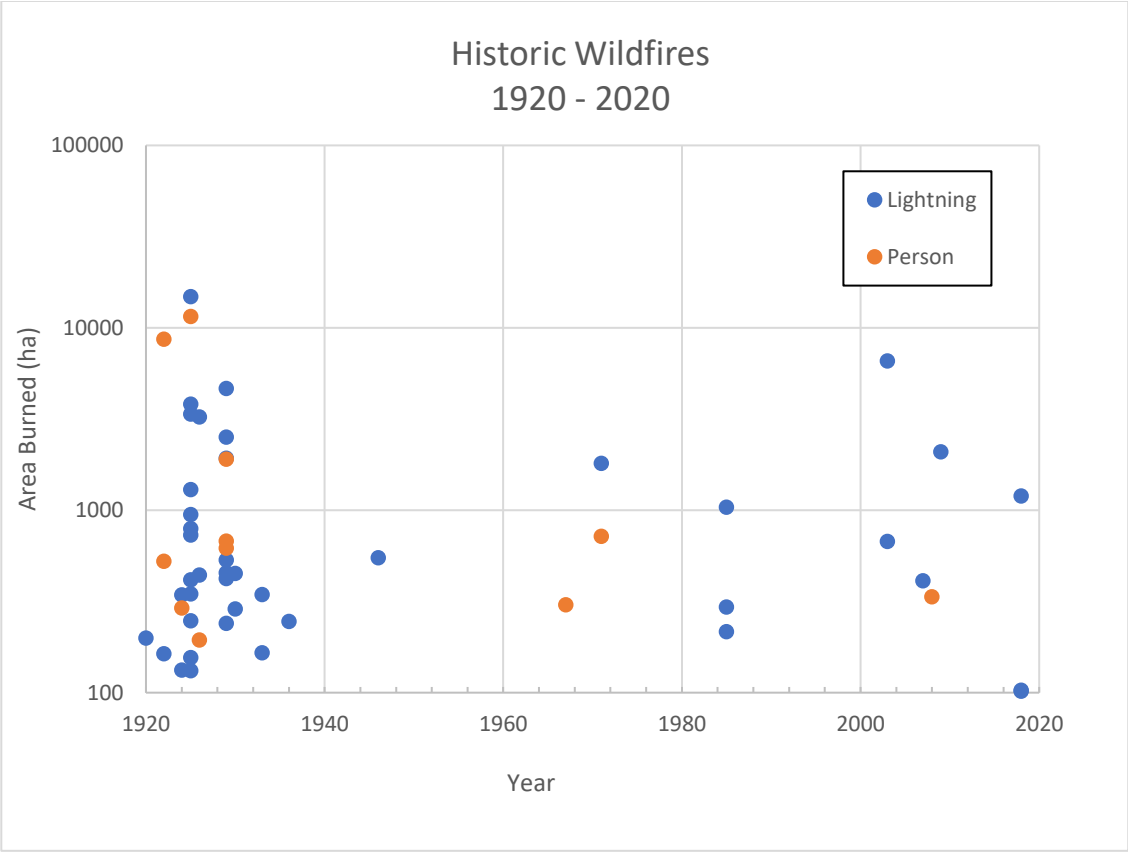


Figure 9. Historic wildfires over 100 ha in size from 1920 to 2020.

BCWS fire ignition data, which records point ignitions that may or may not have developed into a wildfire with a recorded perimeter area, is only available from 1950 onwards. Figure 10 below displays the frequency of wildfire ignitions, grouped by ignition source, from 1950 to 2023. Lighting strikes account for 62% of ignitions; 20% are human-caused, and 18% unknown. Historic wildfire perimeters and ignition sources, from 1912-2022, are displayed below on on Map 5 for an area within five kilometers of the WUI.

BCWS indicated that lighting busts are common in July and August. This poses a response problem as several fires will often start at the same time, overwhelming crew availablity.

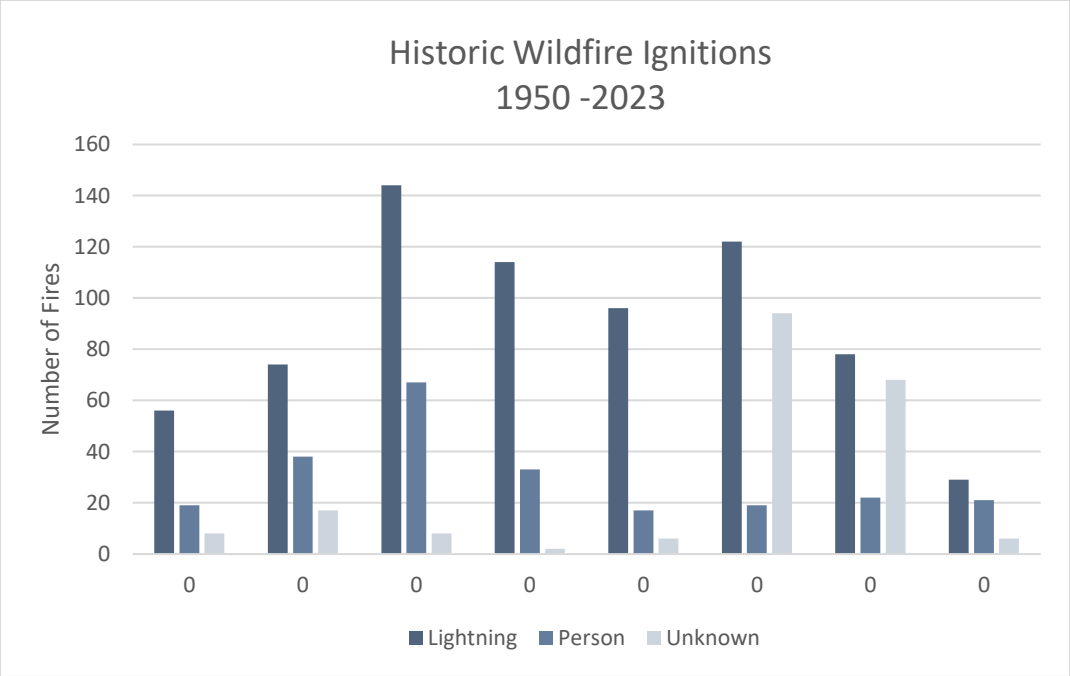


Figure 10. Historic wildfire ignitions from 1950 -2023 by ignition source.

Several wildfires of note have occurred since the last CWPP in 2017. In July 2021, the Kimbol Lake wildfire (N51734) burned 77 ha approximately 8 km east of Nakusp. Aerial response efforts were forced to cease temporarily due to civilian drones in the area, despite provincial laws prohibiting the operation of drones near wildfire.[29] In August 2018, the Mt O'Leary Wildfire (N52566) burned 1195 ha and triggered an evacuation alert for Edgewood.[30]

Also in July 2021, the Octopus Creek wildfire (N51800), which along with the Michaud Creek (N51765) and the Renata Creek wildfires comprised the Arrow Lake Complex, burned 22,041 ha roughly 11 km south of Fauquier. Water bombers filled from Arrow Lake were able to assist firefighters, and heavy-equipment control lines were used to protect Fauquier. Control lines along the north end of the Michaud Creek fire protected the community of Edgewood. Along the southeast end, an ignition operation was conducted to reinforce a previously constructed guard to buffer Renata.[31] A post-wildfire risk analysis report noted the risk of waterborne hazards could be high and recommended recreational closures in the area for the

[29] CBC News. 11 July 2021. "Drones, boats slow down B.C.'s wildfire fighting crews over the weekend." Retrieved from: Drones, boats slow down B.C.'s wildfire fighting crews over the weekend | CBC News

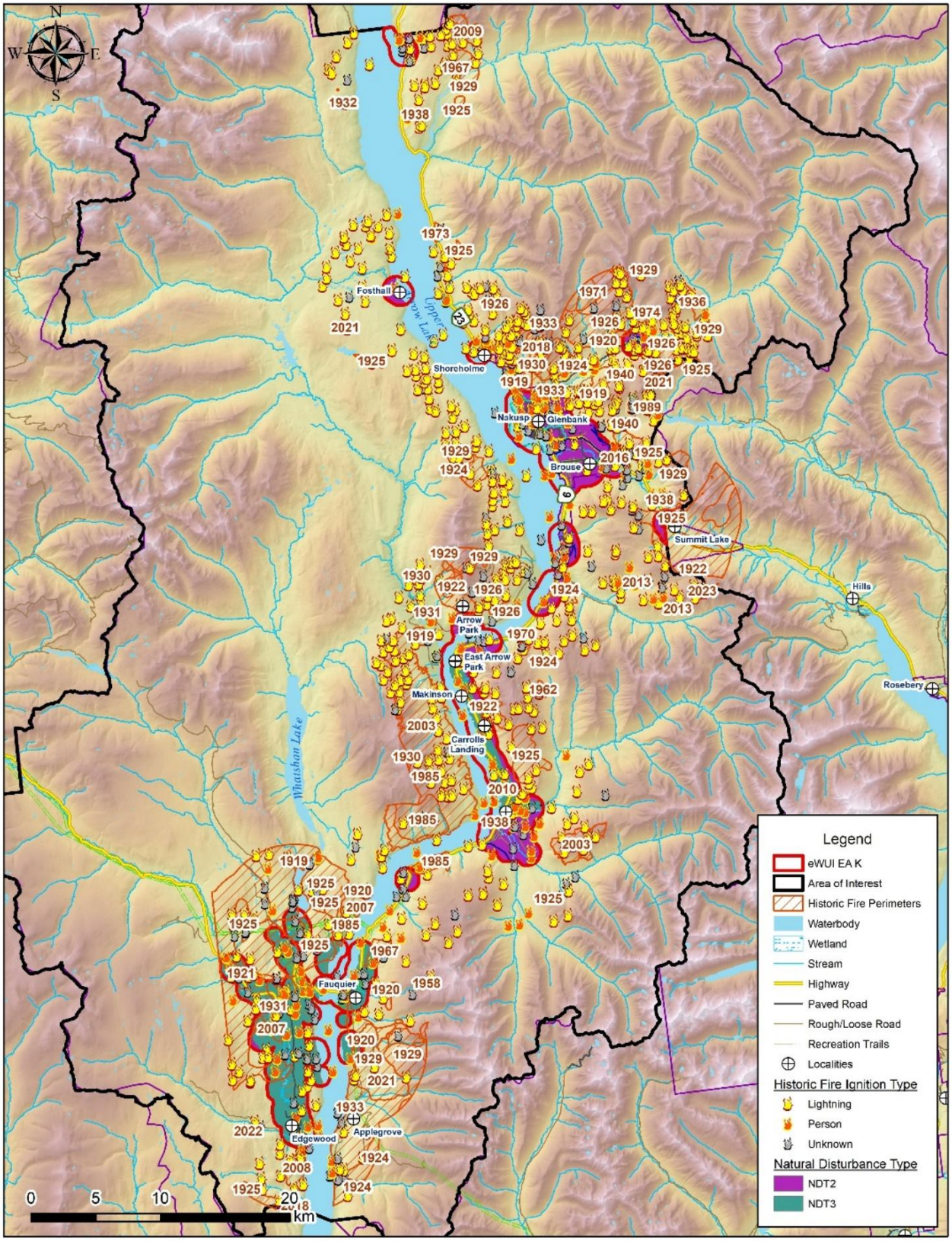
[30] Regional District of Central Kootenay. Castlegar Source. "Evacuation alert issued for Edgewood." Retrieved from: Evacuation alert issued for Edgewood - Castlegar Source

[31] BC Wildfire Services. 11 August 2021. *Wildfire Update: Arrow Lake Complex.* Retrieved from: *wildfire_update_Aug_11__2021.pdf*

following three years. Private water system users were encouraged to consider further quality treatment measures.[32]

Figure 11. Image of the Octopus Creek wildfire (N51800) aftermath.
Source: BCWS

[32] Schafer, T. 22 November 2021. Castanet. "Effects of Ocutpus Creek wildfire to be felt for years: report." Retrieved from: Effect of Octopus Creek wildfire to be felt for years: report - BC News - Castanet.net



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

4.2.3 WILDFIRE RESPONSE

Especially in rural areas (Edgewood and Burton), fire brigades respond just as frequently to wildland fires as to structure fires. This is reflected in the level of preparation to respond to wildland fires – as summarized in Section 5.4, all fire response (Village of Nakusp Fire Department, Burton and Edgewood fire brigades) have Structural Protection Unit (SPU) trailers with sprinklers, pumps and hose, portable water tanks, extra pumps, and wildland-specific Personal Protective Equipment (PPE) for their members. Burton reported an average of 2.3 wildland fire calls annually since 2014 and 1.4 structure fire calls. Edgewood reported an average of 1 call annually (structure and wildland).

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

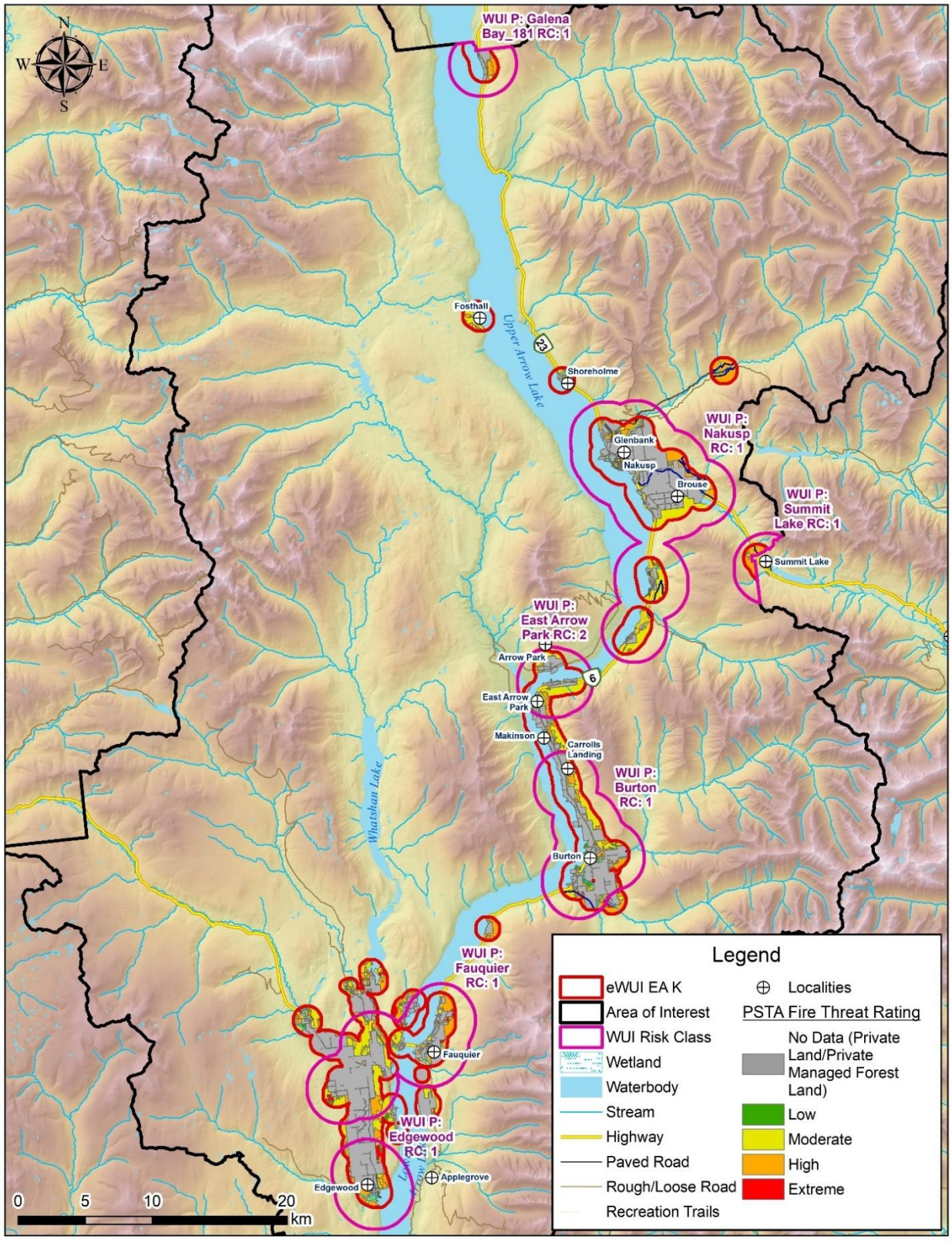
The Province of BC produces a Provincial Strategic Threat Analysis (PSTA, updated in 2021) for all non-private land parcels in BC, designed to consistently assess and map different aspects of wildfire threat and risk around the province.[33] This high-level assessment of relative wildfire threat throughout 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,

[33] 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

categorizing WUI polygons by a risk class of 1 (highest) through 5 (lowest). The application of relative risk 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 the plan area are all in provincially defined Risk Class 1 Wildland Urban Interface (WUI) Risk Class polygons (Galena Bay, Nakusp, East Arrow Park, Burton, Fauquier, Edgewood), 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 general local wildfire threat assessment process is 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 14) - slope percentage and slope position of the value are considered, where slope percentage influences the fire's trajectory and rate of spread and slope position relates to the ability of a fire to gain momentum uphill.
- *Stratification of the WUI* – according to relative wildfire threat based on the above considerations, other local factors, and field assessment of priority wildfire risk areas.

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

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

4.4.1 WILDFIRE THREAT CLASS ANALYSIS

Classes of the wildfire threat class analysis are as follows:

- **Very Low:** Waterbodies with no forest or grassland fuels, posing no wildfire threat;
- **Low:** Developed and undeveloped land that will not support significant wildfire spread;
- **Moderate:** Developed and undeveloped land that will support surface fires that can pose little threat to homes and structures;

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

The results of the wildfire threat class analysis carried forwards from the 2017 CWPP and clipped to the 1 km WUI are shown on Map 7 and summarized in Table 17 below. The local threat analysis shows that, for the assessable area (i.e., not private land and removing large water bodies like Lower Arrow Lake), 22% is in a High or Extreme wildfire threat class. Overall, private land totals 53% 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 17: Wildfire threat summary for the plan area's Eligible WUI

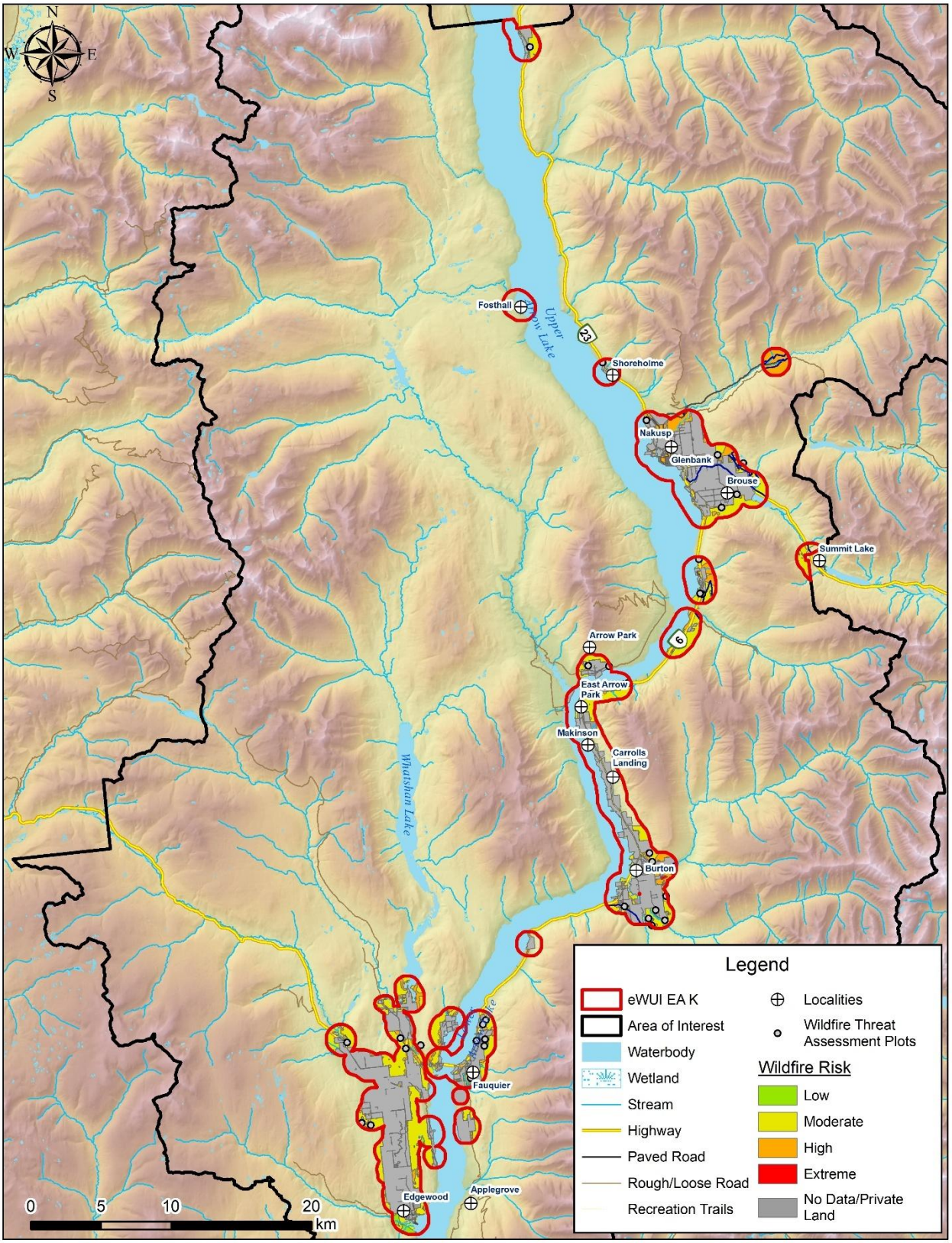
Wildfire Threat			
Threat Class	**Hectares**	**% of WUI**	**% of Assessable Public Land**
Extreme	28	0%	0%
High	1947	11%	22%
Moderate	4921	27%	56%
Low	1854	10%	21%
Very Low/No Threat (Water)	0	0%	-
No Data (Private Land)	9706	53%	-

4.4.2 WUI RISK CLASS ANALYSIS

WUI risk classes can be 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.

The percentage of the plan area by WUI Risk Class was not calculated in 2017 and such an analysis was outside the scope of this plan update.



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.[34]

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 K and the Village of Nakusp (or the RDCK as a whole), the RDCK and Nakusp should look to the most recent CWRP and reference the completed wildfire threat class analyses as well as recommendations.

[34] 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 and the Village of Nakusp have active FireSmart programs that are well staffed and funded to complete residential education activities. Since the development of the 2017 CWPP, 10 of its 16 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.[35] Increasing ignition resistance would reduce the number of homes simultaneously on fire; extreme wildfire conditions do not necessarily result in WUI fire disasters.[36] 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 the main communities in Electoral Area K, as well as the Village of Nakusp were noted (Table 18). This mainly incorporates field/satellite imagery observations and information from the CFRC. As a general observation, communities in Electoral Area K are very intermixed into the forest. Where defensible space (e.g. cleared land) exists, it is rarely continuous. Additionally, there are many single access/egress roads.

Table 18: FireSmart vulnerability and resilience factors by major community in the WUI

Community	Vulnerability	Resilience
Edgewood	- Forested intermix / interface with little defensible space in community core - Some homes closer to Highway 6 (Whatshan Lake) are located mid slope	- Independent (volunteer) fire brigade with water system (not rated for fire protection) - Secondary egress route to Grand Forks - Defensible space in Inonoaklin Valley
Fauquier	- Intermixed properties along Highway 6	- Independent (volunteer) fire brigade with a rated hydrant system - Some defensible space (golf course, clearings) in community core

[35] Cohen, J. Preventing Disaster Home Ignitability in the Wildland-urban Interface. Journal of Forestry. p 15 - 21.
[36] 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 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3896199/.

Community	Vulnerability	Resilience
Burton	- Intermixed properties along Highway 6 - Campground and McCormack Road vulnerable egress	- Independent (volunteer) fire brigade with water system (not rated for fire protection) - Many properties are medium sized with some defensible, cleared space
Arrow Park	- No structural fire protection - Main access is by ferry (west side) - Most homes are intermixed	- Many properties are medium sized with some defensible, cleared space Secondary egress on Saddle Mountain Road to Shelter Bay (west side)
Nakusp (Village and Area)	- High structure density increases risk of structure-to-structure fire transmission - Forest interface, intermix in rural areas - Single access/egress Alexander Road, Shakespear Road, Bayview	- Structural fire protection with an adequate hydrant system - Good arterial access/egress routes - two highway options
Nakusp (Hot Springs)	- Midslope position; forest intermix - Continuous forest fuels on all sides - Single access/egress on Hot Springs Road	- Structural fire protection (no hydrants)
Brouse/Glenbank	- Forest interface/intermix - Some homes (e.g. Billings Road) midslope bench	- Structural fire protection; some hydrants/standpipes - Many properties are medium-to-large sized with some defensible, cleared space

The sections to follow provide information on each FireSmart discipline as it relates to Electoral Area K and Nakusp. 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 K and Nakusp. 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 K through a well-developed FireSmart program which began over 17 years ago with the completion of a CWPPs in 2008 for the Village of Nakusp and ancillary Wildfire Risk Assessments for Arrow Park, Burton, Edgewood, and Fauquier.[37] Specifically in Electoral Area K to date, there has been 221 FireSmart Assessments completed, 66 rebates awarded, and 5 recognized FireSmart Neighbourhoods. There are currently six Wildfire Mitigation Specialists across multiple RDCK electoral areas who work to implement the RDCK FireSmart program.

The Village of Nakusp also has an active FireSmart program and has employed a full time FireSmart/Emergency Program Coordinator since 2022. Nakusp conducts several FireSmart workshops annually, with attendance ranging form 15-35 people for public information events and 40-80 students for school events. The Nakusp FireSmart program has a successfully implemented the FireSmart Education Program into the Nakusp Secondary School and encourages teachers in the Elementary School to use this content as well. The municipality also runs several WRR fuel management education days annually, where students go into the field to perform fuel reduction works under the supervision of a Wildfire Mitigation Specialist.

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

FireSmart education activities that have been completed or are ongoing in the plan area include:

- FireSmart Home Assessments (221 in Electoral Area K to date; previously the Home Partner Program, now the FireSmart BC Wildfire Mitigation Program);
- Distribution of FireSmart educational materials to residents at events (e.g. farmer's markets);
- FireSmart demonstration house (RDCK);
- Implementation of the FireSmart Education Program in Nakusp schools;
- Social media updates with FireSmart information and fire danger ratings, and print advertising;
- FireSmart workshops and presentations in Nakusp (FireSmart for Farm & Ranch, FireSmart vs. Structure Protection, FSNRP Information, Fuel Management Engagement, Senior Home presentations, General FireSmart);
- FireSmart workshops and presentations in Electoral Area K, including collaborative presentations with Naksup and local foresters, and;
- Neighbourhood FireSmart days in support of the FireSmart Neighbourhood Recognition Program.

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

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 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:[38]

- 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;

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

- Landscaping, screening, and buffering; and
- Temporary land uses that determine the type of use and quantity of people.

Section 14 of the Electoral Area K Official Community Plan contains policies to manage interface fire risk, including protecting access to water sources, encouraging FireSmart efforts, and evaluating opportunities to assist in interface forest fuel mitigation treatments. The RDCK also reserves the right to request a fire hazard risk assessment to accompany subdivision applications.

The Official Community Plan for the Village of Nakusp has a general policy to ensure that FireSmart principles are applied for developments or renovations on municipal structures and land. Nakusp is currently implementing a Wildfire Hazard DPA. No gaps with OCP language as it related to wildfire risk reduction were identified for either the RDCK or the Village of Nakusp.

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.[39] A lack of staff capacity and poor response from elected officials and residents has tempered interest in a Wildfire DPA throughout most of the RDCK. However, the CFRC indicated that the RDCK is planning to implement a Wildfire DPA in Electoral Area I (between Castlegar and Nelson) as a pilot project. Implementation in other areas of the RDCK is ultimately at the discretion of individual Electoral Area Directors. In the meantime, some development concerns are addressed through the RDCK Bare Land FireSmart assessment program. This free, voluntary assessment is offered throughout the region to residents who are planning to build on undeveloped lots. This program educates residents on FireSmart principles and advises best practices with regards to construction, lot preparation, and landscaping.

Regardless of the challenges involved, it is important to consider that a DPA is currently the most direct option for a local government to impose regulations on development that go beyond the BC Building Code. The purpose of DPAs is to ensure that new development is consistent with the policies of the Official Community Plan (OCP). Especially in areas that have been identified as supporting medium and higher density residential development, 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. However, an increase in upfront building costs are a common concern for residents due to the higher cost of many FireSmart construction materials.

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

The lack of a bylaw regulating open burning across the RDCK, outside of the Village of Nakusp, 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 10) are constructed or retrofitted to a high FireSmart standard. The Village of Nakusp has already completed FireSmart Critical Infrastructure Assessments and associated mitigation work on some publicly-owned infrastructure. Recommendations regarding planning and development are detailed in Table 1 in the Executive Summary.

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[39]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

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. The volunteer nature of local fire departments limits cross training opportunities, as most members are not available during the day, when BCWS crews are working. Nonetheless, BCWS indicated that a meet-and-greet / cross-training day occurred in 2018 between Nakusp BCWS crews and the Burton, Edgewood, and Fauquier fire brigades. A mock fire scenario was conducted in 2019 between BCWS and the Nakusp Fire Department.

All local fire departments should maintain a level of wildland-specific training and equipment. Nakusp VFD indicated that their members are well trained and have adequate wildland firefighting equipment, but fire brigades (Burton, Fauquier, and Edgewood) have more variable level of training and equipment. These volunteer groups provide services within the region but operate independently of the RDCK, with no service establishing bylaw in place. Burton and Edgewood indicated that there are some challenges with training personnel, obtaining equipment, and especially with response time (lack of 911 access) in the areas they service. Table 19 lists the capacity, training level, and wildland firefighting equipment of agencies that provide fire protection services in Electoral Area K. No information on the Fauquier fire brigade was obtained.

Table 19. Capacity, training, and resources of fire departments in Electoral Area K and the Village of Nakusp.

Fire Department	Personnel	Wildland Training	Wildland Equipment
Nakusp Volunteer Fire Department (VFD)	FireSmart Coordinator (1 FT) Fire Chief and Training Officer (2 PT) 30 Volunteers	S-100/S-185 or WFF1; most members have SPP-115. Some members have higher level training for BCWS deployment (Engine Boss, Task Force Leader) or Structural Protection (Large Water Supply Operator, SPC Team Lead)	3 engines and 1 water tender 4 portable bladders (2x2500 gal, 2x3500 gal, 2 4" Honda pumps, hose and trailer Type 2 SPU (pumps, hose, sprinklers) Complete wildland PPE (Nomex etc.)
Edgewood fire brigade	22 Volunteers	All members have S-100, S-185, S-212, SPP-WFF1 2 WMS	1 engine, 1 tender 2 'IA' pickup trucks with water/foam tanks Type 2 SPU (pumps, hose, sprinklers) Complete wildland PPE (Nomex etc.)
Burton fire brigade	16 Volunteers 6 call tree personnel	Currently 6 members with S-100/S-185 as well as S-115	1 engine, 1 tender 1 SPU (pumps, hose, sprinklers) Flat deck trailer with 3x300 gal bladders and 1 pump Complete wildland PPE (Nomex etc.)

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 and/or standpipes within Edgewood, Fauquier, Burton, Nakusp, and in some parts

of Brouse/Glenbank. However, only the Fauquier and Nakusp systems provide rated coverage from hydrants (adequate pressure and supply). Outside of these area, fire departments would use a water tender to shuttle water to the fire from the nearest hydrant, standpipe, or natural water source. This reduces the level of fire protection provided, with insurance implications for residents, unless certain requirements (Superior Tanker Shuttle Service; STSS) are met. No fire departments in Electoral Area K or the Village of Nakusp have STSS accreditation, which requires at least two water tenders.

The Nakusp VFD expressed challenges with water supply due to lack of hydrants at the end of Alexander Road, Shakespear Road, and Bayview Road (Morton Beach), which also have access/egress constraints, as well as Upper Brouse, Lower Browse Loop, Crescent Bay, Shoreholm, and Box Lake. Most of these areas are outside of municipal boundaries but within the Nakusp VFD protection area. Nakusp VFD has alternative water sources (ponds, creeks, cistern) mapped as KMZ files and noted that they have been adequate to date.

The Edgewood fire brigade noted that most areas are reasonably close to a natural water source (creek or lake) but have been installing 6000 gallon water tanks at strategic locations to supplement supply. The Burton fire brigade noted concerns with water supply, especially outside of the community core (McCormack Road, Caribou Creek Road, Reveller Road, Silverqueen Road, Highway 6, and Arrow Park). Like Edgewood, Burton has installed buried tanks in various locations to supplement municipal water supply. Natural sources (Arrow Lake and Caribou Creek) around Burton are difficult to access due to terrain and fluctuating lake levels.

Summer droughts will likely exacerbate challenges with supply and pressure of water for firefighting in Electoral Area K, increasing the importance of mapping and monitoring water supplies. Software applications like ‘I Am Responding’ are used by some fire departments to map water sources (e.g., lake access points, standpipes, etc.). PDF maps or digital files (e.g. KMZ) are easy ways to share information with BCWS and other fire crews that may be assisting in an interface wildfire situation. It is recommended that the RDCK work with local fire departments to digitize water source and access point data that is currently on paper maps (Burton and Edgewood). Other response data, like single access roads, bridges, or gates, could be included with the end goal of creating a response map to share with BCWS and/or other response agencies in the event of an interface fire. 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.

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

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

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

5.6 EMERGENCY PLANNING

When several wildfire emergencies are taking place throughout the province, BCWS resource availability may become scarce. Deployment of provincial resources occurs based on the Provincial Coordination Plan for Wildland Urban Interface Fires.[40] Therefore, local government and community preparedness and resource availability are critical components of community wildfire resilience – individuals and agencies need to be ready to act. Plans, mutual aid agreements, resources, training, and emergency communications systems make for effective wildfire response. Emergency planning is provided by the RDCK Emergency Management Program, which includes all Electoral Areas and several participating municipalities including the Village of Nakusp (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.

[40] 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 K and the Village of Nakusp include:

- Evacuation of isolated boat-access properties on Arrow Lakes;
- Evacuation of [single-egress] Nakusp Hot Springs and Halfway Hotsprings, which also have potentially high numbers of summer visitors;
- Single access/egress Shakespear Road, Alexander Road, and Bayview Road (Nakusp VFD concern);
- Single access/egress Burton campground [Burton concern]
- Reliance on rough/forestry secondary egress roads for Edgewood, Arrow Park (west), and McCormack Road in Burton;
- Recreation users on Arrow Lakes, both day use and at campgrounds, including McDonald Provincial Park; vehicle and boat-access;
- Reliance on ferries to cross Arrow Lake at Needles, Arrow Park, and Shelter Bay;
- Poor civic addressing in rural areas (outside of Nakusp)

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 and Nakusp 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 the plan area with particular emergency planning complications. Plans have been completed for Burton, Edgewood and Fauquier. Most communities are intermixed and may good candidates for such a plan. 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 any information already contained within the RDCK' EOC online GIS platform, such as community evacuation zones, as well information on water sources and access routes provided by local fire departments. As mentioned in Section 5.4, the RDCK should consider working with local fire departments and fire brigades to produce a digital response map that can be shared with BCWS as an initial step in pre-incident planning.

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.[41]

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.

[41]https://www.rdck.ca/assets/News~and~Press~Releases/News~Archive/2024-08-29-Information%20Bulletin%20FINAL.pdf

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 12 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 12: 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 general 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.

Good debris disposal opportunities exist for residents managing vegetation on their properties. Open burning is allowed in the RDCK outside of provincial fire bans, and in parts of the Village of Nakusp with a permit. Yard debris can be dropped off for free at the Nakusp landfill or the Burton transfer station during the months of May and October.[42] Edgewood operates a community burn pile where residents can bring their yard waste for free. In the Village of Nakusp, a debris pick-up program is run every May.

FireSmart landscaping is also an eligible activity under the RDCK FireSmart rebate program, which is also offered in the Village of Nakusp. Provided residents receive a FireSmart Home Assessment beforehand, they can apply to receive compensation (currently up to $5,000 per property) 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 and Nakusp support this program and also has a grant to compensate Neighbourhood Champions for their personal time working towards neighbourhood recognition. Five communities in Electoral Area K have received recognition to date.

Fuel Management Treatments

Fuel treatment opportunities may be linear fuel breaks, polygon treatments for discrete areas, or broader forest interventions. The intent of establishing fuel treatments is to modify fire behaviour and should be designed to keep surface fires on the ground to avoid the establishment of more dangerous and uncontrollable crown fires. Fuel treatments can also provide anchor points to fire-fighting crews for suppression activities,[43] 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.

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[42] https://www.rdck.ca/EN/main/services/waste-recycling/household-hazardous-waste-round-up/yard-garden-waste-free-tipping.html

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

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

Between 2008 – 2024, approximately 137 ha of fuel treatment was completed in the WUI (Table 20). Prescribed but not completed areas are also included. Some areas were treated immediately following the 2008 CWPP under the Strategic Wildfire Protection Initiative (SWPI); some of these records were provided by the local government as not all of these are included in provincial databases.[44] 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 are active (2024-2025) fuel treatment operations taking place in Edgewood, Arrow Park, and Burton (Burton Creek FSR, ~43.3 ha; Burton Face, ~12.7 ha) under the Crown Land WRR program. Approximately half of proposed treatment unit (PTU) 34 in this plan overlaps the ongoing Burton Creek FSR operational treatment area.

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 20. Fuel Treatments completed and prescribed in the WUI

Treatment Unit Name	Community	Year	Area (ha)	Comment
SWPI348	Edgewood	2013	20.1	Completed. West of community centre
N/A	Burton	2009	16.0	Completed. East of community centre
SWPI684	Burton	2016	9.0	Completed. East of community centre
CBTSE017	Arrow Park	2023	6.3	Completed. Mosquito Road – visit in 2024. 2017 shape #22A
CBTSE034	Nakusp Area	2023	3.0	Completed. Donnelly's Road – visit in 2024. No 2017 shape
CBTSE016	Mt. Abriel	2023	8.2	Mt. Abriel recreation site – visited in 2024. Treatment patchy, may require maintenance. 2024 shape #ABR1 inside the Eligible WUI.
N/A	Brouse	2008	16.2	Completed. Square shape.
WRR0001761	Brouse	2023-2024	31.4	Completed. Upper Brouse Road. Visted in 2024, treatment in progress and also some nearby harvested areas. 2017 shape #5

[44] BC Data Catalogue CRI Fuel Treatments and RESULTS - FRE

Treatment Unit Name	Community	Year	Area (ha)	Comment
CRI-325	Nakusp	2024	5.8	Completed. Rail trail buffer. Visited 2024. 2017 shape #10. Partly outside municipal boundaries
CRI-325	Nakusp	2023	1.4	Completed. Arrow Lake Hospital. No 2017 shape. Initially treated in 2008
N/A	Nakusp	2008	0.9	Completed. Adventure Playground.
N/A	Nakusp	2008	7.0	Completed. Municipal Campground.
N/A	Nakusp	2008	1.3	Completed. 10th Ave interface;
N/A	Nakusp	2008	1.2	Completed. Church Hill Road
CRI-228	Nakusp	2020-2022	9.5	Completed. Airport Road; 2017 shape #8. Visited in 2024.
Unit 9	Nakusp	N/A	2.6	Prescribed; 2024 visit also indicates past treatment. Hot Springs Road. 2017 shape #9
Unit 11	Nakusp	N/A	1.7	Prescribed. 2024 visit also indicates past treatment. Hot 13th Ave. 2017 shape #11
Unit 13	Nakusp	N/A	1.8	Prescribed. Highway 6, south of municipal boundaries. Ave. 2017 shape #13

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.

Out of 70 units from the 2017 plan, 35 PTUs are carried forward in this plan and summarized in Table 21. Note that the fuel treatment identification strategy taken in 2017 was analogous to the 'Wildfire Risk Reduction' unit approach that is currently used in Ministry of Forests Wildfire Risk Reduction Wildland Urban Interface (WUI WRR) plans. For the 2017 plan, large 'planning area' PTUs were delineated with smaller fuel treatment opportunities within them. Appendix 2 in the 2017 CWPP contains good summaries of fuel management considerations by community in Electoral Area K: Bayview, Burton, East Arrow Park, Edgewood, Fauquier, Halycon Hot Springs, Nakusp Hot Springs, Nakusp, and West Arrow Park.

BC Timber Sales, Interfor, Stella Jones, and Nakusp Community Forest are the major forest licensees with tenure overlaps in the plan area. 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 the core of denser communities like Edgewood and Nakusp 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 K, creative solutions to incentivize forest treatment on private land even outside of the Home Ignition Zone (30 m buffer) may be required. Many properties in Burton, Fauquier, Brouse/Glenbank and even east of Nakusp are over 1 hectare in size (100 m x 100 m) and are partly or fully forested. One recommendation is to work with the Ministry of Forests to consider a program or strategy to guide larger-scale forest treatments on private land. The Washington State Department of Natural Resources' Small Forest Landowner Regulation Assistance Program is a possible framework.

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

Table 21: Summary of Proposed Fuel Treatment Units

PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
ABR1	Low-Moderate	3.4	Electoral Area K North of Nakusp. Crown Provincial land. Interfor TFL23 overlap. Almost complete overlap with Mt. Abriel recreation area (RSTBC). Bike and hiking trails. Overlaps 2023 treatment area but treatment seems incomplete.	*** PTU as of 2017*** Treat to reduce wildfire treat within the WUI C-5: Predominantly mature Cw with scattered Fd. CBH 5m-9m. Fuel Strata gap 3m-6m made up of understory conifer Cw growth. Ground fuels scattered needle litter and evidence of moderate to high CWD/blowdown. Evidence of past WRR treatment. Past treatment is patchy. W aspect. Terrain is benchy some flat areas and some steep areas up to 70%. Consult with Mt. Abriel Rec Coordinators prior to prescription development Recommended manual treatment due to terrain constraints. Remove all conifers >17.5cm DBH and prune remaining stems. Pile and burn debris.
1	Moderate	15.9	Entirely on Crown Provincial land within RDCK Electoral Area K around community of Nakusp. Private residence adjacent to PTU. Nakusp airport across highway about 300m	*** PTU as of 2017, PTU polygon has been adjusted*** Treat to reduce wildfire treat within the WUI C-5: Mature Hw, Cw with crown base height 5-9m. Ladder fuels consists of juvenile Hw, Cw. Ground fuels consist of moss and dead fine needles and fine branch material with no significant amount of CWD. W aspect. Benches and sloped terrain 40%-70% in some areas. Good access off highway. Recommended manual treatment due to terrain constraints. Remove all conifers >17.5cm DBH and prune remaining stems. Pile and burn debris.
3	High	58	Entirely on Crown Provincial land within RDCK Electoral Area K; south end is in Nakusp municipal boundaries. Nakusp transfer station adjacent to PTU. Kuskanux Community Waterhed overlap	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire treat within the WUI C-5: Pole size to mature Hw, Cw, Fd with crown base height <5m. Ladder fuels consists of juvenile Hw, Cw, Fd. Ground fuels consist of moss and dead fine needles and fine branch material with significant amount of CWD and conifer seedlings. Majority of PTU is on flat ground; however, the NE side of the PTU is on steeper slope around 70%. Recommend commercial thin in machine accessible areas, pruning retained trees and hand treatment where terrain becomes too steep. Pile and burn debris
4	Moderate	48	Entirely on Crown Provincial land within RDCK Electoral Area K around community of Nakusp, and adjacent to private land and residences. Abuts Woodlot W0406 to the east and a 2008 fuel treatment on municipal land to the southeast.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire treat within the WUI C-5: Mature Hw, Cw, FD with crown base height 5-9m. Scattered ladder fuels consists of juvenile Hw, Cw. Crown closure >80%. Ground fuels consist of moss and dead fine needles and fine branch material with 26%-50% CWD and low amount of conifer seedlings. Flat ground Recommended commercial thin with high potential for merchantable timber, prune retained trees, pile and burning ladder and surface Challenging access as majority of PTU is surrounded by private land. Only access is from southeast corner.

PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
6	Moderate	100.8	Entirely on Crown Provincial land within RDCK Electoral Area K around community of Nakusp. Partial overlap with Nakusp and Area Community Forest. Community and residences are adjacent to PTU. Box Lake recreation site (RSTBC) and UREP 0320285 overlap at eastern tip.	***New Polygon created in 2024*** Treat to reduce wildfire threat within the WUI C-5: Mature Hw, Cw, FD, Lw with crown base height >10m. Scattered ladder fuels consists of juvenile Hw, Cw. Crown closure >80%. Ground fuels consist of moss and dead fine needles and fine branch material with scattered CWD <7cm and low amount of conifer seedlings. North aspect with slope 46%-60%. Good access into PTU. Recommended commercial thin with high potential for merchantable timber where applicable followed by a hand treatment where machine operations become inoperable. Pile and burn debris. Opportunity exists to daylight access road to enhance it for response and suppression efforts
7	Moderate-high	74.8	Entirely on Crown Provincial land within RDCK Electoral Area K around community of Nakusp. Private residence and private land adjacent to PTU.	*** PTU as of 2017*** Treat to reduce wildfire threat within the WUI C-5: Mature Hw, Cw, with crown base height 5m-9m. Patchy ladder fuels consists of juvenile Hw, Cw and significant amounts of down elevated debris in the form of blowdown. Ground fuels consist of moss and dead fine needles and fine branch material with significant amounts of CWD <7cm continuity. Good access into PTU. North aspect with slope 21%-60%. Slope seems to increase as you move further south up slope. Recommended commercial thin with high potential for merchantable timber where applicable followed by a hand treatment where machine operations become inoperable. Pile and burn debris
12	Low	2.5	PTU within Village of Nakusp overlapping Nakusp Elementary School site. Majority on municipal land.	*** PTU as of 2017*** Treat to reduce wildfire threat within the WUI Evidence of past treatment about 5-10 years ago. Re-treat recommended in the next 5 years ensuring understory fuel strata gap reams high. Consult with village of Nakusp prior to treatment development. Flat ground and easy access.
14A	Moderate	47.3	Entirely on Crown Provincial land. Halcyon Hot springs and campground in proximity to PTU. Overlaps Interfor TFL23.	*** PTU as of 2017*** Treat to reduce wildfire threat within the WUI M1/2- 50% Cw, Hw, Fd and 50% Ep, At. Mostly pole size, intermixed mature. Moderate Wildfire thread assessment. Stand appears to be 25 to 50 years old with some large mature cedar, Hemlock, Douglas fir scattered throughout. Ladder fuels consists of juvenile Hw, Cw with a 6m-9m fuel strata gap. Scattered CWD. Ground fuels consist of moss and dead fine needles and fine branch material. W aspect, slope 30%.

PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
				FSR access to lower portion of PTU. However, FSR will need to be graded. Furthermore, a deactivated block road will you bring you straight into PTU which will need to be reactivated and daylighted if it's to be utilized. Potential for merch value, however timber cruise might be needed to establish value. Recommended mechanical treatment remove all conifer, stems under 17.5 cm DBH and limb remaining conifer, stems up to 3 m. Retain deciduous. Pile and burn debris.
15	High	33.1	Nakusp Hotsprings Chalet and Campground. Within Nakusp municipal boundaries and the majority overlapping municipal land. Kuskanux Creek Community Watershed overlap.	To much snow to access with pickup. No WTA plot done.
16 A	Moderate	4.6	Entirely on Crown Provincial land within RDCK Electoral Area K around Morton Beach area. Nakusp and Area Community Forest tenure. Residence 500m from PTU. Powerlines within 100 m of PTU.	***New Polygon created in 2024*** Treat to reduce wildfire threat within the WUI C-5: 75% mature conifer Fd Lw, Cw. 25% mature Ep, At. Ground fuels consist of moss and dead fine needles and fine branch material. Ladder fuels >60% coverage consist of significant blowdown. Fuel strata gap <3m. Significant fuel loading thought PTU. Aspect E/Flat slope <20% Good access into PTU along powerline or highway, moderate to gentile slope. Dense understory and significant blowdown. Recommended commercial thin with high potential for merchantable timber. Prune remaining mature stems, pile and burn debris.
16 B	Moderate	6.5	Entirely on Crown Provincial land within RDCK Electoral Area K around Morton Beach area. Nakusp and Area Community Forest tenure. Residence 500m from PTU. Powerlines within 100 m of PTU.	***New Polygon created in 2024*** Treat to reduce wildfire threat within the WUI C-5: 75% mature conifer Fd Lw, Cw. 25% mature Ep, At. Ground fuels consist of moss and dead fine needles and fine branch material. Ladder fuels >60% coverage consist of significant blowdown. Fuel strata gap <3m. Significant fuel loading thought PTU. Aspect E/Flat slope <20% Good access into PTU along powerline or highway, moderate to gentile slope. Dense understory and significant blowdown. Recommended commercial thin with high potential for merchantable timber. Prune remaining mature stems, pile and burn debris.
19	Moderate-high	32.9	Entirely on Crown Provincial land within RDCK Electoral Area K around Morton Beach area. Nearly complete overlap with	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-5: Mature Cw, Fd with significant crown closure 80% with a 3m-m fuel strata gap. Ground fuels consist of moss and dead fine needles, fine branch material and conifer seedlings as well as26%-50% <7cm CWD. No significant amount of juvenile understory. Low amount of continuous ladder fuel. W aspect with 10% slope. Easy access into PTU. No critical infrastructure at risk.

PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
			McDonald Creek Provincial Park (only road right of way excluded).[45] Morton South Beach adjacent to PTU.	Recommended thinning treatment with high potential for merchantable timber. Prune remaining mature stems, debris removal / management.
20	Moderate-High	17.7	Entirely on Crown Provincial land within RDCK Electoral Area K around east side of Arrow Park community. Nakusp and Area Community Forest tenure. Private residence and private land adjacent to PTU.	*** PTU as of 2017, PTU polygon has been adjusted*** Treat to reduce wildfire threat within the WUI C-5: mature Cw, Fd, with about 10% mature Ep. Scattered ladder fuel continuity. CBH 5m-9m with high crown closure 70%. Fuel Strata gap 3m-6m. Ground fuels consist of moss and dead fine needles, fine branch material. Aspect flat. Good access into PTU. West side of PTU is directly adjacent to residence <50m. Middle of PTU has been harvested already. Excluded middle from PTU Recommended commercial thin with high potential for merchantable timber. Prune remaining mature stems, pile and burn debris.
21	high	8	Entirely on Crown Provincial land within RDCK Electoral Area K East side of Arrow Park community. Ferry terminal ~350 m from PTU.	*** PTU as of 2017, no changes to the PTU boundary for 2024*** Treat to reduce wildfire threat within the WUI C-5: mature Cw, Fd, with about 5% mature Ep, Crown closure %70. CBH 5m-9m. 40%-60% ladder fuel continuity. Significant amount of large elevated CWD throughout. Significant understory juvenile conifers up to 2000SPH in some areas. Fuel strata gap <3m. Ground fuels consist of moss and dead fine needles W aspect, slope up to 20%. Easy access into PTU Recommended commercial thin and prune remaining mature stems, pile and burn debris. Retain deciduous component.
22 A	Moderate-high	9.5	Entirely on Crown Provincial land within RDCK Electoral Area K Arrow Park. Arrow Park ferry terminal 1 km from PTU	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-5: mature Cw, Fd, Lw. CBH 5m-9m. Ladder fuel scattered juvenile with about 40% >7cm CWD through out PTU. Ground fuels consist of moss and dead fine needles. Fuel strata gap <3m Aspect flat and easy access into PTU. Recommended commercial thin and prune remaining mature stems, pile and burn debris. Retain deciduous component. Aspect flat with good access into PTU.
24	Moderate	36.9	Within RDCK Electoral Area K community of Burton. Water reservoir in southwest corner of PTU.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI

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

PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
			Western half overlaps with municipal (Burton Academy School site) and Crown agency parcels.	C-5: mature Cw, Hw, and scattered mature Fd. CBH <5m. Scattered juvenile conifer ladder fuel continuity with moderate amount of CWD. <3m fuel strata gap. Ground fuels consist of moss and dead fine needles. Aspect flat and easy access into PTU. Water reservoir In Southwest corner of PTU. A portion of PTU has been harvested (Possible private land) Good access into PTU with moderate slope 10-30%. Recommended commercial thin and prune remaining mature stems, pile and burn debris.
28	moderate	109.5	Entirely on Crown Provincial land within RDCK Electoral Area K community of Burton. South half overlaps Woodlot W0405. Private residence within 500m of PTU. North half overlaps Caribou Community Watershed.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** PTU 28/29/30 have been amalgamated into PTU28, due to proximity and similarity in stand conditions. Treat to reduce wildfire threat within the WUI C-5: mature Cw, Fd, Lw. CBH 5m-9m Ladder fuel composition moderate to high amount of juvenile conifer and moderate amount of elevated CWD. Fuel strata gap <3m. Moderate to high amount of ground fuels consist of moss and dead fine needles. Plantations and regenerating harvested areas should be netted out of the treatment unit at the time of prescription development. Significant amount of high value timber. W aspect with slope 35%-55% Good access into PTU. Recommended commercial thin and prune remaining mature stems, pile and burn debris. Retain deciduous component.
31	Low-Moderate	15.9	Entirely on Crown Provincial land within RDCK Electoral Area K community of Burton. Residence and lumberyard within 200m of PTU. Overlaps Woodlot W0405.	***New Polygon created in 2024*** Treat to reduce wildfire threat within the WUI C-5: Mature Fd, Cw about 10% Ep. CBH 5m-9m. Scattered ladder fuel continuity. Moderate amount of understory juvenile conifer Fuel strata gap <3m. low amount dead elevated CWD. Ground fuels consist of moss and dead fine needles and low amount of CWD. Patchy harvest observed within PTU. Aspect Flat. Good access into PTU. Recommended commercial thin and prune remaining mature stems, pile and burn debris. Retain deciduous component.
32	Low-Moderate	125.7	Entirely on Crown Provincial land within RDCK Electoral Area K community of Burton. Private residence 100 from PTU. Overlaps Woodlot W0405.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-5: Mature Fd, Cw. CBH 5m-9m. Significant continuous elevated CWD and understory juvenile conifers throughout PTU fuel strata gap 3m-6m. Ground fuels consist of moss and dead fine needles and low amount of CWD.

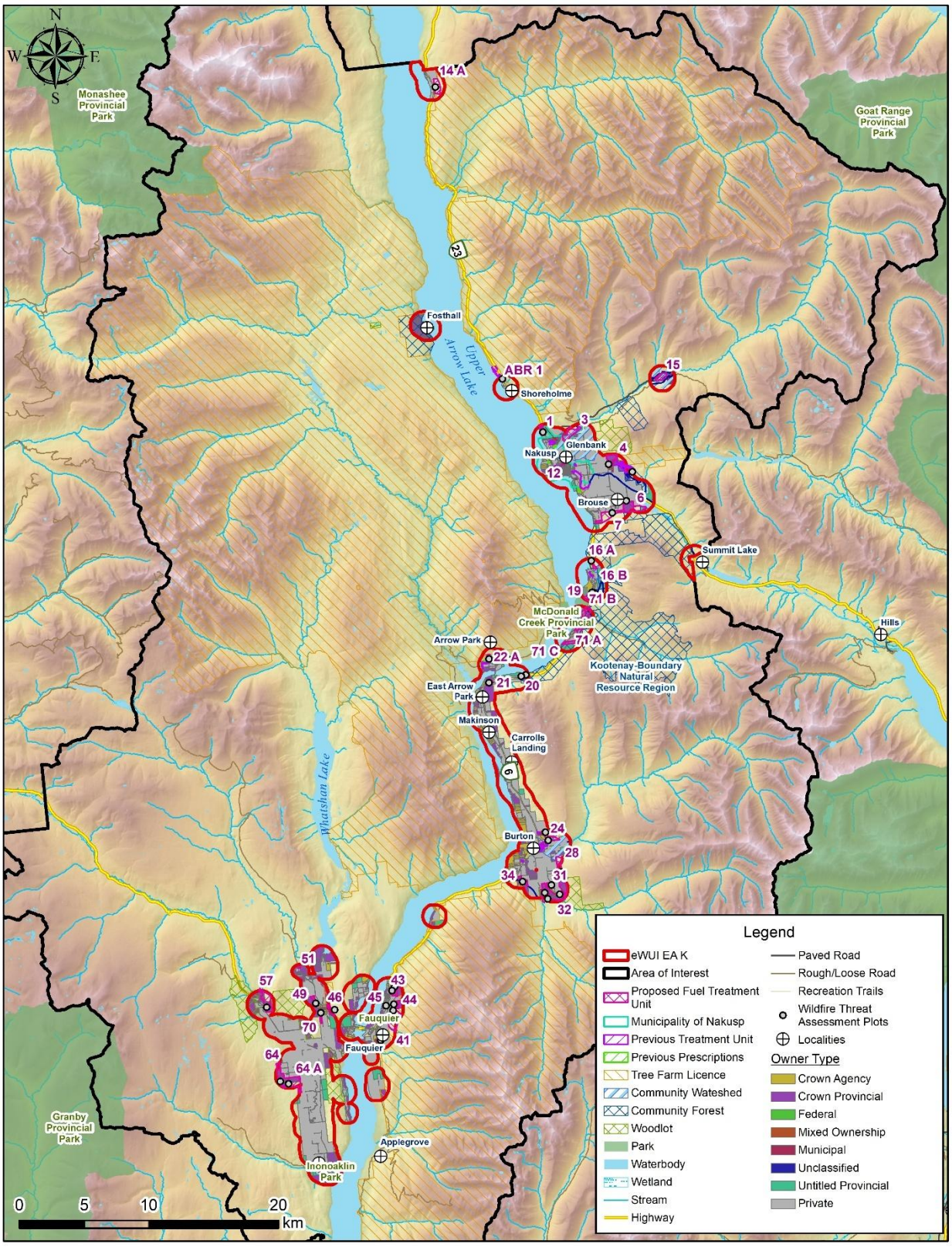
PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
				Aspect flat with good access. Some areas within PTU have seemingly undergone a selective harvest. However, this is patchy, and no obvious boundaries have been observed. Recommended commercial thin and prune remaining mature stems, pile and burn debris.
32	Low-Moderate	125.7	Not entirely on Crown Provincial land within RDCK Electoral Area K community of Burton. There is a private residence within the PTU. Overlaps Woodlot W0405.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-5: Mature Cw, Fd Lw. CBH 5m-9m Ladder fuel continuity patchy made up of juvenile conifers throughout. Fuel strata gap 3m-6m. Ground fuels consist of moss and dead fine needles and low amount of CWD. Aspect flat with good access. Recommended commercial thin and prune remaining mature stems, pile and burn debris.
34	Moderate	20.7	Entirely on Crown Provincial land within RDCK Electoral Area K community of Burton. PTU is adjacent to private land with residence within 100m of PTU	*** PTU as of 2017, PTU polygon has been adjusted2024*** Treat to reduce wildfire threat within the WUI C5/C-7- mature Cw, Fd, Lw. CBH 5m-9m. ladder fuels made up of moderate amount of understory conifers Fuel strata gap 3m-6m. Moderate amount of CWD scattered throughout PTU. Ground fuels consist of moss and dead fine needle Aspect flat with good access. Recommended commercial thin and prune remaining mature stems, pile and burn debris.
41	Moderate	80.3	Entirely on Crown Provincial land within RDCK Electoral Area K community of Fauquier, Private residence 100m from PTU. Interfor TFL 23 tenure.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-3- Mixed species mature Lw, Fd, Pl, Cw. CH 5m-9m Ladder fuels made up of moderate to high number of juvenile conifers with a fuel strata gap of <3m. Minimal amount of elevated CWD. Ground fuels consist of moss and dead fine needle. Moderate number of sticks and CWD. W aspect. slope up to 40% Good access into PTU. Recommended commercial thin and prune remaining mature stems, pile and burn debris.
43	Low	31.5	Entirely on Crown Provincial land within RDCK Electoral Area K community of Fauquier. Residence within 200m of PTU. Interfor TFL 23 tenure.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire treat within the WUI C-5: Mature Cw, Hw, Fd, Lw with small component of Ep. CBH <5m. Moderate to high amount of ladder fuels juvenile conifers and elevated CWD with a fuel strata gap of <3m. Ground fuels consist of moss and dead fine needle and moderate to high amount of CWD and sticks. No road access into PTU and private land restricting potential road building. Recommended commercial thin and prune remaining mature stems, pile and burn debris.
44	moderate	22.9	Entirely on Crown Provincial land within RDCK Electoral Area K community of Fauquier. Residence within 200m of PTU.	*** PTU as of 2017,*** Treat to reduce wildfire threat within the WUI

PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
			Interfor TFL 23 tenure.	C-5: Mature pole size Cw, Hw, intermixed Lw, Fd. CBH 5m-9m Ladder fuels made up of Moderte to high amount of juvenile conifer and elevated CWD. Fuel strata gap 3m-6m. Moderate to high amount of ground fuels made up of needles and CWD. W aspect slope 10%-20% W aspect, 30% slope. Good access into PTU Recommended commercial thin and prune remaining mature stems, pile and burn debris.
45	high	3	Entirely on Crown Provincial land within RDCK Electoral Area K. PTU is situated within Fauquier neighbourhood with multiple private residence adjacent. Majority overlaps UREP 4402047.	*** PTU as of 2017,*** Treat to reduce wildfire threat within the WUI C-5: Mature Cw, Hw, intermixed Fd. CBH 5m-9m. Moderate amount of horizontal ladder fuels. However, pockets of blowdown have been observer thought PTU. Blowdown is not continuous. Fuel strata gap 3m-6m. Ground fuels made up predominantly of sticks and needle littler. Flat ground with good access into PTU. Recommended commercial thin and prune remaining mature stems, pile and burn debris
46	Low-Moderate	17	Entirely on Crown Provincial land within RDCK Electoral Area K in the community of Needles. private residence within 300m of PTU	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI Predominantly C-7 with a light transition into C-5: Mature Fd, Lw. CBH 5m-9m. As you move up in elevation Py begins to present understory pole size and juvenile Cw. Scattered horizontal ladder fuels with moderate amount of elevated CWD. Fuel strata gap 3m-5m. Ground fuels made up predominantly of sticks and needle littler. Moderate amount of CWD throughout PTU. W aspect, slope 35% Easy access into PTU A large portion of the PTU has already been harvested. What remains untreated has a moderate to high percentage of blowdown with fuel strata gap closing due to understory confer growth. Recommended commercial thin and prune remaining mature stems, pile and burn debris
49	Moderate-High	12.2	Entirely on Crown Provincial land within RDCK Electoral Area K in the community of Needles. Major Powerline running through PTU	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-7/C-5: Mature Fd,Cw and about 5%-10% Ep. CBH 5m-9m.Ladder fuels scattered. In the form. Of juvenile Cw, and low amount of elevated CWD. Fuel strata gap <3m due to juvenile and pole size understory. Moderate to high amount of ground fuels in the form of needle and sticks. Northeastern portion runs along powerline with large right of way. Recommend working west off of right of way clearing 50m up slope into forested land base. PTU grade becomes steeper (75%), rockier/rock bluffs and inoperable for machine as you move further west upslope into PTU. Access along powerline right of way may need to be widened to accommodate logging trucks.

PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
				Recommended commercial thin and prune remaining mature stems, pile and burn debris
51	High	1.2	Entirely on Crown Provincial land within RDCK Electoral Area K in the community of Needles. Monashee Substation critical infrastructure adjacent to PTU (Crown agency parcel).	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-5: mature Fd, Pl, Cw, Pw. CBH 5m-9m. Ladder fuels Uniform with significant amount of understory juvenile conifers and elevated CWD. Fuel strata gap <3m. significant amount of ground fuels needle litter sticks and CWD. Flat aspect with good access into PTU Recommended commercial thin and prune remaining mature stems, pile and burn debris
57	Low	85	Entirely on Crown Provincial land within RDCK Electoral Area K in the community of Needles.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-7/C-3- Mature Fd, Cw Pl. CBH 5m-9m. Timber type seems to transition to more C-7 as you move east up slope. Ladder fuels patchy due to understory juvenile conifer growth and elevated CWD. Fuel strata gap <3m W aspect. Slope 30% at plot location but seems to increase as you move up slope. No direct access into PTU, however, a road could be built off of an existing FSR or highway. Slope increases as you move east up PTU. PTU may need to be stratifies out due to potential low density and rocky terrain. Recommended commercial thin and prune remaining mature stems, pile and burn debris.
64	Moderate	78.3	Entirely on Crown Provincial land within RDCK Electoral Area K in the community of Needles. Community watershed within PTU. Private residence within 200m of PTU	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-3- Pl, larch, Cw, Hw, and about 10% deciduous component Ep. All conifers in various age classes up to 40 years old. Pole size for the most part. High density understory juvenile conifer >1500 SPH. Fuel strata gap <3m. ground fuels high amount of needle litter and CWD throughout. Aspect flat. Consult with water shed users prior to prescription development. Good access into PTU. Recommended hand treatment due to watershed use.
64 A	moderate	79.7	Entirely on Crown Provincial land within RDCK Electoral Area K in the community of Needles. Private residence within 200m of PTU	***New PTU as of 2024*** Treat to reduce wildfire threat within the WUI C-5: predominantly mature Cw, Hw intermixed Fd, Pl. CBH 5m-9m. Significant understory juvenile conifers confer >1500 SPH closing fuel strata gap <3m. ground fuels exclusively needle liter and moderate amount of CWD. Aspect flat for the most part with east side of PTU slope increasing 30%-40% Good access into PTU. Recommended commercial thin and prune remaining mature stems, pile and burn debris

PTU Name	Priority	Total Area (ha)	Overlapping Values / Treatment Constraints	Treatment Rationale
70	Moderate		Entirely on Crown Provincial land within RDCK Electoral Area K in the community of Needles. Powerlines run along PTU. Overlap with Crown agency parcels at north end.	*** PTU as of 2017, PTU polygon has been adjusted 2024*** Treat to reduce wildfire threat within the WUI C-7/C-5:Mature Fd, Lw with pole size Cw, Hw understory CBH 5m-9m. Ladder fuels patchy and not overgrown, no significant amount of elevated CWD. Fuel strata gap 3m-5m Ground fuels needle litter and low amount of CWD. E aspect toe of slope. Slope increase as you move westward up slope up to 40% Recommended commercial thin and prune remaining mature stems, pile and burn debris.
71A		38.1	Entirely on Crown Provincial land within McDonald Creek Provincial Park.[46]	***New PTU as of 2024*** Within the jurisdiction of BC Parks to consider and implement. No WTA plot due to CWRP update scope constraints but suggested by field assessor.
71B		41.0	Entirely on Crown Provincial land within RDCK Electoral Area K. East end overlaps Nakusp and Area Community Forest tenure. Abuts McDonald Creek Provincial Park to the west.	***New PTU as of 2024*** Treat to reduce wildfire threat within the WUI. Ties to Highway 6 south of Morton Beach area and across from McDonald Creek Provincial Park. No WTA plot due to CWRP update scope constraints but suggested by field assessor.
71C		48.8	Entirely on Crown Provincial land within RDCK Electoral Area K. Majority overlaps Nakusp and Area Community Forest tenure. Abuts McDonald Creek Provincial Park to the NW.	***New PTU as of 2024*** Treat to reduce wildfire threat within the WUI. Adjacent to private land south of McDonald Creek Provincial Park. No WTA plot due to CWRP update scope constraints but suggested by field assessor.

[46] 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 13 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.[47]

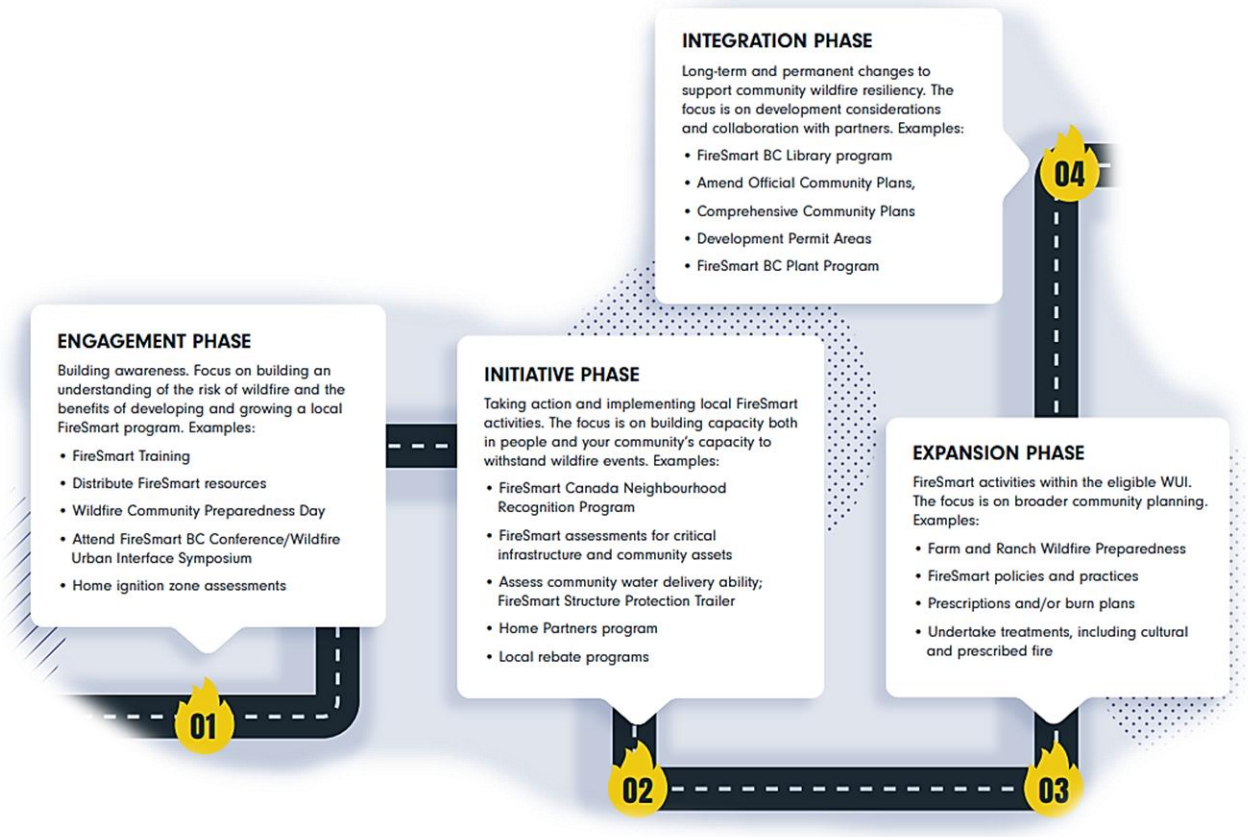


Figure 13. Graphic representation of the FireSmart Roadmap concept.[48]

[47] 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

[48] Copied from FireSmart BC – The FireSmart Roadmap. https://firesmartbc.ca/wp content/uploads/2022/07/09.13.23_FSBC_RoadMap.pdf

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

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

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

6.2 TRACKING, REPORTING, AND UPDATES

As the RDCK and the Village of Nakusp 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

Table 22. Review of 2017 CWPP Recommendations with 2025 status update

Item	Priority	2017 CWPP Recommendation	2024 CWRP *Follow-Up Discussion*
Section 2: Existing Plans and Initiatives			
Objective: To facilitate cooperative and efficient wildfire risk mitigation efforts.			
1		Work with other agencies – the CSRD, BC Hydro, and the FWCP – to coordinate wildfire risk mitigation when appropriate. Consider joint implementation of fuel treatment and FireSmart activities around Summit Lake and Halcyon Hot Springs with RDCK Area H and CSRD Area B – Revelstoke Columbia.	*Not done*
2		Coordinate trail development and maintenance with wildfire mitigation efforts in high-risk areas. Information regarding new trail development should be shared with response agencies and incorporated into evacuation and emergency response plans.	*Not done in Area K*
Objective: To ensure existing and future emergency plans consider wildfire risks in the community.			
3		Ensure existing and future emergency plans - including the Water System Emergency Response Contact List – consider wildfire risks and contain current emergency contact information. Information should include BCWS, and local fire department contact information.	*There are EM contact lists*
Section 3: Values at Risk			
Objective: To reduce the vulnerability of structures and values to wildfires. To protect human life and safety			
4		Prioritize fuel management treatments that protect electrical power, communications, transportation and water critical infrastructure.	*Some of this was done*[49]
Objective: To facilitate cooperative and efficient wildfire risk mitigation efforts.			
5		Ongoing First Nations consultation during the fuel management prescription phase. Preliminary reconnaissance assessments of potentially impacted cultural values prior to fuel treatments.	*This has occurred*
Section 4: Wildfire Threat and Risk			
Objective: To improve fuel typing for southeastern BC forest types and subsequent predictive fire behavior			

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

Item	Priority	2017 CWPP Recommendation	2024 CWRP *Follow-Up Discussion*
6		Examine the viability of a research project designed to more accurately classify Kootenay mix fuel types	*Some work on this has been conducted?*
Section 5: Risk Management and Mitigation Factors			
Objective: To reduce forest fuel hazards in high-risk areas.			
7		Work with licensees (Interfor, BCTS, NACFOR, Woodlots) and other agencies (BC Hydro and FWCP) to implement fuel treatment as recommended in Table 15. Consider funding streams provided by the CRIP and FESBC.	*Some of this was implemented*
Objective: To reduce the vulnerability of structures and values to wildfires. To reduce the occurrence of human caused fires and to increase local fire response capacity.			
8		Maintain FireSmart programs in Nakusp and Area K. Continue to provide FireSmart Home Assessments and undertake education and outreach activities.	*This has occurred*
9		As part of the FireSmart program, implement recommended activities from Table 16; including education and outreach, vegetation management, incorporating FireSmart into community planning and development, and increasing local capacity to defend against an interface fire.	*As per the questionnaire*
Objective: To reduce the occurrence of human caused fires.			
10		Maintain sufficient signage at high-use recreational areas. Signage may include fire danger ratings, information on fire prevention, emergency contact information, and evacuation procedures on certain trails. Explore opportunities to work with other agencies to maintain and increase fire prevention signage at trailheads, forestry roads, along the highway, and within communities.	*Limited progression on this*
Section 6: Wildfire Response			
Objective: To increase resources available to defend against an interface fire.			
11		Incorporate volunteer firefighter recruitment into FireSmart education and outreach initiatives. Consider formal recognition and viability of funding through taxation for Burton, Edgewood and Fauquier Fire Departments to be able to provide mutual aid agreements with nearby Fire Departments to address challenges associated with limited volunteer availability.	*This has not occurred*
12		Explore funding opportunities for community fire caddies and water trucks where there are gaps in fire response/equipment coverage. Consider providing S-100 training to members of the public at a reduced rate or free of charge.	*This has not occurred?*

Item	Priority	2017 CWPP Recommendation	2024 CWRP *Follow-Up Discussion*
13		Continue cross-training between the BCWS and Nakusp Fire Department. Explore opportunities for additional training including annual mock fire exercises, advanced wildfire suppression/fire operations in the WUI (S-215), structure and site preparation training (S-115), ICS, communications, and after-action reviews of past interface fires. Explore opportunities to include Burton, Edgewood, and Fauquier fire departments into training events.	*This occurs annually*
14		Maintain SPUs and explore opportunities to assist homeowners and community groups to develop sprinkler kits.	*There is a regional SPU*
Objective: To decrease fire response times.			
15		Increase public awareness of first responder emergency contact information: Wildfires - BCWS (1-800-663-5555 or *5555 on cell) and Nakusp Fire Department (9-11). Within communities call Burton Volunteer Fire Department (250-265-4348), Edgewood Volunteer Fire Department (250-269-0023), Fauquier Volunteer Fire Brigade (250-269-7650) AND call BCWS Dispatch (1-800-663-5555 or *5555 on cell)	
Objective: To ensure the safety of human life in the event of an interface fire.			
16		Develop a detailed evacuation plan for Nakusp and communities of Area K. Explore opportunities to address emergency access and evacuation constraints throughout the AOI.	*As per the Questionnaire*

APPENDIX B: LOCAL WILDFIRE RISK PROCESS

Wildfire Risk Assessment plot worksheets are provided in Appendix C: Wildfire Risk Assessment – Worksheets and Photos and plot locations are summarized in Appendix B-2: Wildfire Threat Assessment Plots.

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.[50] 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.[51] 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.[51] 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.

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

[51] 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

- Wildfire Behaviour Threat Score (Southern Interior Ecoprovince)
    - 0 – 47 Low
    - 48 – 65 Moderate
    - 66 – 79 High
    - 80 – 100 Extreme

Table 23 displays a summary of all Wildfire Threat Assessment (WTA) plots completed during CWRP field work. WTAs were completed only to support the fuel treatment unit updates. The most recent WTA threat plot worksheets and methodology were used.[52] 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 (Southern Interior Ecoprovince)
    - 0 – 47 Low
    - 48 – 65 Moderate
    - 66 – 79 High
    - 80 – 100 Extreme

Table 23. Summary of WUI Threat Assessment Worksheets completed in the WUI.

WTA Plot	Geographic Location	Wildfire Threat Rating
WTA 1	N Nakusp off Hwy 23	Moderate
WTA 3	E Nakusp dump	High
WTA 4	Upper Brouse Road	Moderate
WTA 5	Wilson Lake Road	Low
WTA 6	Brouse Lood Road	Moderate
WTA 7	Fox Glove Road	High
WTA 8	Nakusp Airport	Low
WTA 10	Rail Trail	Moderate
WTA 12	Nakusp Elementary	Low
WTA 14A	E of Halcyon Hotsprings	Moderate

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

WTA Plot	Geographic Location	Wildfire Threat Rating
WTA 16	Bayview Viewpoint	High
WTA 18	E of Morton S Beach	High
WTA 19	Morton S Beach	High
WTA 20	Rock Island Road	Moderate
WTA 21	W Rock Island Road	High
WTA 22A	Eastman Ranch Road	Moderate
WTA 23	Saddle Mountain Road	Low
WTA 24/25 Plot 1	N of Caribou Creek Road (Burton)	Moderate
WTA 24/5 Plot 2	500m E of Burton School Road (Burton)	High
WTA 28 29 30	Watts Road (Burton)	High
WTA 31	McCormack Road (Burton)	Moderate
WTA 71	S of Whatshan Settlement Road, E of Highway 6.	Moderate

APPENDIX B-3: FIRE RISK THREAT ASSESSMENT METHODOLOGY

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

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

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

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

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

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

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

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

Field Data Collection

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

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

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

Spatial Analysis

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

Table 24: Components of Fire Threat Analysis

Attribute	Indicator	Score
Fuel Type	C-1	35
	C-2	
	C-3	
	C-4	
	M-3/4,>50% dead fir	
	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).[53,54] 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.[55]

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

Because ignitability of the HIZ is the main factor driving structure loss, the intensity and rate of spread of wildland fires beyond the community has not been found to necessarily correspond to loss potential. For example, FireSmart homes with low ignitability may survive high-intensity fires, whereas highly ignitable homes may be destroyed during lower intensity surface fire events.[54] Increasing ignition resistance would reduce the number of homes simultaneously on fire; extreme wildfire conditions do not necessarily result

[53] 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)

[54] 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)

[55] Available for download here: FireSmartBC_HomeownersManual_Printable.pdf

in WUI fire disasters.[56] It is for this reason that the key to reducing WUI fire structure loss is to reduce structure ignitability. Mitigation responsibility must be centered on structure owners. Risk communication, education on the range of available activities, and prioritization of activities should help homeowners to feel empowered to complete simple risk reduction activities on their property.

Table 25. Proximity to the Interface.[57]

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.*

[56] 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)

[57] 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