Community Wildfire Resiliency Plan
City of Castlegar

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I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals and that I did personally supervise the work.	
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This report was developed with technical input from Blackwell Consulting Ltd. (Blackwell). Cathro has a long-standing relationship of collaboratively working with Blackwell to proactively support communities in wildfire resiliency.

INDIGENOUS ENGAGEMENT AND ACKNOWLEDGMENT

The City of Castlegar recognizes that it is situated on the traditional, ancestral, and unceded territories of the Sinixt, Syilx, and Ktunaxa Nations. The City of Castlegar is committed to advancing reconciliation and building meaningful relationships with these Nations and others that reside in this area. This Community Wildfire Resiliency Plan reflects Castlegar's policy to engage with Indigenous communities in ways that respect their leadership, knowledge systems, and stewardship responsibilities, specifically in the context of wildfire risk reduction and land management.

EXECUTIVE SUMMARY

In April 2025, Cathro was selected to assist the City of Castlegar in developing a new Community Wildfire Resiliency Plan (CWRP). This plan updates and replaces the 2020 Community Wildfire Protection Plan (CWPP) completed by Diamond Head Consulting, reflects changes over the past five years and incorporates BC's latest community wildfire planning framework.

The CWRP provides a wildfire risk assessment and a strategic action plan aimed at improving wildfire resilience across Castlegar's eligible Wildland-Urban Interface (eWUI). It is built on the integration of the seven FireSmart™ disciplines: Education, Vegetation Management, Emergency Planning, Cross-Training, Interagency Cooperation, Legislation and Planning and Development Considerations.

Since 2020, Castlegar has fully or partially completed 17 of the 30 CWPP recommendations—primarily those related to public FireSmart education and the completion of vegetation management activities on fuel treatment units. For this CWRP, the eWUI is defined as the area that is within 1 km of the municipal boundary and also within the BC Wildfire Service WUI. The city's eWUI is 6,663.2 ha, and community wildfire resilience depends not only on municipal action, but also on residents, the Province, and land managers on timber harvest lands. Regular meetings of Castlegar's Community FireSmart Resiliency Committee (CFRC), along with engagement with the Sinixt, Syilx, and Ktunaxa Nations and sub-committees, will be key to successfully implementing this plan.

Castlegar's eWUI falls within a provincially designated Wildland Urban Interface area rated as Risk Class 1—the highest wildfire risk rating in BC—due to dense vegetation, steep terrain, fire history, and proximity to vulnerable infrastructure. Much of the surrounding area is similarly rated as "High" threat under the Provincial Strategic Threat Analysis (PSTA). Fieldwork conducted for this plan allowed for updated fuel typing and on-the-ground verification, resulting in an updated wildfire threat assessment.

Analysis determined that 13%, or 871.4 ha, of the eWUI area is at high or extreme wildfire behavior threat. However, half of Castlegar's eWUI, 3,322 ha, consists of private land, where threat assessments could not be completed. Conditions on private land often present even greater hazards than adjacent Crown and Municipal land because they are typically closer to values such as residences and private infrastructure. For fires in the eWUI, homes, landscaping, vehicles, and other combustible materials contribute significantly to fire spread, not just forest fuels.

Research shows that embers can travel long distances, on average 2 km ahead of the head of the fire, and will instantly ignite fuels due to preheating.[1] This presents a large threat to home losses during extreme wildfire events due to said wind-driven embers (firebrands), travelling unexpectedly long distances (recorded up to 17 km ahead of a flame front) and igniting flammable materials on or near

[1] https://firesmartbc.ca/why-we-focus-on-embers/

structures. The vulnerability of homes—particularly those lacking FireSmart construction or landscaping—is often a more critical factor in structure loss than the intensity of the wildfire itself. FireSmart homes have been shown to survive even high-intensity wildfires, while highly ignitable homes can be lost in relatively low-intensity events.[2]

Reducing structure ignitability is the key to preventing larger eWUI events. Therefore, mitigation responsibility must begin with property owners, supported by policies and activities that promote ignition-resistant homes and vegetation management. Castlegar's eWUI is largely considered intermix, with areas of interface. Wildfire risks arise from various sources, including dry lightning strikes and human-caused ignitions from trails, roads, railways, and backyards. Additionally, structure fires can spread to surrounding vegetation and forests, compounding risk.

Due to Castlegar's linear urban setting and relatively slow uptake of FireSmart activities on private properties—particularly in building materials and vegetation management—this plan places a strong emphasis on the importance of homeowner education, residential risk reduction and policy development. Empowering residents through clear communication and actionable guidance is critical. In parallel, Provincial agencies and forestry land managers must help reduce eWUI fuel hazards through targeted fuel treatments, appropriate harvesting, and logging slash mitigation.

The City is surrounded by rural areas within the Regional District of Central Kootenay (RDCK), particularly Electoral Areas I and J. This plan acknowledges these overlapping jurisdictions share responsibility for wildfire preparedness and response, and stresses the importance of inter-agency training and collaboration. Both Area I and J face challenges due to limited fire protection services and rely on volunteer fire departments, making local coordination and FireSmart adoption even more important. For example, the Lucas Road area— just outside the municipal boundary but dependent on Castlegar's water system—lies beyond the city's jurisdiction for emergency response. This underscores the need for inter-agency collaboration and cross-training to improve wildfire response capacity.

This Plan presents 33 recommendations and action items, outlined in Table 1, as a toolbox of priorities to reduce wildfire risk across the Castlegar eWUI. Implementation will require coordination among the City, the Province, First Nations, licensees, and the RDCK. Prioritization must be guided by local capacity, funding, and evolving conditions.

[2] https://blog.gov.bc.ca/bcwildfire/case-study-explores-why-some-homes-are-more-likely-to-survive-a-wildland-urban-fire/

Table 1: The City of Castlegar's 2025 CWRP Recommendations Table

Item	Priority	Recommendation	Timeframe	Funding Source / Estimated Cost
1. Education ○ Raise awareness and understanding of wildfire risks. ○ Promote public education programs, workshops, and resources. ○ Encourage individual and community responsibility for risk reduction.				
1	High	Hire a FireSmart Coordinator for the City of Castlegar. Secure funding so that this position is filled annually.	1 year	$75,000 - $150,000 annually. Costs may vary depending on staff requirements and shared job descriptions within the City.
2	High	Promote and work towards recognition of two FireSmart neighbourhoods annually, with specific priority for Oglow Subdivision, Arrow Lakes Drive, Kinnaird and Fairview. This should include neighbourhood level FireSmart committees collaborating with the Castlegar FireSmart and Resilience Committee (CFRC). The CFRC should also prioritize including a variety of strategies with the objective of increasing private land resilience to wildfire. Participating neighbourhoods should apply for FireSmart Neighbourhood Recognition status and funding for mitigation projects through FireSmart Canada. *(Carried over from 2020 CWPP - Rec #6)*	3 to 5 years	Up to $515 per neighborhood Collective Assessment, and $1,230 per neighborhood to pursue FireSmart Neighborhood Plans.
3	Moderate	Use recommended interface fuel treatment areas to promote similar projects on private lands. Showcase these treatments though a "FireSmart Day" with neighbourhood FireSmart committees. *(Carried over from 2020 CWPP - Rec# 7, 15)*	3 to 5 years	UBCM CRI funds up to $6,140 per event
4	Moderate	Continue to distribute FireSmart brochures to all new builds and houses within higher risk interface areas. Refer to CRI for specific cost allocation. *(Carried over from 2020 CWPP - Rec #8)*	3 to 5 years	$3,000
5	Low	Continue to distribute a list of ecologically suitable fire-resistant landscape plants to all new builds and annually send to residents in higher risk interface areas by mail. Have copies available for distribution at local nurseries. *(Carried over from 2020 CWPP - Rec #9)*	5+	$3,000
6	Moderate	Host one large event annually that has both neighbourhood representatives and City and/or Fire Department staff on hand to provide educational material of all 7 FireSmart Disciplines. *(Carried over from 2020 CWPP - Rec #14)*	3 to 5 years	UBCM CRI funds up to $6,140 per event
7	High	Expand current school education program to discuss wildfire prevention and preparedness. *(Carried over from 2020 CWPP - Rec #16)*	1 to 2 years	$2,460 (four schools per year). Up to $615 per school per year.
8	High	Continue to develop wildfire education partnerships with Selkirk College. Consider opportunities for expansion of this program. This may include partnership with other agencies and other jurisdictions. *(Carried over from 2020 CWPP - Rec #17)*	1 to 2 years	$5,000-$10,000

Item	Priority	Recommendation	Timeframe	Funding Source / Estimated Cost
9	Moderate	Incorporate the FireSmart BC Library Program and its distribution material into the City's already existing community outreach program. Provide print material at public locations including City Hall, Fire Departments, Community Centers, and Libraries. *(Carried over from 2020 CWPP- Rec #18)*	3 to 5 years	UBCM will fund up to $615 per branch or $2,050 per independent library to support the whole Library Program, or, up to $310 per branch for the purchase of books from the Wildfire Resiliency Literacy Kit. Additionally, an eligible $1,800 can be obtained through CRI for banners, $275 for posters.
10	Moderate	Coordinate with Ministry of Transportation, BC Parks and Recreation Sites & Trails to post wildfire danger signage along major transportation corridors, at campsites, parks and recreation, and at high use trail heads areas. Signage should address current fire danger, how to report a wildfire and, when relevant, emphasize the need to fully extinguish campfires and properly dispose of cigarettes. *(Carried over from 2020 CWPP - Rec #20)*	3 to 5 years	N/A
11	High	Continue to develop an annual fire season social media campaign to raise awareness of individual responsibility to prevent ignitions and of the enforcement of fire bans. *(Carried over from 2020 CWPP - Rec #21)*	1 to 2 years	$4,000
2. Vegetation Management ○ Reduce and manage combustible vegetation near structures and throughout communities. ○ Implement fuel treatment projects (e.g., thinning, pruning, debris removal). ○ Maintain defensible space around homes and infrastructure.				
12	High	Pursue funding to develop fuel management for all high priorities PTU's within the City of Castlegar municipal boundary. Secondly, pursue funding for prescription high priority interface PTU's. *(Carried over from 2020 CWPP - Rec #2)*	3 to 5 years	FMPs are $400 / ha and treatments are $12,000-$15,000 / ha
13	High	Continue to collaborate and communicate a prioritized approach with the RDCK, MOF, and adjacent license holders to pursue treatment of Crown lands adjacent to the City of Castlegar. *(Carried over from 2020 CWPP - Rec #3)*	3 to 5 years	Treatments on Crown land are undertaken by MoF and/ or licensees at no cost to the City. FMPs are $400 / ha and treatments are $12,000-$15,000 / ha
14	Moderate	Consult and coordinate with utility providers to create defensible spaces and reduce risk around all substations. This should include securing funding, prioritizing partnerships to develop and implement fuel treatment units where mutual interest exists. *(Carried over from 2020 CWPP- Rec #4)*	3 to 5 years	N/A

Item	Priority	Recommendation	Timeframe	Funding Source / Estimated Cost
15	Moderate	The City of Castlegar and RDCK should continue to assess the condition of fuels and wildfire risk around joint critical infrastructure such as the Lucas Road Water System that includes developing a fuel treatment prescription with the target of establishing a 30m of defensible space around water infrastructure. *(Carried over from 2020 CWPP - Rec #5)*	3 to 5 years	Up to $945 per structure
16	Low	Organize an annual spring community chipping event to help residents reduce vegetation fuel loads on private property. Designate a centralized drop-off location for woody debris. Coordination should be handled through Public Works, and if not carried out by union staff, services must be procured through the appropriate procurement process. Local tree service companies may be invited to participate as part of a promotional opportunity, modeled after successful Christmas tree chipping events. This recommendation also falls under the education discipline. *(Carried forward from 2020 CWPP- Rec #10)*	5+	$10,000-$20,000
17	Moderate	Identify and develop opportunities for low complexity prescribed/cultural burn plan development within City limits. This should prioritize multi-agency collaboration and training between BCWS, City Fire Department, and others. This recommendation also falls under the cross-training discipline.	3 to 5 years	N/A
18	Moderate	Continue to ensure that all road edges are mowed frequently during the summer months. *(Carried forward from 2020 CWPP - Rec #19)*	3 to 5 years	N/A
19	Moderate	Work with utility providers to encourage that distribution lines, transmission corridors and substations are assessed regularly for danger tree risk and wildfire risk and that the associated fuel hazards are abated. This recommendation also falls under the inter-agency discipline. *(Carried forward from 2020 CWPP - Rec #22)*	3 to 5 years	N/A
3. Emergency Planning ○ Ensure evacuation routes, communication systems, and coordination with emergency services. ○ Develop and maintain community emergency response plans. ○ Practice preparedness through drills and exercises.				
20	High	Update City of Castlegar Evacuation Plan. Explicitly plan for evacuation in the context of a wildfire. *(Carried over from 2020 CWPP - Rec #26)*	1 to 2 years	$40,000 UBCM Funding Available
21	High	The Emergency Program Coordinator should work alongside the Regional District (RDCK) to collaborate on a coordinated evacuation plan in case of wildfire or other large disasters. Additional attention should ensure that there are clear, rapid, and unified modes of communication to the public in the event of an emergency. *(Carried over from 2020 CWPP - Rec #27 & Learnables from 2021 Merry Creek Fire Report)*	1 to 2 years	See above - any work done on recommendation #20 would be done in collaboration

Item	Priority	Recommendation	Timeframe	Funding Source / Estimated Cost
22	High	Review, analyze and integrate relevant recommendations from the Report # 21-123 titled "Merry Creek Wildfire – Lessons Learned" into Evacuation Plans.	1 to 2 years	See above - any work done on recommendation #20 would include this
23	High	Support the development of an early evacuation notification system led by the appropriate emergency management authority. This system should include specific provisions for heavy industry, which may require additional time to safely shut down operations. *(Carried over from 2020 CWPP - Rec #28)*	3 to 5 years	This should be incorporated into the City's Emergency Management Plan and would be funded under recommendation #20
4. Cross Training ○ Train firefighters, emergency personnel, contractors, and community members in wildfire prevention and response. ○ Build local capacity to implement FireSmart practices. ○ Encourage knowledge sharing across disciplines and jurisdictions.				
24	Moderate	Continue to train all City firefighters in S100 Basic Fire Suppression and Safety training. Select firefighters should receive S185 Fire Entrapment Avoidance and Safety training, as well as Incident Command System 100 training. *(Carried over from 2020 CWPP - Rec #29)*	3 to 5 years	This is mandatory training now under NFPA and budgeted for annually. Refresher training costs are low ($50) but new training would be approximately $500 per participant
25	High	Prioritize annual cross training with BCWS and other relevant agencies to enhance response in the event of wildland urban interface fire. Prescribed burn opportunities should also be identified for cross-training and educational purposes. *(Carried over from 2020 CWPP - Rec #30)*	1 to 2 years	$2,400 per event as per UBCM funding
5. Interagency Cooperation ○ Foster collaboration between local governments, fire departments, Indigenous communities, provincial agencies, industry, and residents. ○ Share information, resources, and responsibilities. ○ Coordinate fuel management and response activities.				
26	High	The City of Castlegar should work directly with relevant Indigenous communities to uphold inherent rights and support responsibilities of stewardship. Indigenous governments and communities must be meaningfully engaged in the planning and development of all activities — including wildfire risk reduction efforts. This engagement should prioritize Indigenous-led forest practices, including cultural fire and other vegetation management practices.	1 to 2 years	$1,230 per cultural fire meeting (focused on integrating into fuel management planning led by Ministry)
27	High	Establish a quarterly FireSmart Committee (CFRC) that includes representation from the RDCK and reflects the sub-regional context, including Electoral Areas I and J.	1 to 2 years	$5,000 to support meeting resources

Item	Priority	Recommendation	Timeframe	Funding Source / Estimated Cost
28	Moderate	Improve partnerships and continue to ensure that utility providers are maintaining their distribution lines, transmission corridors, and substations. This is inclusive of annual danger tree assessments and wildfire risk assessments. *(Carried over from 2020 CWPP - Rec #22)*	3 to 5 years	$10,000 CRI will fund up to $1,230 per meeting
29	High	Continue to maintain the mutual aid agreement between the City of Castlegar and the Regional District Fire Protection Areas to enable sharing of suppression resources when responding to a wildfire. Investigate increasing training opportunities to improve response efficiency. *(Carried over from 2020 CWPP - Rec #23)*	1 to 2 years	$2,400 per event as per UBCM funding
6. Legislation and Planning ○ Integrate wildfire risk reduction into local bylaws, development plans, and land use policies. ○ Encourage fire-resistant building codes and zoning. ○ Support community-level governance for long-term risk reduction.				
30	Moderate	Continuously review the CWRP as a living document and amend as required with an update every 5 years *(Carried over from 2020 CWPP - Rec #1)*	5+	$17,950 per required update
31	Moderate	Develop or amend bylaws addressing aspect(s) of open fire that local government are responsible for regulating as defined in the *Wildfire Act*	5+	N/A
7. Development Considerations ○ Design and build homes and neighbourhoods using fire-resistant materials and practices. ○ Locate buildings away from high-risk areas when possible. ○ Plan access routes for emergency vehicles.				
32	Moderate	Continue to require that all new fire hydrants systems for new development areas can serve adjacent high-risk interface areas. *(Carried over from 2020 CWPP - Rec #24)*	3 to 5 years	N/A
33	High	The City should continue to work with Mercer Celgar to determine solution(s) ensuring water availability is not compromised through wildfire. This may involve an analysis of water supply needs for firefighting purposes, as well as maximum operating time without grid power. *(Carried over from 2020 CWPP - Rec #25)*	1 to 2 years	$11,880

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FREQUENTLY USED ACRONYMS

AOI	Area of Interest
BC	British Columbia
BCWS	British Columbia Wildfire Service
BEC	Bio-geoclimatic Ecosystem Classification
CFFDRS	Canadian Forest Fire Danger Rating System
CFRC	Community FireSmart Resiliency Committee
CRI	Community Resiliency Investment
CWPP	Community Wildfire Protection Plan
CWRP	Community Wildfire Resiliency Plan
DPA	Development Permit Area
EA	Electoral Area
EWUI	Eligible Wildland Urban Interface
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
MOTT	Ministry of Transportation and Transit
NDT	Natural Disturbance Type
PSTA	Provincial Strategic Threat Assessment
RDCK	Regional District Central Kootenay
UBCM	Union of British Columbia Municipalities
WRR	Wildfire Risk Reduction: 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 April 2025, Cathro was selected to lead the development of a new Community Wildfire Resiliency Plan (CWRP) for Castlegar, replacing the 2020 Community Wildfire Protection Plan. The CWRP is a wildfire risk assessment and action plan aimed at enhancing wildfire resiliency in Castlegar's eligible Wildland-Urban Interface (eWUI) and the seven FireSmart disciplines.

CWRPs are tailored to address the needs of the community in response to size, capacity, and the unique wildfire threats faced. The goals of a CWRP are founded in the seven FireSmart disciplines: Education, Vegetation Management, Emergency Planning, Cross-Training, Interagency Cooperation, Legislation and Planning and Development Considerations.

1.1 PLAN PURPOSE AND GOALS

This plan accounts for changes that have occurred since Castlegar's last CWPP and use of the most recent community wildfire planning framework in BC. This CWRP identifies the interface wildfire risk within Castlegar's eWUI and a provides an updated understanding of the threats to human life, infrastructure, and values at risk from wildfire within the city limits of Castlegar. 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 provides Castlegar and the RDCK with:

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

1.2 PLAN DEVELOPMENT SUMMARY

The CWRP development process consisted of five phases:

1) Formation of the Community FireSmart Resiliency Committee (CFRC – see Appendix H). Consultation with the CFRC and information sharing with stakeholders and First Nations 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 and the municipal planning of Castlegar. This section summarizes all relevant plans, policies, bylaws, guidelines and provincial legislation to identify sections within that are relevant to community wildfire planning and response.

2.1 LINKAGES TO CWPPS and CWRPS

City of Castlegar Wildfire Protection Plan Update – 2020[3]

In 2020, Diamond Head Consulting completed a Community Wildfire Protection Plan for Castlegar. The scope of this plan was a 2 km buffer around all residences and critical infrastructure based on WUI density criteria. A tabularized review of the 2020 recommendations and their implementation status is presented in Appendix A. Overall, completed activities fall within the FireSmart Education discipline, but some recommended fuel treatments have been prescribed and/ or treated, and there is now an active Community FireSmart Resiliency Committee.

It is noteworthy that the 2025 CWRP is built within the constraints of the eligible Wildland Urban Interface (eWUI), which is a 1 km buffer from the municipal boundaries.

RDCK Electoral Areas CWRP's

Listed below are jurisdictions adjacent to Castlegar that have been involved in community wildfire planning. Strategic opportunities exist between these plans and should be considered when implementating the 2025 CWRP recommendations.

- RDCK Electoral Area J CWRP 2024
- RDCK Electoral Area I CWRP 2023

2.2 LOCAL PLANS AND BYLAWS

A review of the 2024 Official Community Plan (OCP) for Castlegar revealed a notable increase in attention to wildfire resiliency compared to the 2021 OCP (Bylaw No. 1150), which had been in effect since 2011. Table 2 summarizes the key proactive measures related to wildfire resilience outlined in the 2024 OCP. This review was conducted as part of the CWRP to identify any existing gaps or limitations in addressing wildfire hazards and risk mitigation strategies.

[3] https://castlegar.ca/wp-content/uploads/2023/10/8.-Castlegar-Community-Wildfire-Protection-Plan.pdf

Table 2: Summary of Community Plan Bylaw. 1427 and its relationship to this CWRP.

Community Plan Bylaw. 1427, Version 5 2024	Sub Section	Description and Relation to CWRP
4.0 How We Adapt and Protect	Objective 6: Wildfire protection: protect the community from wildfire risk.	
	4.2.19	Create a "Wildfire Management Plan" that identifies high-risk wildfire interface areas and considers future impacts from climate change, creates actions for fuel management and other preventative measures, identifies roles and responsibilities of local government and emergency services, and identifies emergency evacuation routes.
	4.2.20	Amend the Building Bylaw where possible to include "FireSmart" Design Principles into Building Permit Application.
	4.2.21	Require "Landscape Plan's to incorporate "FireSmart" Design Principles.
	4.2.22	Include FireSmart Design for Building Materials and Landscape Design in Development Permit Areas.
4.4 Community- Wide Ecological Policies	Objective 17: Urban forest: protect and expand the urban forest.	
	4.4.17	Develop a Castlegar Species Inventory that: a) Integrates "FireSmart" Design Principles;
5.4 Natural & Hazard Area (NHA)	Objective 33: Identify lands for environmental protection within the city that provide critical ecological functions for the city and its residents (e.g. stormwater/flood management, habitat for sensitive species, wildfire buffer, steep slopes).	
	5.4.5	The City shall commit to maintaining and updating (e.g. every 10 years) the base data and studies that underpin the Natural & Hazard Area Land Use, including: d) Wildfire risk areas.
5.5 Comprehensive Planning Area (CPA)	Objective 36: Protect current and future residents from hazards.	
	5.5.1	Prior to approving new development or redesignating lands in the CPA a neighbourhood plan shall be completed that includes community engagement and examines: a) Wildfire risk and emergency preparedness;
	5.5.3	Where development is deemed appropriate within this designation, and is otherwise permitted within this Plan, the development should: a) Mitigate for environmentally sensitive areas or hazards, such as flooding, wildfire, slope erosion and/ or impact on wildlife and sensitive species.
6.10 Transportation and Mobility	Objective 136: Manage the City's transportation networks in a sustainable way.	
	6.10.33	Explore options for secondary access roads to provide safe egress options in the event of an emergency.
	6.10.24	Ensure that any future roads through Comprehensive Planning Areas, or Natural & Hazard Areas are designed, constructed, and maintained with high environmental protection standards.
6.2 Community Amenities	Objective 82: Facilities as supportive infrastructure for climate change adaptation.	

Community Plan Bylaw. 1427, Version 5 2024	Sub Section	Description and Relation to CWRP
	6.3.25	Public spaces and community facilities should consider future needs because of climate change, and how they can help the community during times of stress. These may include: a) Refuge space from heat waves, wildfire smoke, power outages and other similar circumstances; and
	Objective 87: Manage trails with long-term sustainability and climate change adaptation in mind.	
	6.3.41	Site and design recreational trails to support multiple objectives, including hazard mitigation (e.g., wildfire breaks, flood protection), emergency access routes and maintenance access.
6.8 Institutional	Objective 123: Lead the way on quality and sustainable design.	
	6.8.15	When designing public spaces and community facilities, consider climate adaptation measures including: a) Refuge space from heat waves, wildfire smoke, power outages and other similar circumstances;

The local bylaws listed in Table 3 are directly relevant to proactive wildfire resilience in Castlegar. These bylaws were reviewed as part of the CWRP to address any gaps or limitations that inadequately address fire hazards or risk mitigation. It is noteworthy that the City of Castlegar enforces a comprehensive set of burning bylaws that prohibit burning of yard and garden waste, regulate campfires, and allow for temporary bans during periods of elevated wildfire risk. The Fire Chief or designate has the authority to issue a fire ban under these bylaws. However, the City typically follows the Southeast Fire Centre communicates fire bans in accordance with BCWS through social media channels and the newspaper.

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

Bylaws	Section	Description and Relation to CWRP
Building Bylaw No.1338, 2020 [4] *Municipal Bylaw*	**3.0**	Governs building permit issuance in Castlegar. Requires permits for new buildings, renovations, accessory structures over certain size, installation of chimneys, solid fuel burning appliances, etc. *Ensures that construction in Castlegar meets BC Building Code and other safety standards. Code updates likely include fire safety components (e.g. materials, structural safety) which help buildings be more resilient to wildfire (especially embers, radiant heat).*
Open Air Burning Bylaw No. 905[5] *Municipal Bylaw*	**3.0**	This bylaw prohibits burning of yard waste, construction/demolition material, garbage. It regulates campfires (size, location, type of material, distance from structures). *Directly reduces risk from human-caused ignition from yard waste, improper burning. Limiting burning of debris helps reduce fuel loads near dwellings,*

[4] https://castlegar.ca/bylaws/bylaw-1338-building/

[5] https://castlegar.ca/bylaws/bylaw-905-open-air-burning/

Bylaws	Section	Description and Relation to CWRP
		which is very relevant in fire danger periods. Also fines for violation provide enforcement power.
Zoning Bylaw No.1428, 2024[6] *Municipal Bylaw*	**2.0**	Regulates how land use and density, lot sizes, permitted uses, setbacks, etc., across Castlegar. It updates urban planning vision and development rules. *Zoning can influence wildfire risk in multiple ways: where development is allowed (e.g. avoiding high wildfire hazard zones), required setbacks, lot densities, possibly limiting development in steep or heavily forested areas. It can enable or require more robust design or landscaping to reduce fire risk.*
Emergency Measures Bylaw No. 828, 1997[7] *Municipal Bylaw*	**5.0**	Establishes the framework for managing emergencies and disasters within the city. It mandates the creation of an Emergency Executive Committee, to oversee emergency preparedness, response, and recovery. This committee is responsible for identifying local hazards, developing emergency plans, conducting training, and coordinating resources during crises. *Provisions are directly applicable to wildfire-related emergencies. The city's Fire Department, as part of the Emergency Executive Committee, plays a crucial role in wildfire response and recovery efforts. Additionally, Castlegar's FireSmart initiatives aim to reduce wildfire risks through community education, vegetation management, and fire-resistant property practices*
Volunteer Fire Service Regulation Bylaw No. 2769, 2023[8] *RDCK Bylaw*	4.1	Jurisdiction of each Fire Department, and the powers granted to each Fire Department and its Fire Chief and Members under this Bylaw, is restricted to the boundaries of the Fire Department's particular Fire Protection Service Area Cs 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 5.4).*
	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)

[6] https://castlegar.ca/bylaws/zoning-bylaw-1428/

[7] https://castlegar.ca/wp-content/uploads/2023/04/bylaw-828-Emergency-Measures.pdf

[8] https://www.rdck.ca/wp-content/uploads/2024/11/2769-RPL-2170-RDCK_Fire_Services-1.pdf

Bylaws	Section	Description and Relation to CWRP
		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 5.4).*
	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.*

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

Table 4: Summary of local plans and policies that are directly relevant to the CWRP.

Plan	Description and Relationship to CWRP
Castlegar's Emergency Program[9]	This program ensures that residents have the maximum potential for survival and recovery in the event of a disaster. This program uses the municipal Emergency Measures Bylaw No. 828, 1997 to facilitate all aspects of emergency preparedness including response, recovery and mitigation.
Emergency Response and Recovery Plan for the Regional District of Central Kootenay	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.

[9] https://castlegar.ca/services/public-safety/emergency-preparedness/

2.3 HIGHER-LEVEL PLANS AND LEGISLATION

Table 5 lists higher-level plans and legislation that are relevant to wildfire planning and risk mitigation within Castlegar and the surrounding area. 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.

Table 5: Higher level plans and legislation relevant to Castlegar's eWUI and this Plan.

Plan/Legislation	Description and Relationship to CWRP
The Forest and Range Practices Act & Government Action Regulations (GARs)	The Forest and Range Practices Act integrate 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 with Castlegar's 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 wildland-urban interface of Castlegar is within a High 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 Castlegar's WUI.* It must be noted that many of the KBHLP objectives have been replaced with other legislation such as Government Actions Regulation (GAR) for special management of certain forest values including caribou habitat.
The Wildfire Act and Regulation	The Wildfire Act supports wildfire management in BC by defining responsibilities for fire use, prevention, control, and recovery. It authorizes BCWS to work with City Staff in unified command, providing resources and expertise to prioritize human safety and protect values.

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.
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
The Hydro and Power Authority Act **The Special Accounts Appropriation and Control Act** **The Annual Rent Regulation**	All acts comply with the Wildfire Act and Regulation in the event of a wildfire.

SECTION 3: COMMUNITY DESCRIPTION

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

3.1 WILDLAND-URBAN INTERFACE

The Wildland-Urban Interface (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 municpal boundary with a structure density class greater than six structures / km^2. BC Wildfire Service (BCWS) generates WUI Risk Class maps and associated spatial data to assist with initiatives related to wildfire risk reduction, including the FCFS program.[10] For this CWRP, the eWUI is defined as the area that is within 1 km of the municipal boundary and also within the BCWS WUI.

Field work, GIS analysis, and the recommendations for this CWRP cover only the 'eligible WUI' which covers a total of 6,663 ha. Castlegar includes residential, industrial, agricultural, and forested areas. Land use is guided by the Official Community Plan as discussed in Section 2.2. As development occurs, the eWUI may change over time.

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

Map *1* shows an overview of the eligible eWUI surrounding Castlegar, with an approximate breakdown of land ownership type by area listed in Table 6. A significant portion of Castlegar's eWUI consists of private land, accounting for approximately 49% of the total land area. This predominance of privately-owned land highlights the importance of proactive FireSmart practices by property owners. Crown

Provincial makes up approximately 30% of the area. This emphasizes the need for collaborative efforts and tailored strategies to address wildfire risk across the jurisdiction.

Table 6: Landownership within Castlegar's eWUI.

Land Ownership	Area (ha)	Percent of eWUI (%)
Private	3,269	49.1
Crown Provincial	1,990	29.9
Water	779	11.7
Crown Agency	340	5.1
Local Government	283	4.2
Federal	2	0.0
TOTAL	**6,663**	**100**

Map 1: The Eligible WUI of Castlegar is the red diagonally lined polygon.

The white and black dashed line is the Area of Interest (AOI) which is the Castlegar municipal boundary.

3.2 COMMUNITY DESCRIPTION

The City of Castlegar is nestled in the heart of the West Kootenay region, where the Columbia and Kootenay Rivers meet, surrounded by the Selkirk Mountains. Much of the community lies within historic river floodplains, which were developed in the early 20th century, creating fertile lands well-suited for agriculture. Castlegar supports a mix of urban and rural living, with most residences located in the valley bottom between elevations of 500–600 m, and some private lands rising to about 700 m.

Over 7,000 ha in the surrounding area is protected as important wildlife habitat, supporting both migratory and resident bird species and contributing to the area's ecological richness. Castlegar benefits from a well-established transportation network with direct access via Highways 3, 3A, and 22, along with numerous well-maintained secondary roads that ensure regional connectivity.

Emergency structural fire protection is provided by the Castlegar Fire Department. Ambulance and first responder services are locally available, and health care needs are met by the Castlegar and District Community Health Centre and nearby Trail and Nelson regional hospitals. The area is served by a local RCMP detachment, and the City has is own Emergency Management Program to coordinate disaster response.

Castlegar's economy is diverse. Industrial activity—ranging from forestry to equipment repair and manufacturing—is concentrated along major transportation corridors. Agriculture continues to play a role in outlying areas, while tourism has grown significantly, fuelled by the city's natural beauty and abundant outdoor recreation opportunities. Small home-based businesses and services in health care, education, and the social sector are vital contributors to the city's social and economic fabric.

Castlegar's population has shown marginal growth (3.7%), with the most recent census in 2021 recording a total population of 8,338 residents. Castlegar is the industrial backbone of the West Kootenays and has a population density of 419.6 people / km^2 within city limits. Despite reasonable population density, this is not reflective of high structure density as stated in the 2020 CWPP, AOI structure density is of low concern. As of 2021, there was a total of 3,702 private dwellings with most households being two person households. Castlegar has a strong rate of permanent residents which presents an ideal opportunity for proactive FireSmart education. This education can have a lasting impact within the community, empowering residents to apply FireSmart principles effectively.

Table 7 provides an overview of relevant census and socio-economic data, offering valuable insights into the demographics and characteristics of the area.

Table 7: Socio-economic statistics for Castlegar, as per the 2021 census.[11]

Metric	Value
Population	
Total Population	8,338
Population Density (people/km2)	419.6
Population percentage change between 2016 and 2021	+3.7%
Number of people <14 years old	14.7%
Number of people 15-64 years old	60.4%
Number of people >65 years old	24.8%
Number of people >85 years old	3.0%
Median Age (years)	45.6 years of age
Housing	
Total private dwellings (year)	3,702
Private dwellings occupied by usual residents	3,549
Income and Employment	
Median Total Income of Households (2020)	$40,800.00

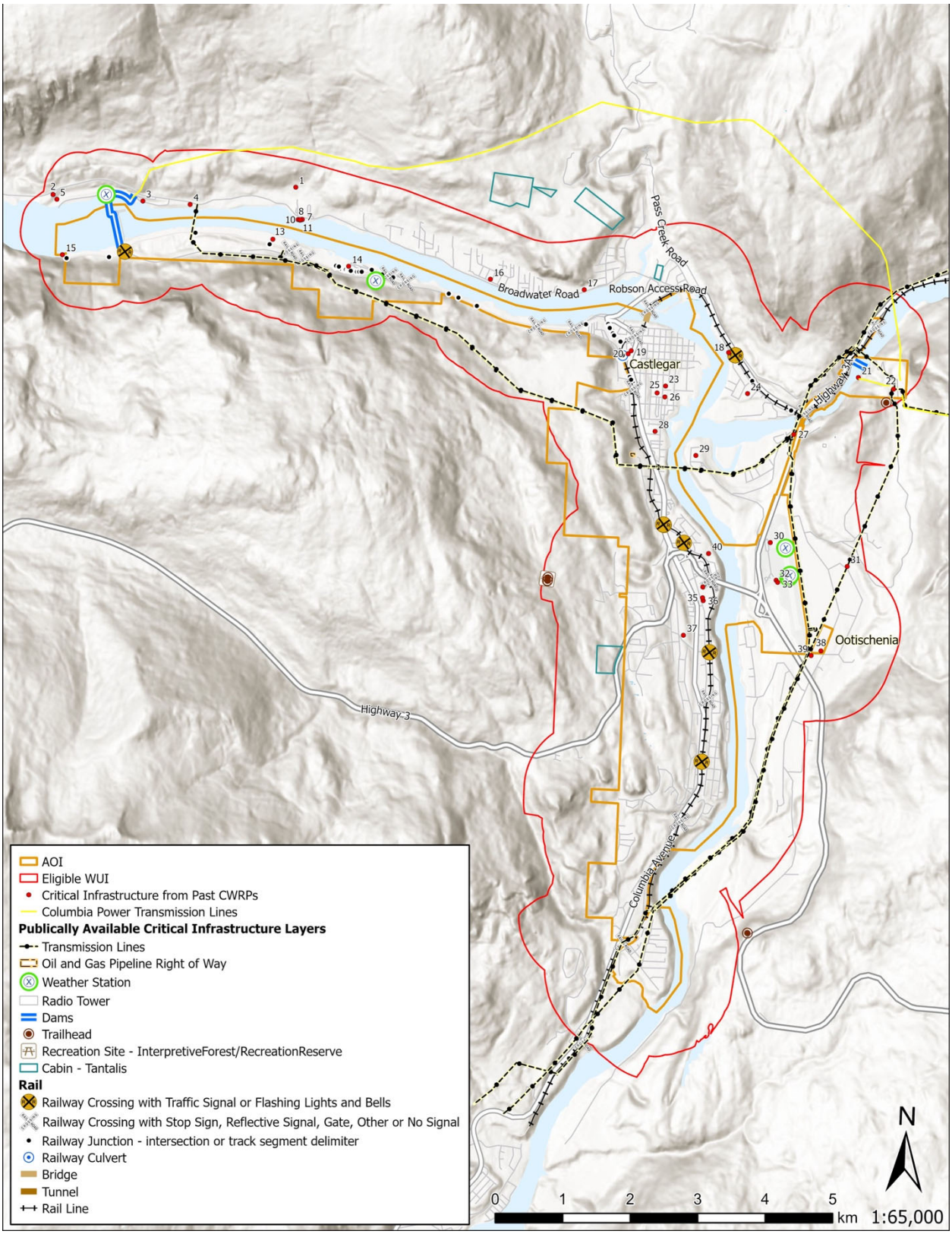
3.3 VALUES AT RISK

Values at risk are the human, natural, and 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. As well, many activities that proactively assess and mitigate fire hazards around critical infrastructure and community assets are eligible for funding under the CRI FCFS Program (see Recommendation #15). 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.

Error! Reference source not found. lists critical infrastructure in Castlegar's eWUI as identified by the Castlegar FireSmart Resiliency Committee (CFRC), through meetings with Castlegar staff, and outlined in the OCP. This list should not be considered as exhaustive, but rather a starting point for what should be considered as critical infrastructure within the city. This list should be amended as required to add or remove new or outdated infrastructure so they are assessed for FireSmart activities.

The assets operated by the city include the Castlegar Fire Hall which is used as the Primary Emergency Operations Center in the event of an emergency. Water and electric systems are discussed in more detail in Sections 3.3.1 and 3.3.2. Critical Infrastructure FireSmart Assessments are outside the scope of this plan. However, FireSmart Critical Infrastructure Assessments are conducted annually by the Fire Department for the two firehalls within Castlegar.

[11] https://www12.statcan.gc.ca/census-recensement/2021/



Map 2: Critical Infrastructure and Community Assets within Castlegar's eWUI.

Table 8: Critical Infrastructure and Community Assets within Castlegar's eWUI.

Map Label	Building Name/Description	CWRP/CWPP
1	Reservoir	RDCK Area J 2024
2	BC Hydro Electrical Infrastructure	RDCK Area J 2024
3	Arrow Lakes Power Corp. Electrical Infrastructure	RDCK Area J 2024
4	BC Hydro Electrical Infrastructure	RDCK Area J 2024
5	Arrow Lakes Power Corp. Electrical Infrastructure	RDCK Area J 2024
6	Pump House	RDCK Area J 2024
7	RDCK Water Distribution System	RDCK Area J 2024
8	RDCK Water Distribution System	RDCK Area J 2024
9	RDCK Water Distribution System	RDCK Area J 2024
10	Well Head	RDCK Area J 2024
11	Pump House	RDCK Area J 2024
12	Well Head	RDCK Area J 2024
13	Interfor Celgar	Castlegar 2020
14	Mercer Celgar	Castlegar 2020
15	City of Castlegar Main Water Intake	Castlegar 2020
16	Robson Fire Department	RDCK Area J 2024
17	Robson-Raspberry Improvement District - Water Distribution System	RDCK Area J 2024
18	Terasen Gas Inc Telecommunications Infrastructure	RDCK Area I 2023
19	RCMP: One Station	Castlegar 2020
20	Castlegar City Hall	Castlegar 2020
21	Brilliant Expansion Generating Station	Castlegar 2020
22	Brilliant Terminal Station	Castlegar 2020
23	Twin Rivers Elementary School	Castlegar 2020
24	Brilliant Cultural Centre	RDCK Area I 2023
25	Stanley Humphries Secondary School	Castlegar 2020
26	Castlegar Primary School	Castlegar 2020
27	Fortis Electrical Infrastructure	RDCK Area J 2024
28	Castlegar and District Community Healthy Centre	Castlegar 2020
29	Selkirk College	Castlegar 2020
30	West Kootenay Regional Airport	Castlegar 2020
31	Teck Electrical Infrastructure	RDCK Area J 2024
32	BC Wildfire Service: Southeast Zone Fire Centre	Castlegar 2020
33	BC Wildfire Service Airtanker Base	Castlegar 2020
34	Castlegar Recreation Centre	Castlegar 2020
35	BC Ambulance: One Station	Castlegar 2020
36	Castlegar Fire Department - Main Hall	Castlegar 2020
37	Kinnaird Elementary Castlegar Primary School	Castlegar 2020
38	FortisBC Kootenay Operations Centre	Castlegar 2020
39	Ootischenia Firehall	RDCK Area J 2024
40	City of Castlegar South Wastewater Treatment Plant	Castlegar 2025 CWRP Engagement

3.3.1 ELECTRICAL POWER

Castlegar receives electricity through a mix of local hydroelectric generation and purchases from regional providers. Key facilities include:

- ***Brilliant Dam and Generating Station*** (Kootenay River), co-owned by Columbia Power and Columbia Basin Trust, with a capacity of ~265 MW.

- ***Arrow Lakes Generating Station*** (Columbia River), producing ~185 MW and feeding into BC Hydro's grid via the Brilliant Terminal Station.

Together with FortisBC's smaller hydro stations in Corra Linn and Lower Bonnington, these plants supply most of Castlegar's power. Electricity is transmitted through step-up transformers and high-voltage lines to BC Hydro's grid, then distributed locally—much of it managed from FortisBC's Kootenay Operations Centre in Castlegar.

Wildfires can disrupt power through direct damage such as flames and falling trees, or through infrastructure failures. Castlegar's electricity is largely distributed through wood-pole and underground systems managed by FortisBC. While transmission corridors can serve as firebreaks and access routes for responders, they also pose ignition risks when vegetation encroaches on power lines. For instance, branches touching lines can arc and cause fires or damage. Regular vegetation management along transmission rights-of-way is critical. Castlegar and the RDCK should advocate for proactive maintenance by power providers (see Recommendation #19).

Most residential poles and lines are in good condition with appropriate clearances, though some are surrounded by overgrown grass and need attention. To strengthen community resilience, Castlegar should assess critical infrastructure for backup power needs and invest in generators where necessary (see Recommendation #15 & 19).

3.3.2 WATER AND SEWAGE

Castlegar sources its drinking water from the Lower Arrow Lakes, just upstream of the Hugh Keenleyside Dam. From there, the water is pumped into eight reservoirs across the city. To manage demand and reduce the energy cost of pumping, the city has installed water meters on all properties, helping to incentivize conservation and avoid major pump system upgrades. Annual maintenance includes unidirectional flushing to clear sediment, a cross-connection control program to prevent backflow into the municipal system, and registered testing of backflow assemblies, particularly for commercial or multi-unit buildings.

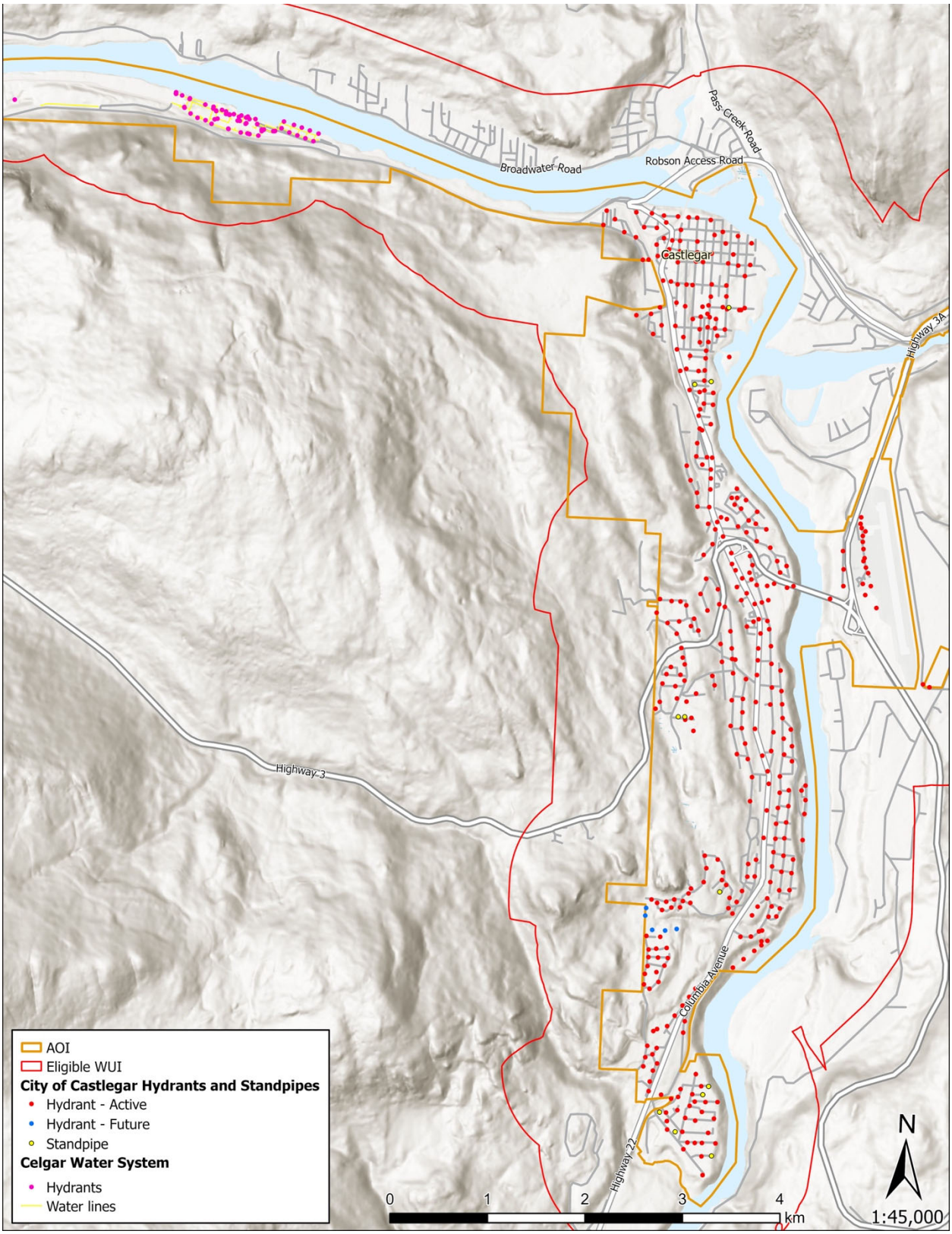
Castlegar's sanitary sewer network comprises around 75 km of pipeline and a dozen lift stations. Wastewater from the north side flows to lagoon-based treatment ponds, while the south side is served by a more modern treatment plant, Map 2, label 40, South Wastewater Treatment Plant. Treated effluent is discharged into the Columbia River under provincial permits through the City of Castlegar.

Stormwater is handled separately—some areas have storm sewers that discharge untreated runoff directly into the river, while others rely on infiltration into soil. Septic systems are still used in the outlying Blueberry area; septage is managed by Interior Health and the City of Castlegar. No significant concerns or vulnerabilities related to wildfire hazards were identified within the sewage system of Castlegar. The City is currently developing a 20-year Liquid Waste Management Plan (LWMP), as

required by the BC Ministry of Environment and Parks. This plan will guide integrated handling of sanitary sewage, stormwater, and septage, and explore opportunities like nutrient or water reuse from treated effluent and biosolids of the City of Castlegar. It would be recommended to ensure emergency response inclusive of wildfire is considered in this plan.

The City's existing hydrant system has been deemed sufficient for meeting fire suppression needs. A few areas have low pressure, but they are identified and mitigated accordingly. The only challenge noted by the City Fire Department was that drafting locations along the river within City limits are limited. Additionally, the neighbourhood of Fairview is under contract with the City, facilitated by the RDCK, has no hydrants, and rely on tender support through mutual aid in the case of an emergency. Questionnaires were sent to both the Robson and Ootischenia Volunteer Fire Department, however, feedback was not received. Referring to Recommendation #29, the City Fire Department should annually review mutual aid agreements with relevant jurisdictions that would respond in a larger incident. Priority should be given to annual training opportunities to improve inter-agency response efficiency (see Recommendation #29).

Thorough assessments of Castlegar's vulnerability to drought were outside the scope of this project, however there are several creeks, streams, and springs within the eWUI. Source flow will vary based on local topography and precipitation. Much of Castlegar is situated close to the Columbia and Kootenay River, presenting the most reliable source of year-round water for firefighting. However, a lack of infrastructure and steep banks is a limiting factor in many locations. Developing access capability throughout Castlegar would enhance wildfire firefighting efforts greatly. See Section 5.5 for recommendations related to fire department resources.



Map 3: Hydrant and standpipe locations within Castlegar's eWUI.

3.3.3 HAZARDOUS VALUES

Castlegar faces a mix of natural and human-influenced risks shaped by its geography and climate. The most significant hazards are wildfire, due to its location in a heavily forested, mountainous region, and flooding, given its position at the confluence of the Columbia and Kootenay Rivers along with several smaller upland creeks. Both of these risks are being amplified by climate change, which is bringing hotter, drier summers, more intense storms, shifting snowmelt patterns, and recurring smoke that affects community health. Steep terrain also creates vulnerability to landslides and rockfall, which can disrupt homes, infrastructure, and critical transportation corridors.

Beyond natural hazards, Castlegar must also contend with risks tied to its role as a regional hub. Severe weather events—such as heavy snowfall, ice, and extreme heat—pose threats to health, utilities, and emergency response. The presence of highways, rail lines, and hydro infrastructure introduces exposure to accidents, service disruptions, or hazardous material spills. Taken together, these factors mean that Castlegar's resilience depends on proactive planning for wildfire, flooding, and geohazards, while also preparing for cascading effects on infrastructure, air quality, and community safety.

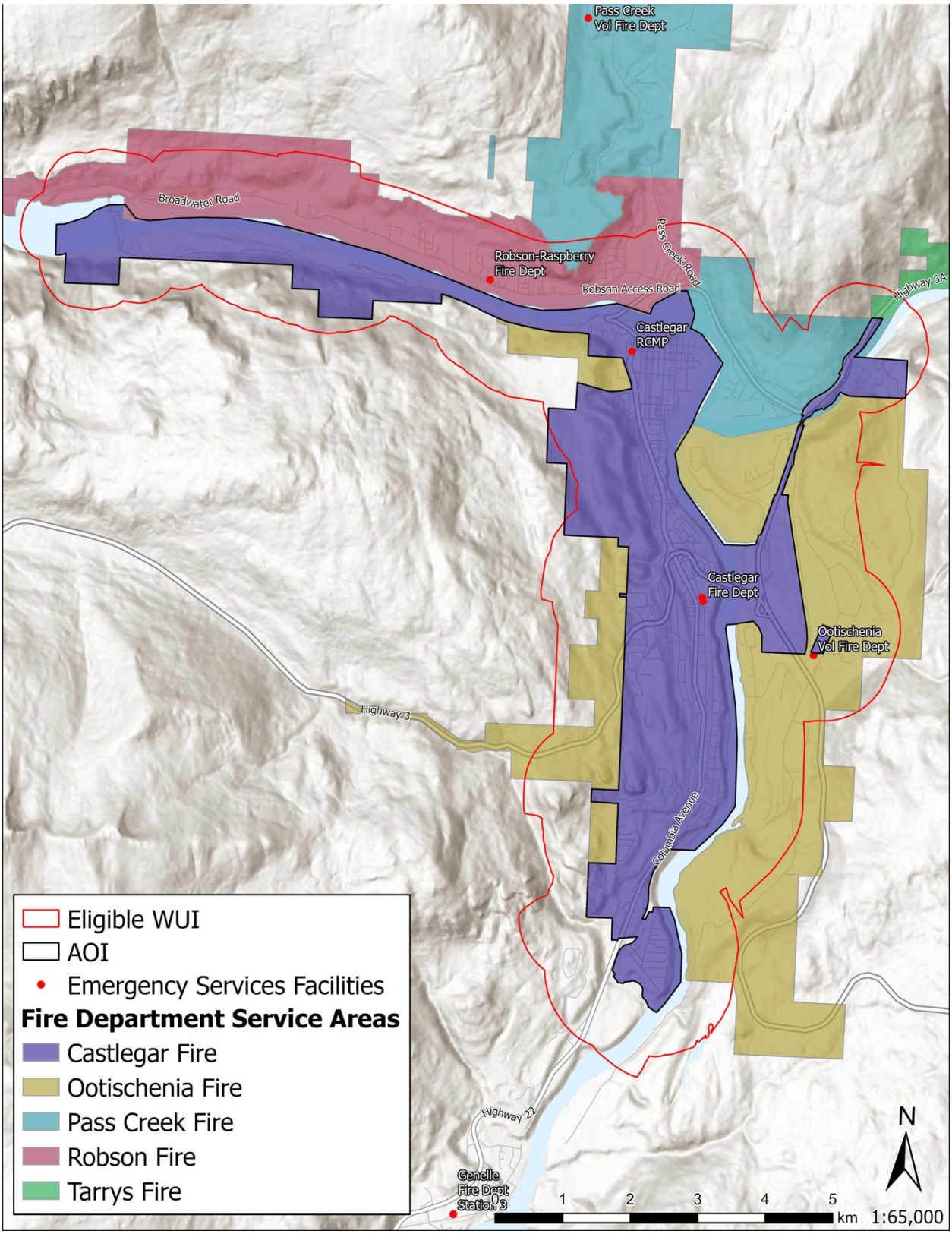
Hazardous values are defined as values that pose a safety hazard to emergency responders and include large fuel and propane facilities, landfills, rail yards, storage facilities containing explosives, pipelines, toxic materials, etc. Anywhere combustible materials, explosive chemicals, or petrochemicals are stored can be considered a hazardous value. Protecting hazardous values from fires is important to preventing interface wildfire disasters.

Fire ignition data presented in Section 4.2.2– Historical Wildfire Occurrences, show the concentration of human-caused fire ignitions along the transportation corridors. As such, the Ministry of Transportation and Transit (MOTT) needs to continue to employ best management practices in maintaining the grass and vegetation within MOTT rights-of way. The CP Railway traverses the eWUI parallel to Highway 22 and runs straight through the City of Castlegar. These rail tracks represent another potential ignition source, particularly if vegetation becomes overgrown along the tracks. The risk is heightened where adjacent private properties have coniferous vegetation and/ or unmaintained grass. The relationship between CP and the City of Castlegar should be strengthened (see Recommendation #28). Additionally, the CFRC should consider inviting a CP Rail representative to join the committee.

Additional hazardous infrastructure includes Mercer Celgar, a pulp mill, and Interfor, a sawmill, northwest of the City which stores a substantial amount of wood at any given time. Log piles have historically spontaneously ignited on Mercer Celgar and Interfor property. Recommendation #23 stresses the importance of updating ERP's annually and ensuring that there is strong communication between industry, licensees and the City Fire Department. Map 4 shows the Fire Department Service Areas in and around the City of Castlegar as well as the complexity of rigid jurisdictional lines. Inter-agency training and cooperation is of high priority for the City of Castlegar.

3.3.4 FIRE DEPARTMENT SERVICE AREAS

Recommendation #29 highlights the importance of maintaining a mutual aid agreement between the City of Castlegar and the Regional District Fire Protection Areas, ensuring the sharing of suppression resources during wildfire responses. The City of Castlegar borders three additional Fire Department Service Areas—Robson, Pass Creek, and Ootischenia. Through interviews it was noted that the Ootischenia Fire Department Service Area is segmented by municipal boundaries. To enhance response efficiency, efforts should focus on increasing training opportunities for all involved parties. Additionally, it is recommended that a representative from each fire department consider joining the CFRC to foster greater communication, coordination, and collaboration.



Map 4: Fire Department Service Areas within Castlegar's eWUI

3.3.5 CULTURAL VALUES

There are several documented and registered historic sites within the eWUI, particularly reflecting the region's rich Doukhobor, as well as archaeological sites tied to the long-standing use of the area by the Sinixt, Syilx, and Ktunaxa First Nations. Given this deep history, there remains a high likelihood of additional sites being discovered. All known archaeological sites are protected under the Heritage Conservation Act, which applies to both private and public lands.

To respect and protect these cultural values, Castlegar should continue early and meaningful consultation with applicable First Nations before developing or implementing any proposed fuel prescriptions (see Recommendation #26). This approach allows for input, collaboration, and the integration of Indigenous land management practices. Cultural burning has been identified as a priority by the Okanagan Nation Alliance (ONA), with particular interest in Dove Hill, located east of Castlegar near the golf course. Where needed, archaeological assessments should be carried out to ensure cultural resources—both known and undiscovered—are safeguarded, while also supporting First Nations' stewardship strategies within their traditional territories.

3.3.6 HIGH ENVIRONMENTAL VALUES

The West Kootenays region of British Columbia, including the area around Castlegar, is home to a rich diversity of ecosystems that support numerous species at risk. The region's varied landscape—ranging from interior cedar-hemlock forests to grasslands and riparian zones—provides critical habitat for threatened wildlife such as the Northern Leopard Frog, the American badger and Caribou. Castlegar and its surrounding areas are influenced by the Columbia and Kootenay Rivers, which create important riparian and wetland environments essential for the survival of many at-risk species. Habitat fragmentation, invasive species, and pressures from development and resource extraction continue to pose challenges for conservation efforts.

Using the Province's BC Species and Ecosystem Explorer, 109 species have potential to exist within the AOI. This was determined through the tool for the City of Castlegar and further refined by BEC zone isolating ICH, ICHxw and ICHdw1. Refer to the table below. All potential treatment units must identify and mitigate potential impacts to ecosystems or species at risk and may require additional considerations, rationales and/or mitigation measures for tree removal in some areas.

Table 9: Species and Ecosystems at Risk in Castlegar's eWUI – BC Conservation Data Centre

Common Name	Scientific Name	BC List	Category	Provincial
Alkali Bluet	*Enallagma clausum*	Blue	Invertebrate Animal	S3 (2023)
Alkali-Marsh Butterweed	*Senecio hydrophilus*	Red	Vascular Plant	SH (2019)
American Avocet	*Recurvirostra americana*	Blue	Vertebrate Animal	S2S3B (2023)
American Badger	*Taxidea taxus*	Red	Vertebrate Animal	S2 (2015)
American Barn Owl	*Tyto furcata*	Blue	Vertebrate Animal	S3 (2022)
American Golden-Plover	*Pluvialis dominica*	Blue	Vertebrate Animal	S3S4B (2015)

Common Name	Scientific Name	BC List	Category	Provincial
American Goshawk, *atricapillus* subspecies	*Accipiter atricapillus atricapillus*	Blue	Vertebrate Animal	S3S4 (2017)
American White Pelican	*Pelecanus erythrorhynchos*	Red	Vertebrate Animal	S1B (2022)
Attenuate Fossaria	*Galba truncatula*	Blue	Invertebrate Animal	S3S5 (2024)
Band-Tailed Pigeon	*Patagioenas fasciata*	Blue	Vertebrate Animal	S3S4 (2022)
Banded Tigersnail	*Anguispira kochi*	Blue	Invertebrate Animal	S3S4 (2025)
Beardless Wildrye	*Elymus curvatus*	Blue	Vascular Plant	S2S3 (2019)
Bighorn Sheep	*Ovis canadensis*	Blue	Vertebrate Animal	S3? (2015)
Black Cottonwood / Common Snowberry	*Populus trichocarpa / Symphoricarpos albus - Rosa spp.*	Red	Vascular Plant	S1 (2019)
Black Swift	*Cypseloides niger*	Blue	Vertebrate Animal	S2S4B (2022)
Black-Crowned Night-Heron	*Nycticorax nycticorax*	Red	Vertebrate Animal	S1 (2022)
Bobolink	*Dolichonyx oryzivorus*	Red	Vertebrate Animal	S2? B (2022)
Bull Trout	*Salvelinus confluentus*	Blue	Vertebrate Animal	S3S4 (2018)
California Gull	*Larus californicus*	Red	Vertebrate Animal	S1B, SNRN (2022)
California Hairstreak	*Satyrium californica*	Blue	Invertebrate Animal	S3 (2020)
Canyon Wren	*Catherpes mexicanus*	Blue	Vertebrate Animal	S3 (2024)
Caribou (Southern Mountain Population)	*Rangifer tarandus* pop. 1	Red	Vertebrate Animal	S1 (2017)
Caspian Tern	*Hydroprogne caspia*	Blue	Vertebrate Animal	S2S4B (2024)
Checkered Skipper	*Pyrgus communis*	Blue	Invertebrate Animal	S3 (2020)
Coeur d'Alene Oregonian	*Cryptomastix mullani*	Blue	Invertebrate Animal	S3S4 (2025)
Coeur d'Alene Salamander	*Plethodon idahoensis*	Blue	Vertebrate Animal	S3? (2022)
Columbia Dune Moth	*Copablepharon absidum*	Red	Invertebrate Animal	SH (2020)
Columbia Plateau Pocket Mouse	*Perognathus parvus*	Blue	Vertebrate Animal	S3 (2024)
Columbia Quillwort	*Isoetes minima*	Red	Vascular Plant	S1S2 (2019)
Columbia Sculpin	*Cottus hubbsi*	Blue	Vertebrate Animal	S3 (2019)
Common Clarkia	*Clarkia rhomboidea*	Blue	Vascular Plant	S2S3 (2019)
Common Nighthawk	*Chordeiles minor*	Blue	Vertebrate Animal	S3S5B (2022)
Common Sootywing	*Pholisora catullus*	Blue	Invertebrate Animal	S3 (2020)
Cutthroat Trout, *clarkii* subspecies	*Oncorhynchus clarkii clarkii*	Blue	Vertebrate Animal	S3S4 (2004)
Cutthroat Trout, *lewisi* subspecies	*Oncorhynchus clarkii lewisi*	Blue	Vertebrate Animal	S2S3 (2018)
Double-Crested Cormorant	*Nannopterum auritum*	Blue	Vertebrate Animal	S3S4 (2015)
Douglas-Fir / Tall Oregon-Grape / Parsley Fern	*Pseudotsuga menziesii / Mahonia aquifolium / Cryptogramma acrostichoides*	Red	Vascular Plant	S2? (2004)
Dusky Fossaria	*Galba dalli*	Blue	Invertebrate Animal	S3S4 (2025)
Dwarf Hesperochiron	*Hesperochiron pumilus*	Red	Vascular Plant	S2 (2019)
Eared Grebe	*Podiceps nigricollis*	Blue	Vertebrate Animal	S3B (2015)
Eastern Tailed Blue	*Cupido comyntas*	Blue	Invertebrate Animal	S3 (2020)
Forster's Tern	*Sterna forsteri*	Red	Vertebrate Animal	S1B (2022)
Fringed Myotis	*Myotis thysanodes*	Blue	Vertebrate Animal	S2S3 (2022)
Great Blue Heron, *herodias* subspecies	*Ardea herodias herodias*	Blue	Vertebrate Animal	S3? (2017)
Green Heron	*Butorides virescens*	Blue	Vertebrate Animal	S3S4B (2015)
Grizzly Bear	*Ursus arctos*	Blue	Vertebrate Animal	S3? (2015)

Common Name	Scientific Name	BC List	Category	Provincial
Gyrfalcon	*Falco rusticolus*	Blue	Vertebrate Animal	S3S4B, SNRN (2015)
Hairy Paintbrush	*Castilleja tenuis*	Red	Vascular Plant	S1 (2019)
Hairy-necked Tiger Beetle	*Cicindela hirticollis*	Blue	Invertebrate Animal	S2S4 (2024)
Hoary Bat	*Lasiurus cinereus*	Blue	Vertebrate Animal	S3S4 (2022)
Idaho Fescue/Bluebunch Wheatgrass/ Silky lupine/Junegrass	*Festuca idahoensis - Pseudoroegneria spicata - Lupinus sericeus - Koeleria macrantha*	Red	Vascular Plant	S2 (2018)
Lance-tipped Darner	*Aeshna constricta*	Blue	Invertebrate Animal	S3 (2023)
Lark Sparrow	*Chondestes grammacus*	Blue	Vertebrate Animal	S2S4B (2022)
Least Bladdery Milk-Vetch	*Astragalus microcystis*	Blue	Vascular Plant	S2S3 (2019)
Lewis's Woodpecker	*Melanerpes lewis*	Blue	Vertebrate Animal	S2S3B (2022)
Lilac-bordered Copper	*Lycaena nivalis*	Blue	Invertebrate Animal	S3 (2020)
Little Brown Myotis	*Myotis lucifugus*	Blue	Vertebrate Animal	S3S4 (2022)
Magnum Mantleslug	*Magnipelta mycophaga*	Blue	Invertebrate Animal	S3 (2024)
Monarch	*Danaus plexippus*	Red	Invertebrate Animal	S1? B (2020)
North American Racer	*Coluber constrictor*	Blue	Vertebrate Animal	S2S3 (2018)
Northern Leopard Frog	*Lithobates pipiens*	Red	Vertebrate Animal	S1 (2021)
Northern Tightcoil	*Pristiloma arcticum*	Blue	Invertebrate Animal	S3S4 (2025)
Painted Turtle	*Chrysemys picta*	No Status	Vertebrate Animal	S3 (2018)
Painted Turtle - Intermountain - Rocky Mountain Population	*Chrysemys picta* pop. 2	Blue	Vertebrate Animal	S3? (2018)
Pale Jumping-Slug	*Hemphillia camelus*	Blue	Invertebrate Animal	S3S4 (2025)
Peregrine Falcon, *anatum* subspecies	*Falco peregrinus anatum*	Red	Vertebrate Animal	S2? (2011)
Prairie Falcon	*Falco mexicanus*	Red	Vertebrate Animal	S1 (2018)
Pronghorn Clubtail	*Phanogomphus graslinellus*	Blue	Invertebrate Animal	S2S3 (2023)
Purple Martin	*Progne subis*	Blue	Vertebrate Animal	S3S4B (2022)
Purple Meadow Rue	*Thalictrum dasycarpum*	Blue	Vascular Plant	S3 (2019)
Pursh's Wallflower	*Erysimum capitatum* var. *purshii*	Blue	Vascular Plant	S3 (2019)
Pygmy Slug	*Kootenaia burkei*	Blue	Invertebrate Animal	S3 (2024)
Red-necked Phalarope	*Phalaropus lobatus*	Blue	Vertebrate Animal	S3B, SNRM (2023)
Red-tailed Chipmunk, *simulans* subspecies	*Neotamias ruficaudus simulans*	Blue	Vertebrate Animal	S3 (2021)
Rough-legged Hawk	*Buteo lagopus*	Blue	Vertebrate Animal	S3N (2015)
Sage Thrasher	*Oreoscoptes montanus*	Red	Vertebrate Animal	S1B (2022)
Sandhill Skipper	*Polites sabuleti*	Red	Invertebrate Animal	S2 (2020)
Sheathed Slug	*Zacoleus idahoensis*	Red	Invertebrate Animal	S2 (2024)
Short-Billed Dowitcher	*Limnodromus griseus*	Red	Vertebrate Animal	S1S2B, S2S3M (2023)
Short-Eared Owl	*Asio flammeus*	Blue	Vertebrate Animal	S3B, S1N (2022)
Shortface Lanx	*Fisherola nuttalli*	Red	Invertebrate Animal	S1S2 (2025)
Shorthead Sculpin	*Cottus confusus*	Blue	Vertebrate Animal	S3 (2019)
Silver-Spotted Skipper, *clarus* subspecies	*Epargyreus clarus clarus*	Blue	Invertebrate Animal	S3 (2023)

Common Name	Scientific Name	BC List	Category	Provincial
Sitka Willow - Pacific Willow / skunk cabbage	*Salix sitchensis - Salix lasiandra* var. *lasiandra / Lysichiton americanus*	Blue	Vascular Plant	S3 (2022)
Smooth Goldenrod	*Solidago gigantea* var. *shinnersii*	Blue	Vascular Plant	S3 (2019)
Subalpine Mountain Snail	*Oreohelix subrudis*	Blue	Invertebrate Animal	S3 (2025)
Townsend's Big-Eared Bat	*Corynorhinus townsendii*	Blue	Vertebrate Animal	S3 (2022)
Upland Sandpiper	*Bartramia longicauda*	Red	Vertebrate Animal	S2B (2022)
Variegated Fritillary	*Euptoieta claudia*	Blue	Invertebrate Animal	S3N (2020)
Viceroy	*Limenitis archippus*	Red	Invertebrate Animal	SX (2020)
Vivid Dancer	*Argia vivida*	Blue	Invertebrate Animal	S3 (2023)
Western Grebe	*Aechmophorus occidentalis*	Red	Vertebrate Animal	S1S2B, S2N (2023)
Western Screech-Owl	*Megascops kennicottii*	No Status	Vertebrate Animal	S4 (2015)
Western Screech-Owl, *macfarlanei* subspecies	*Megascops kennicottii macfarlanei*	Blue	Vertebrate Animal	S3 (2017)
Western Skink	*Plestiodon skiltonianus*	Blue	Vertebrate Animal	S3S4 (2025)
Western Tiger Salamander	*Ambystoma mavortium*	Red	Vertebrate Animal	S2 (2021)
White Sturgeon	*Acipenser transmontanus*	No Status	Vertebrate Animal	S2 (2018)
White Sturgeon (Upper Columbia River Population)	*Acipenser transmontanus* pop. 2	Red	Vertebrate Animal	S1 (2018)
White-Headed Woodpecker	*Dryobates albolarvatus*	Red	Vertebrate Animal	S1 (2022)
White-Tailed Jackrabbit	*Lepus townsendii*	Red	Vertebrate Animal	SX (2022)
Whitebark Pine	*Pinus albicaulis*	Blue	Vascular Plant	S2S3 (2019)
Widelip Pondsnail	*Ladislavella traskii*	Blue	Invertebrate Animal	S3S4 (2025)
Wild Licorice	*Glycyrrhiza lepidota*	Blue	Vascular Plant	S3 (2019)
Williamson's Sapsucker	*Sphyrapicus thyroideus*	Blue	Vertebrate Animal	S3B (2022)
Wolverine	*Gulo gulo*	Blue	Vertebrate Animal	S3 (2025)
Yellow-Billed Cuckoo	*Coccyzus americanus*	Red	Vertebrate Animal	SXB (2022)
Yellow-Breasted Chat	*Icteria virens*	Red	Vertebrate Animal	S2B (2018)
Yuma Myotis	*Myotis yumanensis*	Blue	Vertebrate Animal	S3 (2022)

3.3.7 OTHER RESOURCE VALUES

There are several forest licensees operating within Castlegar including BC Timber Sales (BCTS), Interfor, and Kalesnikoff. Fuel reduction treatments are not anticipated to have a measurable effect on the timber harvesting land base. The opportunity exists to work with local licensees on commercial thinning projects that meet fuel management objective while prioritize wildfire risk reduction. Recommendations #26, 27, 28, 29, and 33 highlight the importance of interagency cooperation and development considerations.

Agriculture (commercial and hobby farms) and designated recreation sites are additional stakeholders to consider within Castlegar. Recommendation #10 highlights the importance of working with MOTT, BC Parks, as well as Recreation Sites and Trails to post wildfire danger signage along major transportation corridors, campsites and high use trail heads. Additionally the Association of the West Kootenay Rock Climbers (TAWKROC) was identified to hold title to property above the neighbourhood of Kinnaird to preserve rock climbing and other recreation values. Collaboration with relevant stakeholders to conduct

fuel treatment and to secure funding should be prioritized. All fuel management within Castlegar's eWUI should consider the impact on any of these additional values and consult with appropriate land managers and organized recreation groups in the area. Recommendations associated with industry and community stakeholders are discussed further in Section 5.6.

SECTION 4: WILDFIRE RISK ASSESSMENT

This section summarizes the factors that contribute to local wildfire risk in Castlegar. Section 4.1 discusses the wildfire environment in the eWUI, focusing on topography, fuel, and weather. Section 4.2 and 4.2.1 discuss wildfire history in the area and wildfire response data from local fire crews. Section 4.3 uses updated fuel types combined with wildfire threat assessments and an office-based analysis to update the local wildfire risk for the eligible WUI.

This wildfire risk assessment helps to identify the parts of the eligible WUI that are most vulnerable to wildfire. The CWRP risk assessment complements the City of Castlegar's Emergency Response Program referenced in Section 2.2 .

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

Figure 1: Definition of Risk Graphic

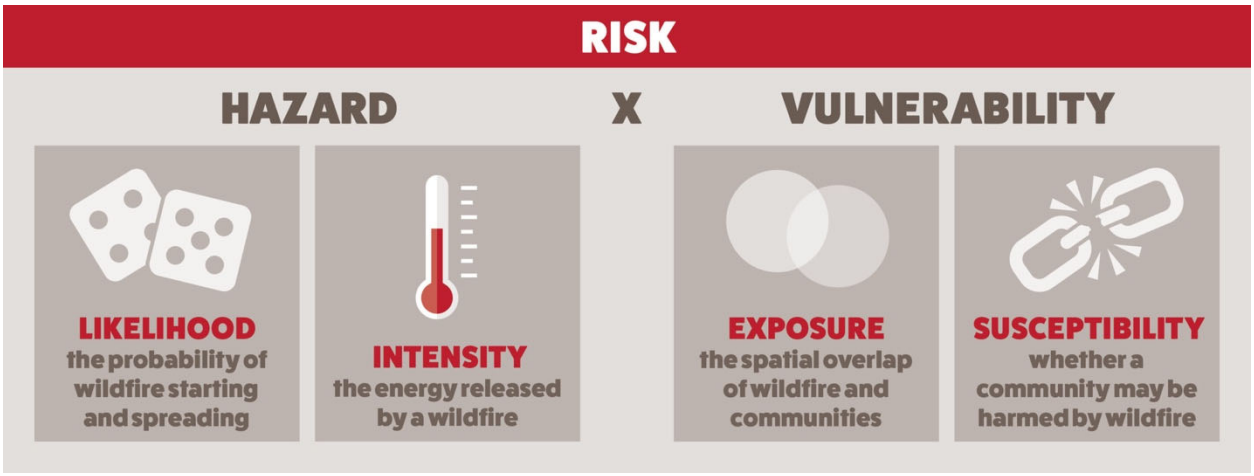


Image: Wildfire Risk to Communities

Wildfire Risk = Hazard X Vulnerability

A Community's Wildfire risk is defined as the combination of likelihood and intensity (together creating 'hazard') and exposure and susceptibility (together creating vulnerability') for the potential loss of human life and values at risk within a community in the event of a wildfire.

Hazard refers to the inherent wildfire potential in an area—specifically the combination of wildfire **likelihood** and **intensity**. It captures how probable a fire is to occur (likelihood) and how powerful it could be if it does (intensity), based on fire behavior modeling across many simulated seasons. Wildfire intensity is controlled by the following:

- 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.

Vulnerability, on the other hand, represents how much a community is at risk when a wildfire occurs—combining both **exposure** and **susceptibility**. Exposure refers to the extent to which the community's structures or people coincide with wildfire likelihood and intensity—that is, whether homes or neighborhoods lie within zones where wildfires are probable. Susceptibility captures the propensity for damage if impacted, under the framework's assumption that all homes encountering wildfire will be damaged proportionally to wildfire intensity.

Consequences refer to the repercussions associated with a fire occurrence in each 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'. Fuel is the only component of the fire triangle that can be reasonably managed through human intervention. It is important to recognize that in eWUI 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 2: Graphic display of the fire behaviour triangle, and a subset of characteristics within each component.[12]

[12] Graphic adopted from the Province of Alberta.

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 the movement of wildfire such as water bodies, rock outcrops, or drive the movement of wildfire such as valleys and exposed ridges.

The topography of Castlegar plays a significant role in influencing wildfire behavior and the associated risks to the community. Much of the city is located along the valley bottom formed by the Columbia River, near its confluence with the Kootenay River. Residential and commercial development is primarily concentrated on the relatively flat, sandy, river terraces adjacent to the Columbia, which provide favorable conditions for construction and community growth. Some neighborhoods extend into the lower elevations of the surrounding hillsides including areas near Sentinel Mountain, however most of the urban core is positioned on flatter terrain near the rivers. This layout offers certain advantages with respect to wildfire risk. Homes situated in the valley bottom are less exposed to rapid rates of wildfire spread often associated with steep slopes. However, the sandy banks pose a challenge for direct access to water in certain locations.

Steeper, forested terrain on the periphery of the city, particularly north of town (Sentinel Mountain) and the upland areas to the west (Merry Creek) and south, presents more significant wildfire risk due to slope-driven fire behavior. However, development in these areas is more limited due to natural topographic constraints. The steep terrain and limited access challenges of these slopes can pose challenges for wildfire mitigation and suppression efforts.

Table 10 and
Map 5 show a breakdown of the eWUI based on slope classes. Notably, approximately 29% of the eWUI has slopes exceeding 30%. These steep slopes can significantly accelerate the rate of fire spread uphill, posing increased fire behavior challenges.

Table 10: Slope Percentage and Fire Behaviour Implications.

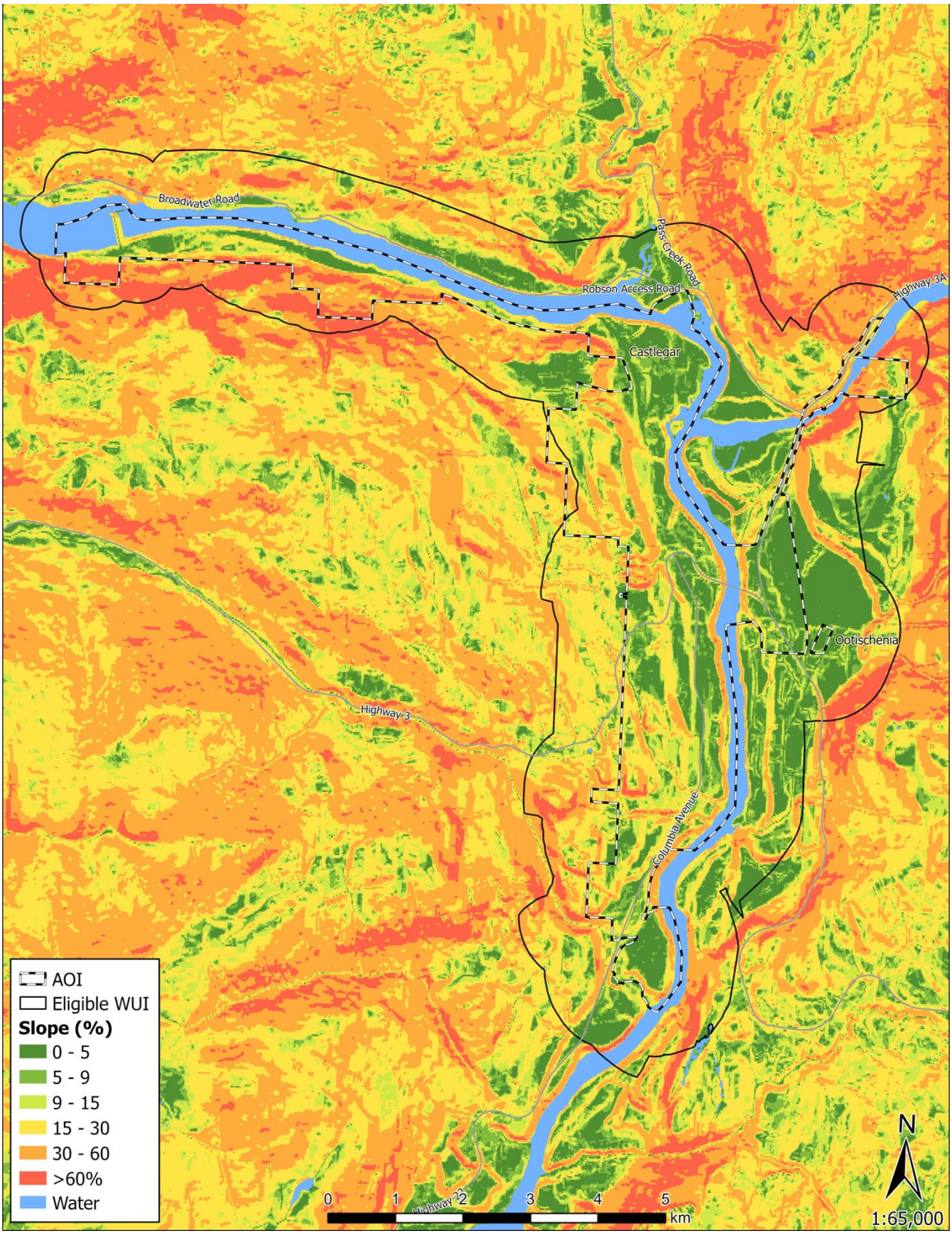
Slope (%)	Percentage of Eligible WUI (%)	Fire Behaviour Implications
<20	46	Very little flame and fuel interaction caused by slope, normal rate of spread.
21-30	13	Flame tilt begins to preheat fuel, increase rate of spread.
31-40	10	Flame tilt preheats fuel and begins to bathe flames into fuel, high rate of spread.
41-60	12	Flame tilt preheats fuel and bathes flames into fuel, very high rate of spread.
>60	7	Flame tilt preheats fuel and bathes flames into fuel well upslope, extreme rate of spread.
Water	12	Non-flammable

Slope-associated fire risk is dependent upon the slope position and location of values, summarized below in Table 11. Values located in the middle and upper slopes are threatened by faster rates of fire spread due to the pre-heating of fuels from fire below and longer flame lengths reaching uphill. As discussed above, most of Castlegar is located at valley bottom and lower slope, on grades <30%, so it would be unlikely to have increased fire behaviour risks influenced by topography and slope position alone. However, wind is a big driver of fire behaviour and is prevalent in Castlegar, discussed further in Section 4.1.3. However, there are neighbourhoods, homes, and structures that are middle slope, and these would be threatened by faster rates of slope-driven fire spread.

For Castlegar, the key topographical feature affecting potential fire behaviour is the presence of continuous forest fuels on all slopes and aspects of Sentinel Mountain. This landscape composition implies that accelerated rates of fire spread are a potential concern, particularly if a fire were to move uphill from structures into the wildland.

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

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 Third of Slope	Impacted by extreme rates of spread. At risk to large continuous fire run, preheating and flames bathing into the fuel.



Map 5: Slope, by slope classes, for Castlegar's eWUI.

4.1.2 FUEL

Understanding the ecological context of wildfire and the role fire plays in both current and historical ecosystems is critical for evaluating wildfire risk in communities. Equally important is assessing the distribution, types, and management of wildland fuels within Castlegar's eWUI, as fuel is the only element of the fire triangle that can be effectively managed through human intervention. This section analyses and discusses the relevant wildland vegetative fuels in Castlegar's eWUI.

Castlegar supports a diverse mix of vegetative communities shaped by both natural geography and human activity. Land clearing for agriculture and residential development—along with past flooding—has significantly altered the vegetation in the valley bottom, resulting in parcels of irrigated farmland and manicured lawns that border untreated forested areas.

Located at the confluence of the Kootenay and Columbia Rivers, Castlegar features extensive riparian zones ranging from steep, sandy and clay slopes to flat embankments. These upper slopes host many of the city's residential neighbourhoods. Field observations note that many of these steep riverbanks contain dense clusters of dead standing lodgepole pine, particularly areas adjacent to the western riverbank of the Columbia River. These trees pose a significant ember-casting threat if a wildfire were to descend toward town. While deciduous vegetation in riparian-adjacent neighbourhoods can reduce fire intensity due to its higher moisture content, this buffering effect is limited within the City of Castlegar. Only a small portion of Castlegar lies within this deciduous riparian zone, and the surrounding coniferous forests increase overall wildfire risk—offsetting any natural protection provided by the Columbia River.

Forested slopes in and around the eWUI have been heavily impacted by past and ongoing logging activities. Decades of fire suppression throughout the past several decades has further contributed to the development of even-aged conifer stands across much of the area. Effective slash management in harvested eWUI zones is essential to reduce fire behaviour and associated risk to nearby neighbourhoods. Some properties have long, irrigated setbacks that help reduce wildfire threat, but many still require improved private vegetation management. Recommendation #16 highlights the importance of reducing fuel loads on private land, especially within Home Ignition Zones. Coniferous vegetation in these zones must be reduced to enhance community-level wildfire resilience.

The Canadian Forest Fire Behaviour Prediction (FBP) System classifies 16 fuel types based on characteristic fire behaviour under specific conditions.[13] For this CWRP, BCWS's Provincial Fuel Type layer was field-verified and updated. However, the FBP system was designed primarily for boreal and sub-boreal forests, which do not represent the interior wet-belt forests present in Castlegar. As such,

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

these local mixed-conifer[14] stands are considered poorly matched to existing FBP categories—highlighting a known gap in the system.[15]

Fuel typing in this report relied heavily field validation to assigned Provincial data. Despite limitations in spatial resolution and ground access in some areas, the most appropriate fuel types were assigned, drawing on 25 years of successful application and ongoing refinement in BC. [16]

Fuel Types in Castlegar's eWUI:

Table 12 below provides details of all fuel types in the eWUI. The most hazardous among them are C-3, C-7, and M-1/2.

- **C-3 (Mature Coniferous Forests):** These are fully stocked, late young forests with variable crown base heights. Common along forested edges near residential areas, they support both surface and crown fires with high rates of spread and intensity. Spotting potential is significant.
- **C-7 (Open Coniferous Forests):** Mature, open stands with flashy grass fuels and some low-flammability shrubs. Like C-3, C-7 carries a high risk of crown fire and spotting.
- **M-1/2 (Mixed-wood Stands):** Risk varies with conifer dominance and fuel load. Stands with over 60% conifer cover and significant deadfall are generally prioritized for treatment.
- **O-1a/b (Grassland and Open Areas):** Found on south-facing slopes above Brilliant and the highway interchange, and scattered in residential zones, these areas consist of cured grasses and sparse woody material. They support fast-moving surface fires, especially when grass is tall and unmaintained, making them a priority for mitigation efforts. Fire is often hot, fast, flashy and wind driven.

C-5 and C-7 types dominate mid-slopes of Sentinel Mountain and other drier, rockier terrain, especially on south- and west-facing aspect. These areas can sustain rapidly spreading surface fires with variable behaviour, influenced by fuel curing, wind conditions and aspect.

D-1/2 (Deciduous Forests) are generally the least hazardous due to higher moisture content and fewer ladder fuels. However, the risk increases significantly in dry spring conditions or where surface fuel buildup occurs—conditions that have supported damaging fires even in deciduous stands.

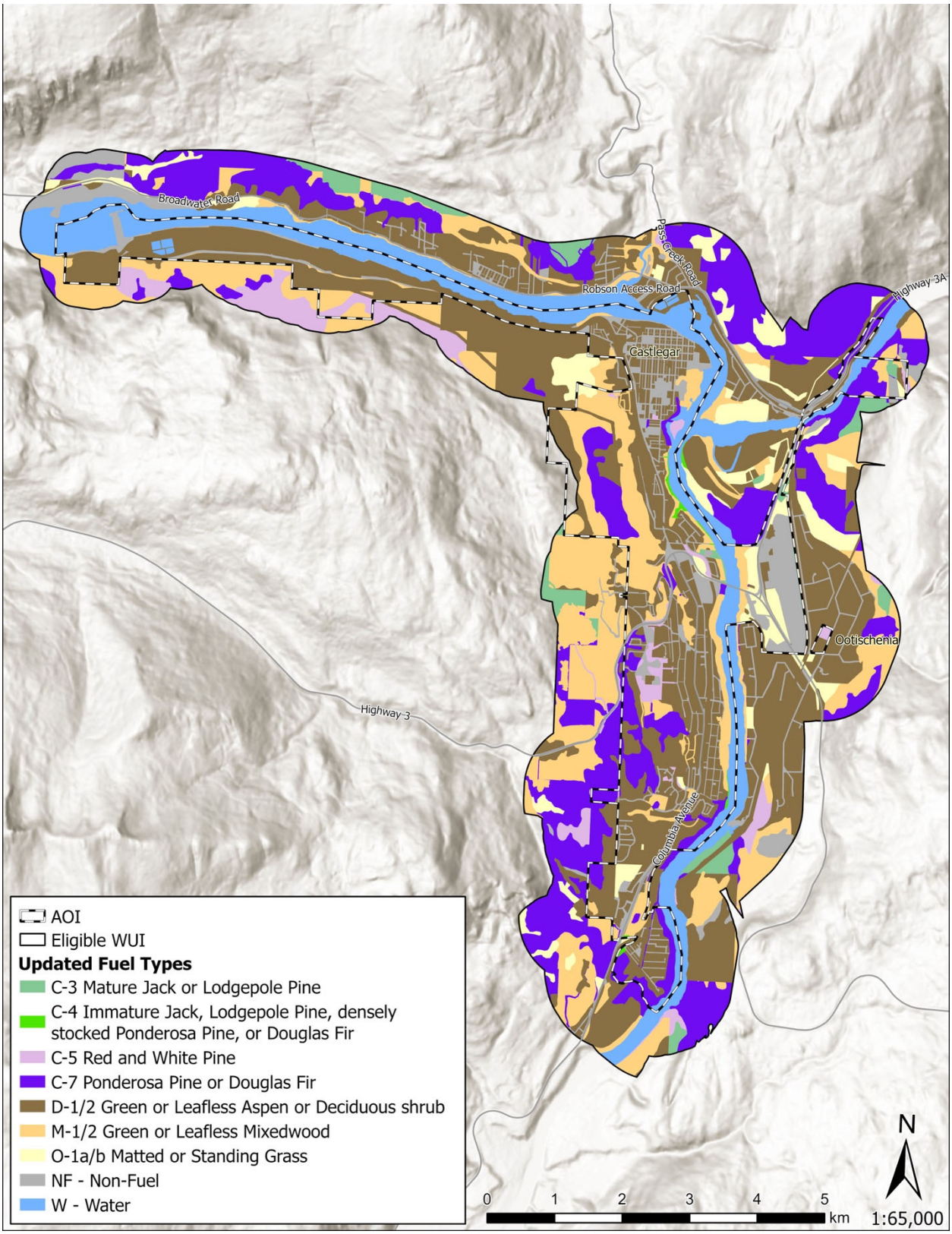
For detailed descriptions of fuel types and associated wildfire risks, refer to Appendix B-1: Fuel Typing Methodology.

[14] 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.
[15] Natural Resources Canada. 2018. British Columbia Wildfire Fuel Typing and Fuel Type Layer Description. Daniel D.B. Perrakis, George Eade, and Dana Hicks
[16] Perrakis, D, G. Eade and D. Hicks. 2018. Canadian Forest Service Pacific Forestry Centre. British Columbia Wildfire Fuel Typing and Fuel Type Layer Description

Table 12: Fuel types in Castlegar's eligible Wildland Urban Interface

Fuel Type	Fuel Type Description within the eWUI	Area (ha)
C-3 Mature Jack or Lodgepole Pine	Fully stocked, late young conifer stands with crowns separated from the ground. Moderate to high surface fuel loading from self-pruning and stem exclusion.	156
C-4 Immature Jack, Lodgepole Pine, densely stocked Ponderosa Pine, or Douglas Fir	Dense pure pine stands with high levels of standing dead stems and downed woody fuel from natural thinning. Strong vertical and horizontal fuel continuity, with greater surface fuel loading than C-3. Shallow, less compact organic layers; ground cover mainly needle litter within a low shrub layer.	8
C-5 Red and White Pine	Well-stocked mature forest, crowns separated from ground. Moderate understory herbs and shrubs. Little grass or surface fuel accumulation.	208
C-7 Ponderosa Pine or Douglas Fir	Mature and open forest stands with a mix of flashy grass fuels and lower flammability shrubs. Often located on south-facing slopes and throughout the ICHxw.	1,220
D-1/2 Green or Leafless Aspen or Deciduous Shrub	Deciduous stands/ forest. Hazard increases with the amount of deadfall and/or establishment of a flammable shrub layer.	2,206
M-1/2 Green or Leafless Mixed	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.[17]	1,186
O-1a/b Matted or Standing Grass	Grassland fuels ('a' refers to matted grasses, 'b' refers to standing grass). The volatility of this fuel type depends on the percentage of grass that is cured.	321
NF - 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.	592
W - Water	Water and riparian features (e.g., rivers, streams, waterbodies, wetlands	767
	Total Area:	**6,663**

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



Map 6: Updated fuel types in Castlegar's eWUI.

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. Castlegar's weather patterns are considerably variable and are strongly influenced by local topography and other environmental factors. Summers are relatively hot and dry, while winters bring freezing temperatures, potential for heavy snowfall, and mostly cloudy conditions.

During the summer months, Castlegar experiences hot and dry conditions, with occasional periods of extreme heat. Climate change projections suggest that these trends are likely to intensify, pointing toward even hotter summers and more pronounced droughts. These conditions create an environment conducive to increased wildfire behaviour, particularly in the context of the region's complex topography and on account of fuel type.

July and August are typically when fire danger reaches High to Extreme levels in the area. Data from Nancy Green, Pend Oreille and Smallwood weather stations confirm this, showing that July averages 8.2 High days and 4.7 Extreme Fire Danger Days, while August averages 13 High days and 4.7 Extreme Fire Danger Days. These were averaged over 3-5 years. It is also important to note that elevated fire danger days are not exclusive to mid-summer—both June and September stretching into October in recent years frequently record High fire danger conditions across Castlegar's eWUI.

Wind is a particularly influential factor in fire behaviour. While northerly winds dominate year-round in Castlegar, seasonal variations are evident: southerly to easterly winds are more frequent in winter, west winds tend to prevail in spring through early summer and again in early fall, and southeast winds are commonly observed at weather stations during the cold season. These shifting wind patterns, when interacting with the area's valley topography, can lead to dangerous wind funneling effects that rapidly escalate wildfire spread, particularly in open C7 fuel types with grassy surface fuels.

Additionally, during July and August, highly active thunder cells—often without precipitation—can pass through the region, bringing as many as 40+ lightning strikes in a single day. Environment Canada has Castlegar averaging 36.5 days with lightning annually[18]. Under conducive fire weather indices, many of these lightning events can result in new fire ignitions.

[18]Castlegar has a total of 15,226 cloud-to-ground lightning flashes recorded from 1999-2018. https://www.canada.ca/en/environment-climate-change/services/lightning/statistics/activity-canadian-cities.html

The local climatic profile of neighbourhoods is influenced by their geographical position relative to Sentinel Mountain. These varying positions lead to distinct weather patterns that influence potential wildfire behaviour. The mountain acts as a natural barrier, intercepting moisture-laden air masses and resulting in relatively cooler and moister conditions. In contrast, south-facing neighborhoods are more exposed to sunlight, resulting in warmer, sunnier conditions that contribute to lower humidity levels. Forests on these south-facing slopes often exhibit drier characteristics, supporting more hazardous fire behaviour, as vegetation in these areas tends to have lower moisture content, making it more susceptible to ignition and rapid fire spread.

Overall, fire weather and associated fire danger days tend to blend across Castlegar's eWUI. The region as a whole is at high risk of experiencing fire season weather conditions, including dry lightning and wind events that can rapidly escalate fire activity.

Figure 3: Average number of fire danger rating days by month for Nancy Green, Pend Oreille and Smallwood fire weather stations.

Weather Station	Year	Month	Fire Danger Rating	Number of Days
Nancy Green	2020	August	High Danger	6
	2020	September	High Danger	17
	2020	September	Extreme Danger	3
	2021	July	High Danger	15
	2021	August	High Danger	10
	2021	July	Extreme Danger	9
	2021	August	Extreme Danger	1
	2022	July	High Danger	2
	2022	August	High Danger	25
	2022	September	High Danger	7
	2022	October	High Danger	7
	2022	July	Extreme Danger	1
	2022	August	Extreme Danger	4
	2022	September	Extreme Danger	6
	2023	July	High Danger	7
	2023	August	High Danger	11
	2023	August	Extreme Danger	9
	2024	July	High Danger	12
	2024	August	High Danger	10
	2024	July	Extreme Danger	4
	2025	July	High Danger	5
Pend Oreille	2020	August	High Danger	3
	2020	September	High Danger	17
	2020	August	Extreme Danger	3
	2020	September	Extreme Danger	2
	2021	May	High Danger	2
	2021	June	High Danger	10
	2021	July	High Danger	4
	2021	August	High Danger	11
	2021	September	High Danger	3
	2021	June	Extreme Danger	3
	2021	July	Extreme Danger	27
	2021	August	Extreme Danger	3
	2022	July	High Danger	10

Weather Station	Year	Month	Fire Danger Rating	Number of Days
	2022	August	High Danger	24
	2022	September	High Danger	12
	2022	October	High Danger	16
	2022	July	Extreme Danger	1
	2022	August	Extreme Danger	7
	2022	September	Extreme Danger	5
	2023	June	High Danger	1
	2023	July	High Danger	13
	2023	August	High Danger	7
	2023	July	Extreme Danger	8
	2023	August	Extreme Danger	9
	2024	July	High Danger	18
	2024	August	High Danger	13
	2024	September	High Danger	7
	2024	July	Extreme Danger	6
	2024	August	Extreme Danger	1
	2025	June	High Danger	12
	2025	July	High Danger	19
	2025	August	High Danger	4
Smallwood	2020	August	High Danger	6
	2020	September	High Danger	22
	2020	September	Extreme Danger	1
	2021	June	High Danger	2
	2021	July	High Danger	14
	2021	August	High Danger	11
	2021	June	Extreme Danger	1
	2021	July	Extreme Danger	17
	2021	August	Extreme Danger	1
	2022	July	High Danger	7
	2022	August	High Danger	23
	2022	September	High Danger	13
	2022	August	Extreme Danger	1
	2023	July	High Danger	10
	2023	August	High Danger	14
	2023	July	Extreme Danger	6
	2023	August	Extreme Danger	5
	2024	July	High Danger	15
	2024	August	High Danger	15
	2024	September	High Danger	6
	2024	July	Extreme Danger	1
	2025	June	High Danger	7
	2025	July	High Danger	6
	2025	August	High Danger	9

Wind speed and direction are critical weather components influencing fire behaviour and are recorded at BCWS weather stations. This data is publicly available through average Initial Spread Index (ISI) roses[19], a numerical rating that reflects the expected rate of fire spread, factoring in wind speed and fine

[19] https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prepare/weather-fire-danger/fire-weather/fire-weather-index-system

fuel moisture, which is influenced by temperature and relative humidity. ISI roses can inform the strategic placement of fuel treatments on the landscape, helping to protect values at risk based on the predominant wind direction and frequency of higher ISI values. Fires occurring upwind of these values pose a more significant threat than those occurring downwind.

During the fire season, data from the Nancy Green, Pend Oreille, and Smallwood fire weather stations (Figure 4, 5 and 6) indicate that Castlegar experiences strong diurnal wind patterns—up-valley winds from the southeast and south during the day, and down-valley winds from the northeast at night. According to ISI roses, the highest ISI wind directions originate from the south, generally driving fire spread northward. July and August are particularly susceptible to wind-driven fire spread, as strong winds and high ISI values often coincide with peak temperatures.

BCWS Wildfire Prevention Officers highlight that July and August are typically when fire danger levels reach *High* to *Extreme* in Castlegar. Hot, dry, and windy conditions are the most concerning during this period, with wind playing a key role in increasing fire spread—particularly in open C-7 fuel types, which contain grassy surface fuels highly prone to rapid spread. The officer also notes that cold fronts or isolated wind events often lead to elevated fire risk due to the area's topography, which can cause wind funnelling within the valley.

C-7 fuel types are considered the most aggressive and volatile in the region. Middle-elevation mixed stands of Douglas-fir, larch, and pine—especially on the upper slopes of Castlegar's eWUI—can also be volatile, though generally less so than higher-elevation spruce/balsam stands. In contrast, low-elevation western red cedar/western hemlock stands, typically found on the lower, northern slopes of the eWUI, tend to exhibit the least volatility—unless specific fuel and weather conditions align.

As summer progresses and fuel conditions dry out, these fuel types can react intensely when combined with specific weather patterns such as wind, low humidity, and high temperatures. BCWS ground crew observations from field assessments echoed this concern: wind is a primary driver of fire volatility and growth in Castlegar. It is also essential for pushing fires downslope—toward communities—underscoring the need for proactive mitigation and planning.

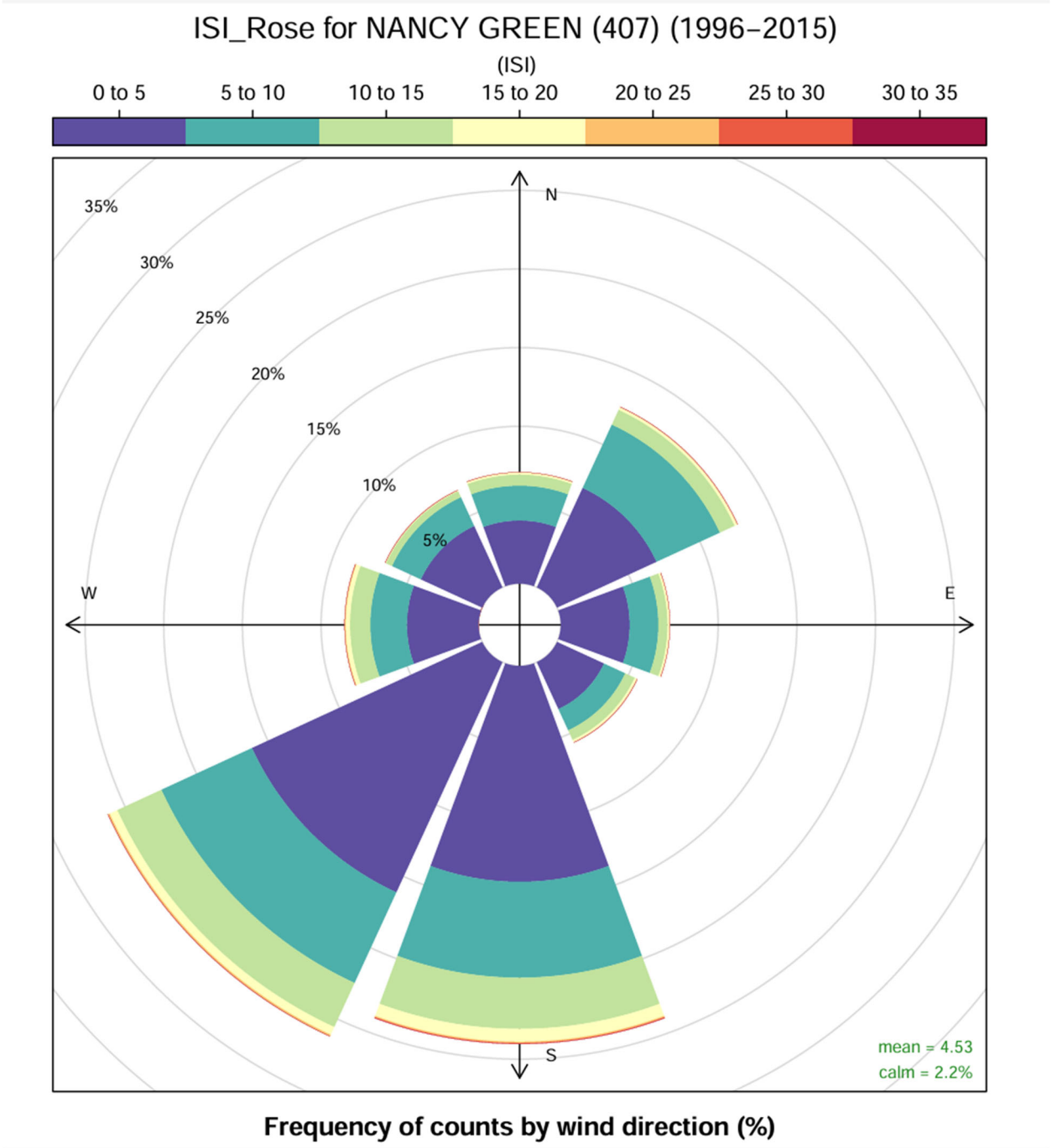


Figure 4: Daily average initial spread index rose for Nancy Green fire weather station.

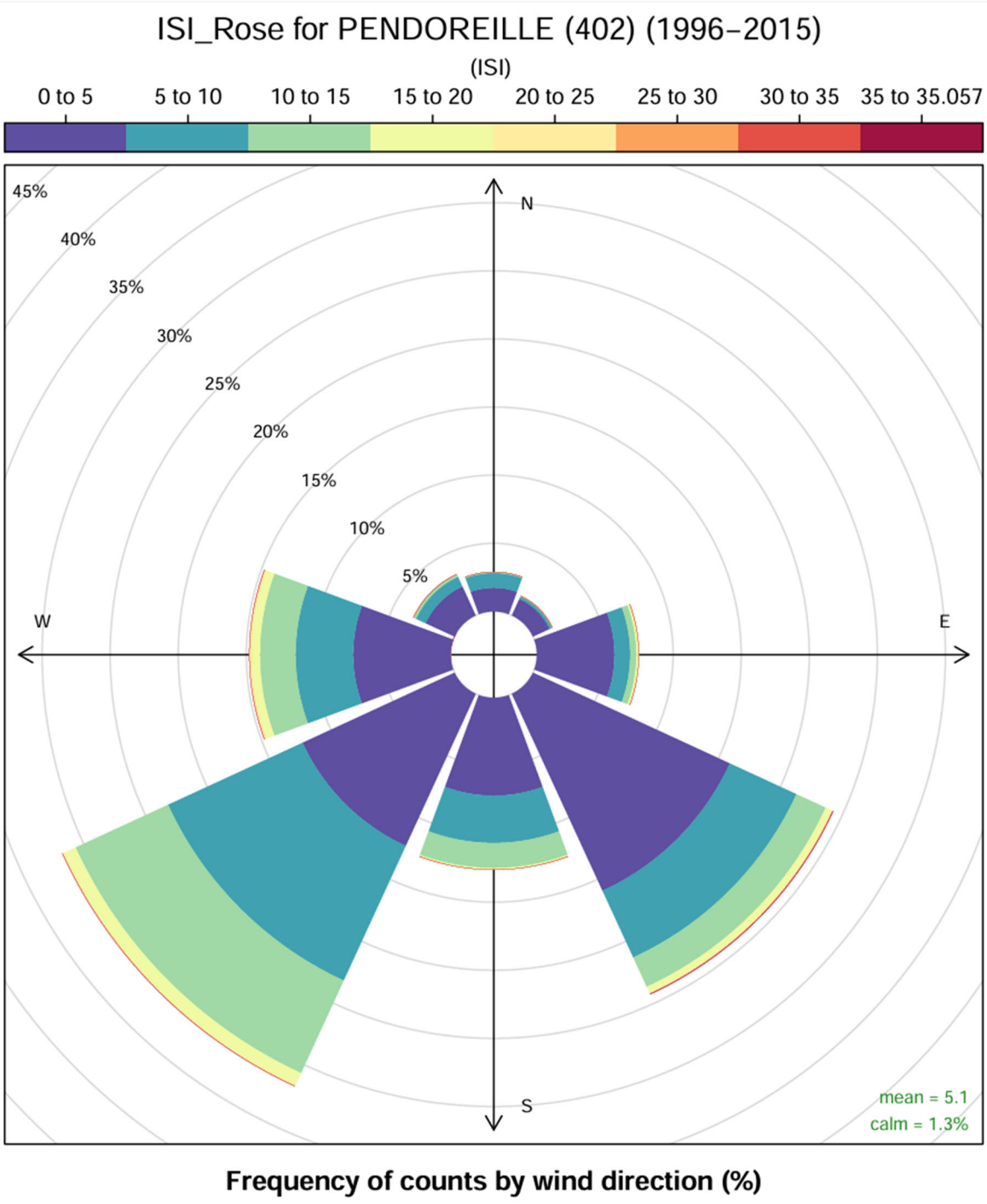


Figure 5: Daily average initial spread index rose for Pend Oreille fire weather station.

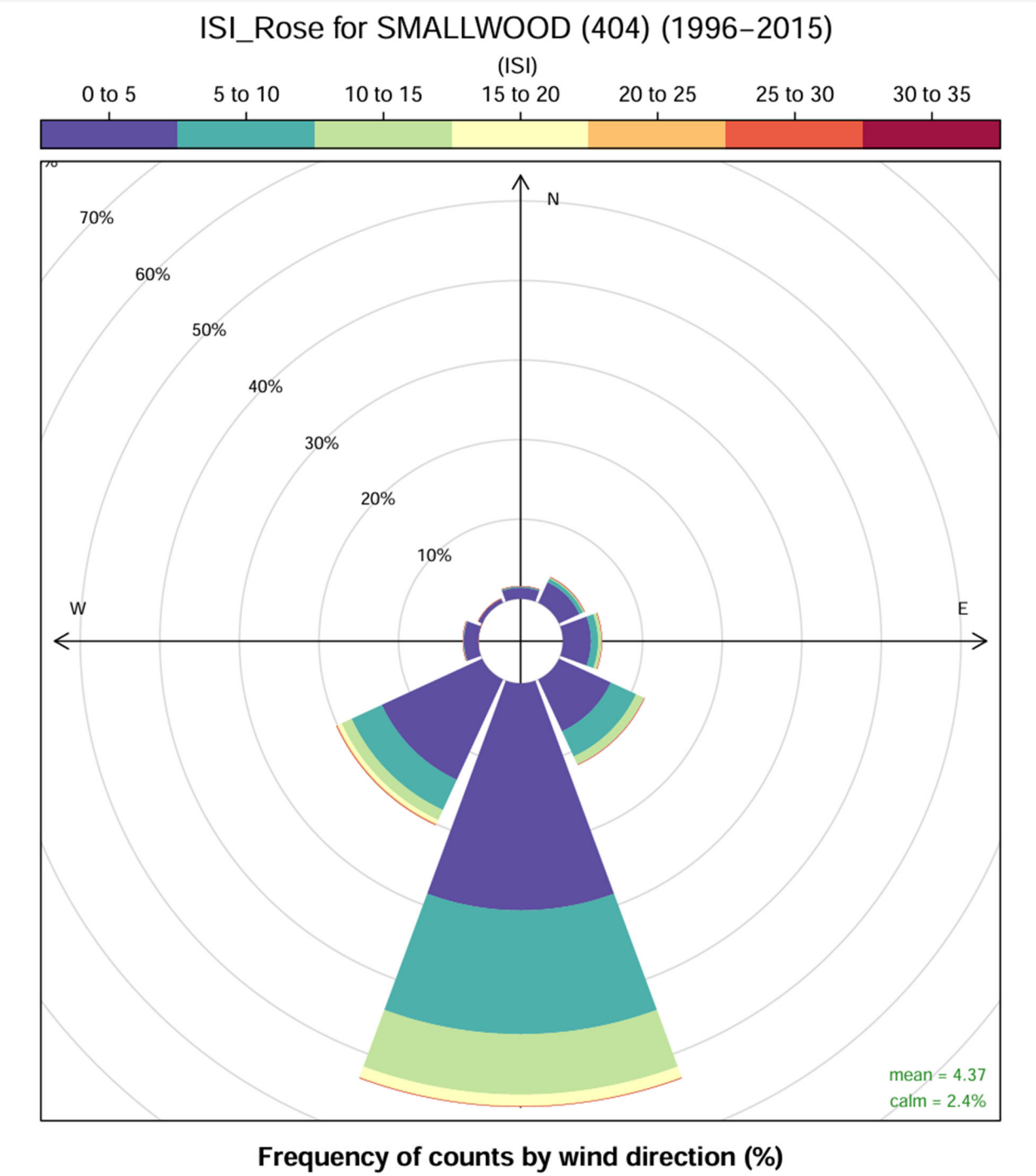


Figure 6: Daily average initial spread index rose for Smallwood fire weather station.

4.2 WILDFIRE HISTORY

4.2.1 HISTORIC FIRE REGIME

Castlegar's eWUI can be classified using the Biogeoclimatic Ecosystem Classification (BEC) system, which organizes the province into ecological zones based on vegetation, soil, and climate. Regional subzones are further distinguished by relative precipitation and temperature.

As shown in Map *7* the Biogeoclimatic zones and their associated Natural Disturbance Types (NDTs) vary across Castlegar's eWUI. Table 13 summarizes this distribution.

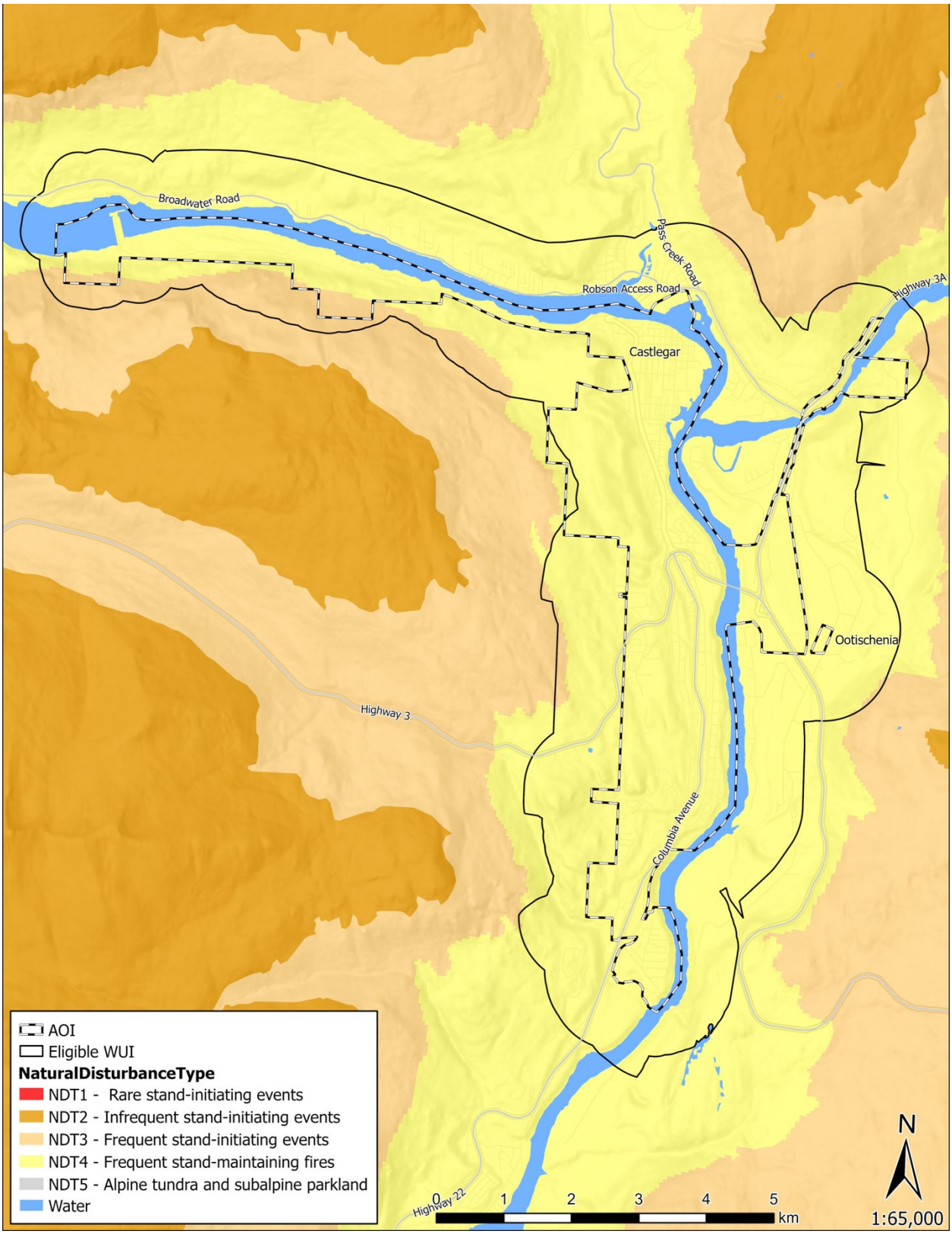
Table 13: Natural Disturbance Types (NDTs) of Castlegar's eWUI.

Biogeoclimatic Zone	Natural Disturbance Type	Area (ha)	Percent (%)
ICHdw1: Interior Cedar - Hemlock; Dry Warm; West Kootenay Variant	NDT3	360	5
ICHxw: Interior Cedar - Hemlock; Very Dry Warm	NDT4	5,507	83
Water	Water	779	12

The middle and lower slopes primarily fall within the Interior Cedar–Hemlock Very Dry Warm (ICHxw) subzone, associated with NDT4 – ecosystems characterized by frequent, low-intensity stand-maintaining fires. Historically, these fires maintained forest structure by regularly reducing surface fuel accumulation and limiting the growth of sapling-sized regeneration. Over time, this regime created a patchwork of uneven-aged forests interspersed with grassy or shrubby openings, naturally limiting the spread of large, severe fires. Although less frequent, larger stand-initiating crown fires did occur, typically at intervals of 150 to 250 years.

In contrast, the upper slopes of Castlegar's WUI lie within the Interior Cedar–Hemlock Dry Warm (ICHdw1) subzone, associated with NDT3 – ecosystems subject to frequent stand-initiating disturbances. Wildfires here ranged from small spot fires to massive conflagrations spanning tens of thousands of hectares. These events produced a landscape mosaic of stands of varying ages, with individual stands typically being even-aged. In the absence of topographical barriers, fires could grow to extreme sizes. The average return interval for fire in the ICH NDT3 is approximately 150 years.

It is important to recognize that pre-settlement Indigenous cultural burning practices likely influenced historical fire regimes across the region. Looking ahead, climate change is expected to alter the distribution and characteristics of BEC zones and their associated NDTs.



Map 7: Natural disturbance regimes for Castlegar's eWUI and surrounding area.

4.2.2 HISTORICAL WILDFIRE OCCURENCES

Before the imposition of colonial laws, Indigenous Peoples used fire intentionally and thoughtfully as a tool for land stewardship. Guided by their own knowledge systems, these cultural burns served spiritual, ecological, and subsistence purposes. Such practices supported biodiversity, enhanced food security, and contributed to the landscape's long-term resilience. [20]

Map 7 highlights natural disturbance regimes that reflect historical fire use and stewardship within Castlegar's eWUI, illustrating that wildfire is not only natural but essential to the health of these landscapes.

Recommendation #26 emphasizes the need to uphold the inherent rights and responsibilities of Indigenous communities in land stewardship. For the City of Castlegar, this involves meaningful collaboration with the Sinixt, Syilx, and Ktunaxa. Indigenous governments and communities must be fully engaged in the planning and implementation of all land management activities, including wildfire risk reduction.

This engagement should prioritize Indigenous-led forest practices such as cultural burning and other forms of vegetation management. Collected from questionnaires for this CWRP, the Okanagan Nation Alliance (ONA) expressed shared interest in treatment areas near the Columbia River and the confluence of the Columbia and Kootenay Rivers—regions historically occupied and managed by the Syilx people. Interviews also underscored the importance of conducting a Cultural Values Survey (CVS) on all Potential Treatment Units (PTUs) adjacent to riparian zones. Additionally, through questionnaires, Dove Hill was identified as a key area for collaboration. The City of Castlegar is encouraged to seek funding to support and work alongside First Nations in treating this area using prescribed and/or cultural fire practices.

[20] Copes-Gerbitz, Kelsey et al. "Transforming fire governance in British Columbia, Canada: an emerging vision for coexisting with fire." *Regional environmental change* vol. 22,2 (2022): 48. doi:10.1007/s10113-022-01895-2

Several large fires have occurred around Castlegar since the 1900s. In the 1960s, a significant human-caused fire scorched approximately 2,777 ha, burning from Gibsons Creek up Sentinel Mountain. Historical records also indicate several small to medium-sized fires in Pass Creek during the 1910s, 1920s, and 1930s, likely attributed to forestry activities and land-clearing practices. Recent fires in Castlegar include a 2015 human-caused fire resulting from a rollover incident in Pass Creek. Most recently the Merry Creek Fire in 2021 was a multi-agency response fire that evacuated parts of the City. BCWS staff note that in 2023, the Pass Creek Volunteer Fire Department worked with BCWS around Goose Creek to extinguish multiple smaller Initial Attack wildfires outside the City. Map 8 goes into more detail showing the exact historic wildfire perimeters, from 1919-2024 around the City.

The majority of reported fire ignitions in Castlegar are unknown, with many of these ignitions occurring along the highway. Lightning ignitions, although less common, can be a concern, particularly on the tops of slopes where fire behavior can be challenging to control. The table below shows a summary of fire ignition history in Castlegar.

Table 14: Summary of fire ignition data by cause within Castlegar's eWUI

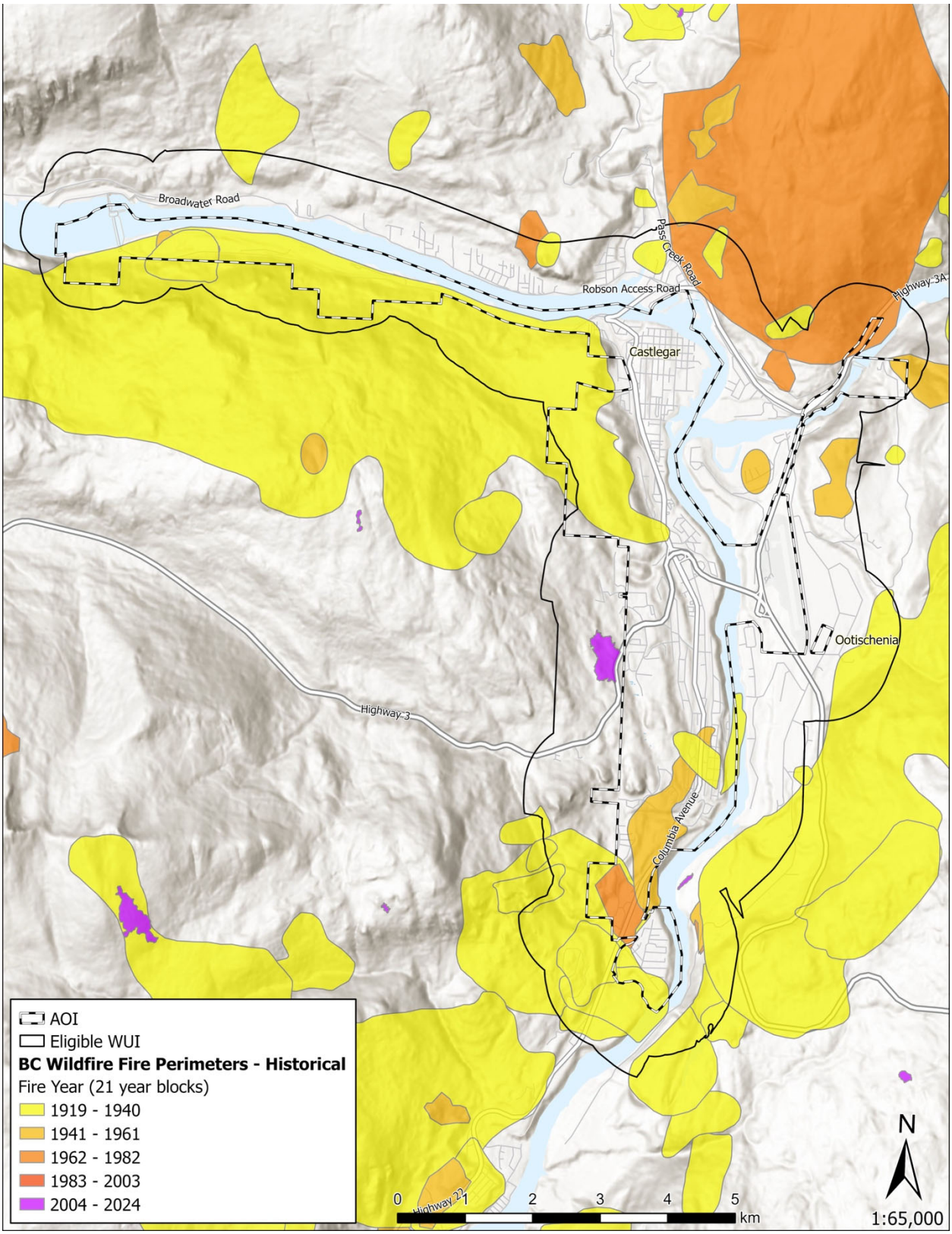
	Fire Cause			
	Lightning	**Person**	**Unknown**	**Total**
Number of Fire Incidents Since 2000	7	18	65	90

Data from the BC Wildfire Service

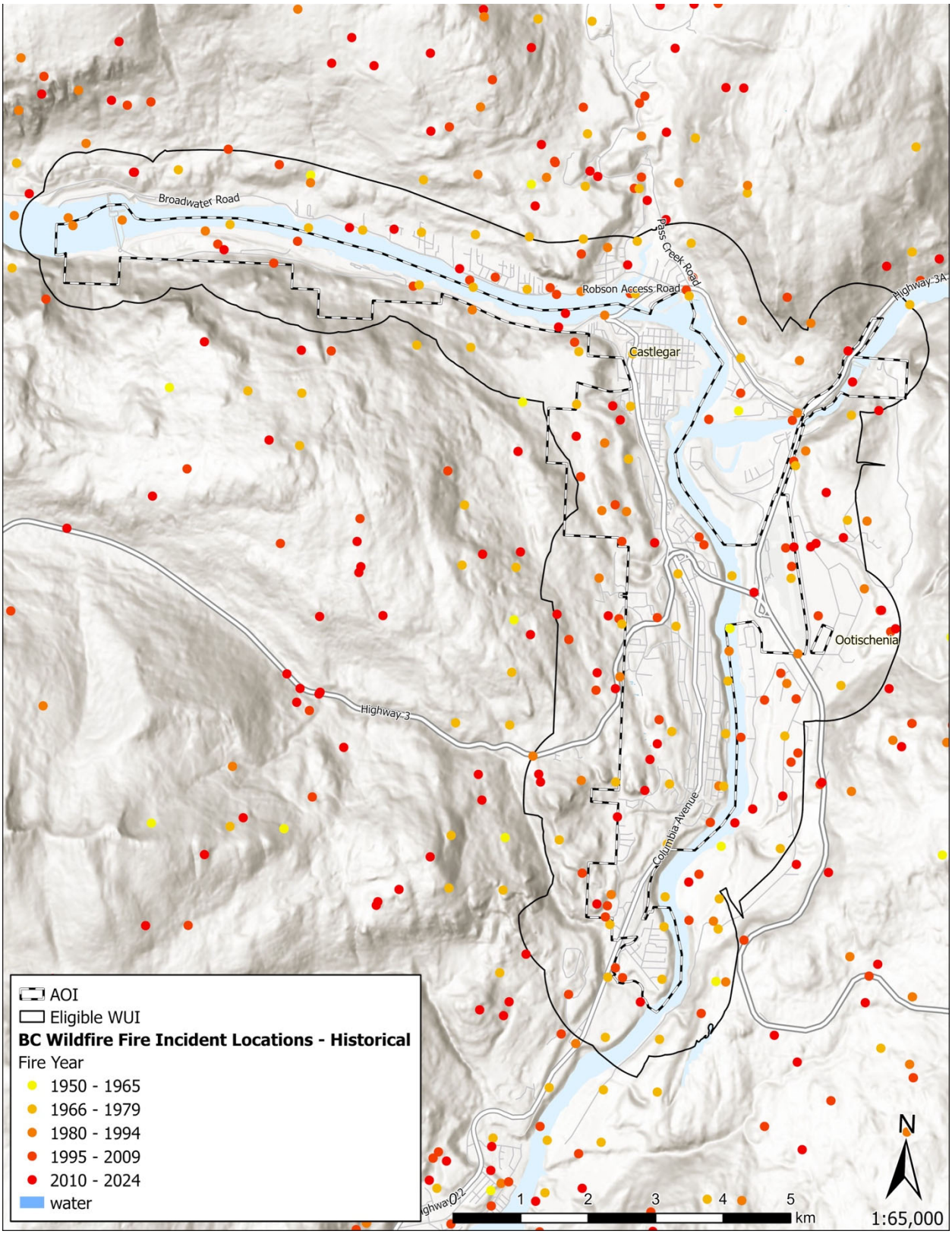
Since 2000, there have been 90 recorded fire incidents within Castlegar's eWUI. Of these, only 7 were attributed to lightning, while 18 were identified as human-caused. The remaining 65 incidents—nearly three-quarters of the total—are categorized as "unknown." This significant proportion of unknown causes points to limitations in current tracking and investigation methods, making it difficult to implement fully targeted prevention strategies.

While human-caused ignitions represent about one-fifth of all incidents, they remain the largest known cause. This underscores the need for continued community education, enforcement of burning regulations, and public awareness campaigns. Although human-caused fires are historically the dominant ignition source, lightning still poses a serious risk, particularly in higher elevations such as slopes and ridges within 5 km of Castlegar's eWUI.

Ultimately, fires from any ignition source can grow and threaten the eWUI under the right fire weather conditions. The data highlights the need for improved fire reporting and investigation practices to reduce the "unknown" category, while also reinforcing the importance of proactive measures to minimize human-caused wildfire risks.



Map 8: Historical fire perimeters for Castlegar's eWUI and surrounding area.



Map 9: Historical fire ignitions and occurrences for Castlegar's eWUI and surrounding area

4.2.1 WILDFIRE RESPONSE

Fire response data for the Castlegar Fire Department shows an average of 83 fire calls per year between 2013 and 2024. While most incidents were structural in nature, wildland fires account for approximately 12% of total call outs, with notable fluctuations year on year. A significant spike in total call volume occurred in 2015, due to an arsonist in the area at the time, followed by another sharp increase in 2023. Provincially, 2023 has been recorded as the worst fire season on record. In Castlegar 119 calls were recorded, including 60 wildland fires—the highest number of wildland responses in the dataset to date.

These trends underscore a growing need for wildfire-specific training, equipment, and public fire education, particularly as wildland fires increasingly contribute to overall fire activity. Recommendation #24 and #25 stress the importance of cross training between City firefighters and BCWS to enhance response in the event of an interface fire. It is important to recognize that wildfires may originate from structural fires that spread to nearby forests and fuels.

All staff and agencies that participate in wildfire response and recovery should be approriately trained. This includes the City's emergency mangement staff and other municipal staff that could play a role in the City's Emergency Operations Centre (EOC), and area fire departments. Training opportunities include:

- Basic Wildland Fire Suppression and Safety
- Incident Command System
- FireSmart 101
- FireSmart Local FireSmart Representative (LFR)
- FireSmart Community Champion
- FireSmart Home Partners Wildfire Mitigation Specialist (WMS)
- Post-Wildfire Reclamation and Recovery
- Post-Wildfire Structure Damage Assessment
- BC Structure Protection Program (WSPP-115)

Regular in-person cross training between agencies is imperative for familiarization with each other's equipment and to address any incompatibilites. The Castlegar Fire Department (CFD) noted that they have participated in BCWS training but there was no mention of regular annual cross training condcuted with BCWS staff. All CFD members are trained in the BCWS certified WFF1 course for structural firefighters. Additional training that a portion of CFD members have, include the SPP-115 sprinkler course, Engine Boss certification, and Task Force Leader cerification. These are all BCWS certified courses. The department hosted an Engine Boss and SPP-115 course in the spring of 2025. The department has wildland specific equipment, but this equipment has not been reviewed by BCWS, as there are no standard requriements for municipal fire departments in BC.

Annual cross-training with BCWS and other relevant agencies is a priority recommendation in order to improve coordination and operational efficiency during WUI events. Recommendation #25 includes

identifying opportunities for prescribed burns, which serve also as educational tools to reinforce best practices in fire management. This ongoing inter-agency collaboration is essential for building strong working relationships and ensuring a unified approach to wildfire response.

4.2.2 SEE FIRE DEPARTMENT TRAINING

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 the City's Emergency Management staff, other municipal staff that could play a role in the City's Emergency Operations Center (EOC), and Castlegar Fire Response Area Fire Departments. Training opportunities include:

- Basic Wildland Fire Suppression and Safety
- Incident Command System
- FireSmart 101
- FireSmart Local FireSmart Representative (LFR)
- FireSmart Community Champion
- FireSmart Home Partners Wildfire Mitigation Specialist (WMS)
- Post-Wildfire Reclamation and Recovery
- Post-Wildfire Structure Damage Assessment
- BC Structure Protection Program (WSPP-115)

Regular in-person cross-training between agencies is imperative for familiarization with each other's equipment and to address any incompatibilities. Castlegar Fire Department noted that they have participated in BCWS training but there was no mention of scheduled annual cross-training conducted with BCWS staff. All Castlegar Fire Department members are trained in the BCWS certified WFF1 course for structural firefighters. Additionally, ten members have their SPP-115 sprinkler course, seven members have their Engine Boss certification, and four members have their Task Force Leader certification. These are all BCWS certified courses. Additionally, the Castlegar Fire Department was host to an Engine Boss Course and the SPP-1115 course in the spring of 2025. The Department has wildland and forestry specific equipment, but this has not been reviewed by BCWS, as there is no standard requirements for municipal equipment.

Annual cross-training with BCWS and other relevant agencies is a priority to improve coordination and operational efficiency during WUI fire events. Recommendation #25 includes identifying opportunities for prescribed burns, which serve not only as valuable cross-training exercises but also as educational tools to reinforce best practices in fire management. This ongoing inter-agency collaboration is essential for building strong working relationships and ensuring a unified approach to wildfire response.

Fire Department Resources for related recommendations .

Table 15: Castlegar Fire Department Callouts – Wildland vs Structural

Year	Wildland	Structural	Total Calls
2013		88	88
2014		76	76
2015		171	171
2016		97	97
2017		70	70
2018		68	68
2019		57	57
2020		76	76
2021	1	91	92
2022		81	81
2023	60	59	119
2024		62	62

Data from the City of Castlegar

4.3 LOCAL WILDFIRE RISK ASSESSMENT

There are two main components of this local wildfire risk assessment:

1. Wildfire behaviour threat class including fuels, weather, and topography sub-components; and
2. WUI risk class that includes the structural sub-component.

The local wildfire threat assessment process includes several key steps as outlined in Appendix B: Local Wildfire Risk Process and summarized as follows:

- *Fuel type attribute assessment* – ground truthing/verification and updating as required to develop a local fuel type map (Appendix B-1: Fuel Typing Methodology).
- *Consideration of the proximity of fuel to the community* – recognizing that fuel closest to the community usually represents the highest hazard (Appendix B-4: Proximity of Fuel to the Community).
- *Analysis of predominant summer fire spread patterns* – using wind speed and wind direction during the peak burning period using ISI Rose(s) from BCWS weather station(s). Wind speed, wind direction, and fine fuel moisture condition influence wildfire trajectory and rate of spread.
- *Consideration of topography in relation to values* (Table *10* and Table *11*) – slope percentage and slope position of the value are considered, where slope percentage influences the fire's trajectory and rate of spread and slope position relates to the ability of a fire to gain momentum uphill.

- *Stratification of the WUI* – according to relative wildfire threat based on the above considerations, other local factors, and field assessment of priority wildfire risk areas.

Wildfire threat assessment field work in Castlegar's WUI was completed in June 2025. Over 100 field stops were made across the eWUI (see Appendix B-2: Wildfire Threat Assessment Plots and Map 6), comprised of qualitative FireSmart notes, fuel type updates, or verification and photograph documentation. This includes 81 WTA Assessment plots (see Appendix C: Wildfire Risk Assessment – Worksheets and Photos). WTA plots were completed in interface areas where there is an abrupt change from forest to residential development and intermix areas where forest and structures are intermingled. This wildfire risk analysis supports the identification of priority treatment areas and was also conducted in completed fuel treatment areas to quantify the reduction in site-level wildfire threat. Constraints such as the limited amount of public land available for assessment within some parts of the eWUI, as well as no roads and no access through private property limited field assessments for some areas.

The local WTA analysis does not apply to private land parcels nor any areas outside of the eWUI for this CWRP. Additionally, the WUI is referenced above for the methodology, but it is the results within the eWUI that were used to write this report. As well, the threat assessments quantify wildfire threat as it relates to forest fuels, but do not include the ignition potential of residential landscaping, structures, or other infrastructure. Structural fires and structure-to-structure spread in a wildfire scenario are largely attributable to hazardous conditions in the 30m FireSmart Home Ignition Zone of a structure.

4.3.1 WILDFIRE THREAT CLASS ANALYSIS

Wildfire threat class analysis classes 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 are of low 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 are shown on Map 10 and summarized in Table 16 below. This threat analysis shows that 27% of accessible crown WUI is represented by High to Extreme wildfire behaviour landscapes. High and Extreme fire wildfire threat areas in Castlegar encompass forested slopes of the southern facing slopes and areas where dense dead stands of pine were observed. Forested slopes with extreme fire threat ratings accounting for 10.4% of public land within the WUI are

characterized by densely stocked second growth stands often with moderate to high surface fuel loading on the forest floor. High wildfire behaviour forests accounting for 16.6% of public land within the WUI are typically more open with a mix of grassy fuels and deciduous shrubs dominating the understory. Both often have a drier south or west aspect component. 48.7% of the landscape within the WUI is classified as a Moderate wildfire behaviour threat, represented by a mosaic of open-grown forests and grasslands, often on lower and gentler slopes and/or with cooler north and east aspects.

Table 16: Wildfire threat summary for Castlegar's WUI

Wildfire Threat Rating			
Threat Class	**Area (ha)**	**Percentage of WUI (%)**	**Percentage of Assessable Public Land (%)**
Extreme	335.7	5.0	10.4
High	535.7	8.0	16.6
Moderate	1,573.8	23.6	48.7
Low	6.1	0.1	0.2
Water	779.4	11.7	24.1
No Data (Private Land)	3,432.6	51.5	-
Sum of total area:	**6,663.2**		
Sum of total Public Land:	**3,230.7**		

4.3.2 WUI RISK CLASS ANALYSIS

WUI risk classes are quantified when the Wildfire Threat summarized in section 4.3.1 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 to 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 to the community and is located 500 m to 2 km distance from structures;
- **High**: The high or extreme threat has potential to directly impact a community or development and is located 200 m to 500 m from structures; and
- **Extreme**: The high or extreme threat has potential to directly impact a community or development and is located within 200 m from structures.

Table 17 below and Map 10 show the risk class ratings within the WUI. Of the 871.4 ha assigned a High or Extreme wildfire threat class, 335.7 ha or 8% have an Extreme WUI risk. This analysis provides an initial step towards identifying priority areas/neighbourhoods for directing FireSmart education and vegetative/fuel management efforts, if practicable.

It is important to note that reducing the wildfire risk through implementation of fuel management activities in any of the High to Extreme eWUI risk areas is unlikely to be a silver bullet in protecting communities and structures. In extreme wildfire scenarios, embers can travel several kilometers ahead of the active wildfire front, land in densities of up to 600/m^2, and ignite combustible building materials and landscaping vegetation.

In combination with wildland fuel management activities, increasing the resilience of Castlegar's neighbourhoods can be best achieved by conducting residential-scale FireSmart activities on private land. The proposed fuel treatment units identified in Table 23 are not a comprehensive list of all areas that qualify for fuel managementactivities. Rather, they are selected as the highest priority areas that are practicable to implement, present a high risk to their respective communities, and meet required funding program goals and requirements as either fuel breaks or fuel treatment areas.

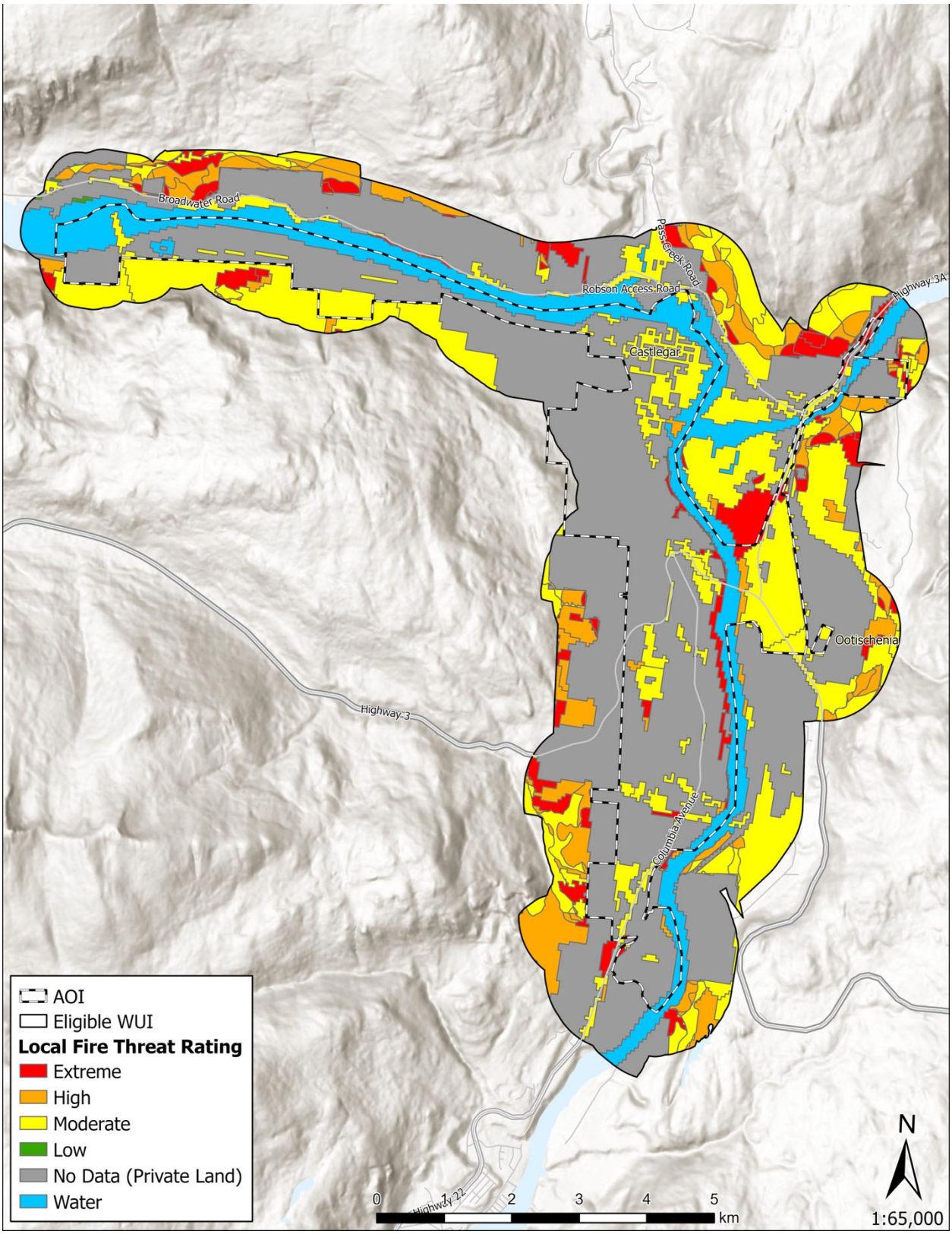
Table 17: WUI Risk Class summary for Castlegar's eWUI

WUI Risk			
Risk Class	**Area (ha)**	**Percentage of Entire WUI (%)**	**Percentage of Assessable Public Land (%)**
Extreme	82	1	2
High	270	4	8
N/A (Moderate, Low, Very Low Wildfire Threat Class)	2,989	45	90
No Data (Private Land)	3,322	50	-
Total:	**6,663**	-	-

The Province of BC produces a Provincial Strategic Threat Analysis (PSTA, updated in 2021) for all non-private land parcels in BC. This high-level assessment of relative wildfire threat throughout the province is largely based on data from the Vegetation Resource Inventory (VRI) that has not been ground truthed, fire occurrence patterns, potential fire intensity, and spotting potential.[21] The PSTA ranks threat on a scale of 1 (lowest) through 10 (extreme). Complementing the local wildfire risk analyses in section 4.3.1, the PSTA is a high-level, geographic information system (GIS) analysis of wildfire threat across the land base. Using this information, appropriate land management activities need to be determined at the local level using site-specific stand-level information.

Additionally, the Province has developed a WUI Risk Class Framework to prioritize risk reduction initiatives, 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. Castlegar's WUI is categorized as Risk Class of 1.

[21] MFLNRORD. (2017). Provincial Strategic Threat Analysis.



Map 10: Local Wildfire Threat Rating within Castlegar's eWUI.

4.4 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.[22]

The most recent HRVA in the City of Castlegar took place in 2009, focusing specifically on stormwater infrastructure and its vulnerability to climate change using Engineers Canada's PIEVC protocol. This study identified that 34 out of 35 infrastructure elements were at medium or high risk due to projected increases in rainfall and other climate impacts. In August 2025, the City received nearly $400,000 through B.C.'s Disaster Resilience and Innovation Funding program to begin a new floodplain mapping and climate change hazard risk assessment. This new assessment is currently underway and aims to provide updated data for future planning and resilience efforts.

[22] Government of BC. HRVA Example Report.

SECTION 5: FIRESMART PRINCIPLES

FireSmart is the leading program in Canada aimed at empowering the public and increasing community wildfire resilience through 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, Vegetation Management, Emergency Planning, Cross-Training, Interagency Cooperation, Legislation and Planning and Development Considerations. These seven disciplines and the guiding principles behind FireSmart can be applied at several spatial scales and are not restricted to any type of land ownership, forest type or property type. Castlegar has an active FireSmart program that is well staffed and funded to complete residential education activities.

Since Castlegar's 2020 CWPP was completed, 17 of 30 of its recommendations have been wholly or partially implemented (Appendix A: Review of 2020 CWPP Recommendations). The recommendations addressed primarily relate to delivering public FireSmart and wildfire education and prescribing and implementing proposed treatment units within municipal boundaries.

During extreme wildfire events, a study in the USA showed that up to 90% of home and structure destruction is from ember ignitition.[23] Embers can be transported long distances ahead of the wildfire, across fire guards and fuel breaks, and accumulate in densities that can exceed 600 embers/m^2. Combustible materials found on and adjacent to homes within the 30 m the FireSmart Home Ignition Zone provide fire pathways allowing spot surface fires ignited by embers to spread and carry flames or smouldering 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 fires.[24] Increasing ignition resistance would reduce the number of homes simultaneously on fire; extreme wildfire conditions do not necessarily result in WUI fire disasters.[25] For this reason the key to reduce eWUI fire structure loss is to reduce structure ignitability. Mitigation responsibility must be centered on the public, including homeowners and renters. Risk communication, education on the range of available activities, and prioritization of activities should help homeowners and renters to feel empowered to complete important and relatively easy risk reduction activities on their property.

[23] https://firesmartbc.ca/why-we-focus-on-embers/

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

[25] 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/.

5.1 COMMUNITY OVERVIEW

During the CWRP development, FireSmart risk and resiliency factors for different general areas or specific neighbourhoods throughout Castlegar were noted, see Table 18. This incorporates field observations, the local risk assessment. and information from local government meetings and consultation including the previous Wildfire Mitigation Specialists of the City.

Table 18: FireSmart Vulnerability by Neighbourhood, Identified by Castlegar Fire Department.

Neighbourhood/Community	Vulnerability Type
Oglow Subdivision	Interface Wildfire Potential
Arrow Lakes Drive	Interface Wildfire Potential
Fairview	Interface Wildfire Potential
Blueberry	Interface Wildfire Potential Single Access Neighbourhood
Southridge Drive	Interface Wildfire Potential
Crestview Crescent	Interface Wildfire Potential
Grosvenor Place	Interface Wildfire Potential
Kinnaird Bench (area in the south-end)	Interface Wildfire Potential
Woodland Park	Single Access Neighbourhood
Dumont Street	Single Access Neighbourhood
Toba Road	Single Access Neighbourhood
Twin Rivers Phase 2 Thompson Ave.	Single Access Neighbourhood
Cone Hill Park Area	Single Access Neighbourhood

The sections to follow provide information on each FireSmart discipline. An analysis of actions that have been implemented are noted, as well as gaps identified. Each section discusses recommended actions for the City of Castlegar to pursue. Most actions are fundable through the CRI FireSmart Community Funding and Supports program.

To date, the City of Castlegar has completed several home assessments, rebates, and has several FireSmart Recognized Communities. Previously these home assessments were done by the RDCK, but the City Fire Department has been conducting them since 2024. Questionnaires from the City suggest that the community is supportive of FireSmart Programming, averaging 40 annual requests for rebates and/or home assessments. The City currently has three Wildfire Mitigation Specialists that do home assessments. There are currently four FireSmart recognized neighbourhoods in Castlegar.

In 2024, the City included new FireSmart landscaping requirements within its Community Plan, which has been in place for just over a year to date.

Table 19: FireSmart Assessments Conducted to Date in Castlegar

FireSmart Assessment Type	2018	2019	2020	2021	2022	2023	2024	2025
Assessments	15	16	20	22	26	40	35	13
Rebates	-	-	-	4	7	11	15	TBD
Neighbourhood Recognition Program	-	-	-	1	3	3	4	4

5.2 EDUCATION

Castlegar has been actively engaged in the FireSmart education program since 2022. Castlegar contracted FireSmart programming under the RDCK from 2022-2024. As of 2025, the City has taken an independent lead on the FireSmart Program. As a result, FireSmart education efforts are relatively new to the City. The Fire Department has indicated that uptake in home assessments has been good and expects the program to continue to grow in the coming years as community awareness grows and as insurance companies incorporate the completion of FireSmart activitities into their home insurance policies. Other FireSmart education activities that have been completed or that are ongoing include:

- Distribution of FireSmart educational materials to residents at issuance of a Building Permit;
- FireSmart information days at schools,
- Annual social media campaign with FireSmart information, raising awareness of individual responsibility to prevent ignitions, fire danger ratings and the enforcement of fire bans,
- Community FireSmart workshops and presentations, and
- Creation of FireSmart signage at completed community fuel treatments.

To advance wildfire resiliency and community safety, the City of Castlegar can take a series of strategic actions rooted in Recommendations. #1-11. First and foremost, the City should prioritize hiring a dedicated FireSmart Coordinator and secure consistent funding to ensure this position is filled on a full time basis. This role is essential for overseeing the implementation of FireSmart initiatives, coordinating with neighbourhood committees, and acting as a liaison between municipal departments and provincial programs. The City should also actively support neighbourhood-level engagement by promoting the establishment of FireSmart Neighbourhood Recognition groups, particularly in high-priority areas such as Oglow Subdivision, Arrow Lakes Drive, Kinnaird, and Fairview. These groups should be encouraged to apply for FireSmart Neighbourhood Recognition and access funding for local mitigation efforts.

In addition Castlegar should continue investing in education and outreach. Hosting an annual FireSmart event that brings together residents, City staff, and fire officials to showcase FireSmart disciplines has been shown to strengthen community awareness and increase buy-in. Distributing educational materials—such as FireSmart brochures, lists of fire-resistant plant species, and wildfire prevention resources—should remain a consistent part of the City's communication strategy, with special attention

toward new builds in high-risk interface zones. Expanding wildfire education through partnerships with local schools and Selkirk College will ensure that the next generation is well-informed and prepared. Furthermore, integrating resources from the FireSmart BC Library Program into community hubs and outreach programs will help maintain a visible and accessible presence for wildfire awareness efforts.

Lastly, the City can improve regional coordination and public engagement by working with provincial partners like the Ministry of Transportation and Transit and BC Parks to install wildfire signage in high-traffic areas and recreation zones. A strong, visible presence—bolstered by a well-managed social media campaign during fire season—can reinforce public responsibility and compliance with fire bans. Together, these efforts represent a comprehensive, community-driven approach to wildfire resilience that will protect Castlegar's people, homes, and natural assets into the future.

As soon as the FireSmart Program Coordinator is appointed, they should meet with the RDCK Wildfire Mitigation Specialists for Areas I and J who have significant familiarity with Castlegar to familiarize themselves with the history of FireSmart Activities in Castlegar. As all of these positions have been created within the last five years, there are likely many initial lessons learned that could be shared. RDCK Wildfire Mitigation Specialists and the FireSmart Program Coordinator for Castlegar should plan to meet regularly to review and share lessons, future successes, and failures so that the region is working together toward a more wildfire resilient future. Additionally, as FireSmart Neighbourhood Champions, part of the FireSmart Canada Neighbourhood Recognition Program, are identified they can be included in these meetings so that FireSmart information and programming opportunities are taken back into each community.

5.3 VEGETATION MANAGEMENT

As discussed in Section 4.1.2, 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 the 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 be accomplished through two different activities:

1. **Residential-scale 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. See Figure 7 below.

Figure 7: FireSmart Home Ignition Zone

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.

Fuel Management Units

Fuel management treatments may function as fire breaks which are linear features, at least 1 km in length, or fuel treatments for discrete areas. The intent of establishing fuel treatments is to modify fire behaviour and should be designed to keep surface fires on the ground to reduce the likelihood of more dangerous and uncontrollable crown fires. Fuel treatments can also provide anchor points to wildand fire-fighting crews for suppression activities,[26]. 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. To retain their effectiveness, fuel treatments require periodic maintenance including brushing, prescribed burning and surface fuel cleanup.

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

Implementing fuel management treatments often requires the collaboration of various land managers as these treatment areas can span across different jurisdictions. Often, this is required for the fuel treatment to effectively connect areas of low hazard, or to be a cohesively effective area. A significant amount of public land within Castlegar's eWUI is Crown provincial land under forest licenses. Fuel management projects on municipal land are funded and administered through the CRI FCFS program. Those on Crown provincial land are funded and administered through the BCWS Crown Land Wildfire Risk Reduction (CLWRR) Program. Castlegar will need to ensure good planning and collaboration with the Selkirk Resource District CLWRR team, forest tenure holders, adjacent local government, community groups, and BCWS to achieve higher quality, more effective, and more efficient fuel treatments. See Reccomendation # 13 and 17.

Potential Treatment Units (PTUs) proposed as part of this Plan are discussed and described in Table 23.

Priority levels for prescription development and treatment of each PTU is based upon a combination of site-level risks and factors that include wildfire behaviour threat, strategic location, proximity to structures and critical infrastructure, location relative to dominant fire-season wind directions and overall practicability of treatment implementation. The PTUs identified in this Plan are not a comprehensive list of all areas that qualify for management. Rather, they are selected as the highest priority areas that are practicable to implement, present a high risk to their respective communities or a strategic opportunity, and meet required funding program goals and requirements as either fuel breaks or fuel treatment areas. Overall, increasing the resilience of Castlegar's WUI communities can only be efficiently achieved by performing residential-scale FireSmart activities on private land.

Residential-Scale FireSmart Landscaping

Several smaller, community centrally-located PTUs are proposed within this CWRP with the additional intention of providing residents with FireSmart vegetation management demonstration projects – showing them what can be done on their properties to reduce similar wildfire risks. In addition to the lack of funding, a barrier to implementing FireSmart vegetation management on private property is if there is no easy disposal process for the created vegetative debris. Table 20 lists local landfills that take yard waste. RDCK managed landfills within and adjacent to Castlegar and Grohman Narrows accept yard and garden waste for payment, but during the months of May and October there is no charge. There are free and green waste days at the Ootischenia Landfill. Despite these free months, many residents will likely rely on at-home burn piles for garden and yard waste. This means that education around the risks associated with this practice, and how to properly manage them, should be built into Castlegar's FireSmart education program.

Table 20: Landfill Free Months Around Castlegar

Landfill Locations	Free Months	Paid Options (Outside Free Months)
Ootischenia Landfill (Castlegar)	May and October	~$6/ pickup truck load; weight-based general fees apply

Landfill Locations	Free Months	Paid Options (Outside Free Months)
RDCK Transfer Stations (yard & garden waste)	May and October	Standard tipping fees apply (variable by site/load)
RDCK Organics Diversion (yard + food)	All year (fee-based)	$2.75/ container (up to 3–4); $10.60 minimum for more; $106.50/tonne if > 100 kg; truck loads require notice

Other Residential-scale FireSmart Activities that Castlegar should continue to apply through CRI FCFS and implement include:

- **FireSmart Canada Neighbourhood Recognition Program**
  The FireSmart Canada Neighbourhood Recognition Program is a unique approach to collaboratively reduce a neighbourhood's risk to wildfire through education and events. It is run provincially through FireSmart BC and facilitated locally by both the City and the RDCK. It is a grassroots, volunteer run program that is assisted by trained Wildfire Mitigation Specialists. It is a small-scale approach for neighbourhoods consisting of 5-50 homes, with the intent to implement achievable FireSmart goals. Mitigation projects can be small and simple, or complex and extensive, ranging from individual owners doing around home clean-ups, to community hand treatments on common and private land near critical infrastructure. Castlegar has recruited and guided communities into this program and should continue to do so. Communities within Castlegar that have been recognized through this program include Stellar Place, Sandalwood Court, and Lindmar Estates (2021-2022).[27]

- **FireSmart Rebate Program**
  To aid in residential-scale vegetation management and structure improvements, this program allows for residents that have had a completed FireSmart assessment to receive a rebate based on the amount spent on work completed to lower risk identified in their assessment. Starting with the 2024 CRI FCFS program, the eligible amount of rebate per property is now $5,000. In 2024 alone, $75,000 worth of rebates were distributed in Castlegar.

Recommendations #12-19 focus on enhancing wildfire prevention and fuel management strategies within the City of Castlegar and its surrounding areas. Key actions include securing funding to develop fuel management for high-priority PTUs and collaborating with regional stakeholders such as the RDCK, MOF, and utility providers to prioritize treatment of adjacent Crown lands and create defensible spaces, especially around critical infrastructure like substations and the Lucas Road Water System. These efforts

[27] https://castlegar.ca/2022/09/07/two-castlegar-neighbourhoods-receive-national-firesmart-recognition/

aim to reduce wildfire risk through targeted fuel treatment prescriptions and improved inter-agency cooperation.

Community involvement and ongoing maintenance also play a critical role. The City is encouraged to host an annual spring chipping event to help residents manage vegetation on private property and to maintain regular mowing of road edges during the summer. Additionally, there are opportunities to explore prescribed or cultural burns within city limits, fostering multi-agency collaboration and training. Regular assessments of utility corridors for fire hazards are recommended to ensure consistent mitigation. Many of these actions build on previous wildfire protection planning efforts, highlighting a commitment to continuity and long-term resilience.

5.4 EMERGENCY PLANNING

Local government and community preparations for a wildfire emergency are very important. Plans, mutual aid agreements, resources, training, and emergency communications systems make for effective wildfire response. Castlegar's Emergency Management Program conducts tabletop exercises yearly with staff, and responds to emergencies involving evacuations almost yearly.

Recommendations #20-23 focus on enhancing the City of Castlegar's preparedness and response capabilities in the event of a wildfire or other major disaster, with a strong emphasis on evacuation planning. One of the key actions is to update the City's Evacuation Plan to explicitly account for wildfire scenarios (Recommendation #20), addressing a gap identified in previous assessments. This update should incorporate lessons from past events, such as the 2021 Merry Creek Fire, by reviewing and integrating findings from relevant reports like "Merry Creek Wildfire – Lessons Learned". See Recommendation #22.

In a wildfire emergency that requires evacuation, Castlegar has limited access and egress routes depending on where the ignition occurs. On the City's website there is an Evacuation Preparedness Document and guidebook. The Castlegar Emergency Preparedness Guidebook should include evacuation route plans for the community so that community members are aware of their designated egress routes as well for city planning purposes. This document should be attached to Castlegar's Emergency Response Plan (ERP) and encouragement of the identification and maintenance of public access points for the city is recommended in the event of forest fire, spills, slides, and other disasters.

Clear, consistent and timely communication during an emergency event and evacuation are integral to the prevention of loss of life and property. Castlegar has upgraded to a new notification system for emergency alerts and water advisories powered by "Castlegar's Voyant 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. Castlegar should promote this notification to residents as much as possible.

Much of Castlegar's eWUI is only accessible by roads through private property. This is a significant constraint to wildfire first responders as those road conditions are largely unknown. This constraint should also be recognized in Castlegar's Emergency Response Plan by encouraging that private roads that access forest lands be of adequate design to allow for the safe movement of emergency and fire-fighting equipment. Access by emergency responders to the eWUI is important for defending communities from eWUI fire events as well as aiding in fuel treatment implementation.

Additionally, during field assessments and in meeting with local government and first responders it was noted that there is a pervasive lack of visible, reflective addresses for properties within Castlegar. Addresses are one of the most common forms of providing first responders directions of where to respond to. This issue should be addressed in the City's Street Naming and Addressing Bylaw and marketed made to the public with examples and options of proper signage.

A coordinated regional approach is emphasized, with a recommendation for the City's Emergency Program Coordinator to collaborate closely with the RDCK on a unified evacuation strategy (Recommendation #21). This includes ensuring effective, rapid communication with the public during emergencies. Furthermore, the development of an early evacuation notification system is recommended, particularly one that includes protocols for heavy industry to safely manage shutdown procedures (Recommendation #23). Collectively, these recommendations aim to strengthen local emergency planning through improved coordination, communication, and integration of past experiences.

5.4.1 PRE-INCIDENT PLAN

A pre-incident plan is a compilation of essential fire management information needed to save time during fire suppression operations. During a busy wildfire season, Provincial resources are often stretched thin, and any information that local governments can provide to BCWS crews is helpful. A pre-incident plan could be developed and tested using tabletop simulations, and if necessary, revised prior to every fire season. BCWS should be involved in this process to ensure that any mapping done as part of the pre-incident plan or Fire Management Planning process is not unnecessarily duplicated.

Figure 8. A pre-incident planning checklist that can be used to help develop a pre-incident wildfire suppression plan and maps.

Castlegar could also consider developing local daily action guidelines based on expected wildfire conditions. Table 21 below provides a template that can be tailored specifically to the Castlegar, outlining actions staff can take as fire danger levels change throughout the fire season.

Table 21: Example of a Wildfire Response Preparedness Condition Guide

FIRE DANGER LEVEL	ACTION GUIDELINES
LOW	• All City staff on normal shifts.
MODERATE	• All City staff on normal shifts. • Information gathering and dissemination through Castlegar's CFRC.
HIGH	• All City staff on normal shifts. • Regional fire situation evaluated. • Daily fire behavior advisory issued. • Wildland fire-trained City/District staff and EOC staff notified of Fire Danger Level. • Establish weekly communications with CFRC.
EXTREME	• Daily fire behavior advisory issued. • Regional fire situation evaluated. • EOC staff considered for stand-by. • Wildfire Incident Command Team members considered for stand-by/extended shifts. • Designated City/District staff: water tender and heavy machinery operators, arborists may be considered for stand-by/extended shifts. • Consider initiating Natural Area closures to align with regional situation. • Provide regular updates to media / City/District staff on fire situation. • Update public websites and RDCK social media as new information changes.
FIRE(S) ONGOING	• All conditions apply as for 'Extreme' (regardless of actual fire danger rating). • Mobilize EOC support if evacuation is possible, or fire event requires additional support. • Mobilize Wildfire Incident Command Team under the direction of the EOC/Fire Chiefs. • Implement Evacuation Alerts and Orders based on fire behavior prediction and under the direction of the EOC/Fire Chief.

This table is an example taken from FireSmart Community Funding and Supports 2025 CWRP Supplemental Instruction Guide.

Emergency planning also includes the recovery from an emergency. As discussed in Section 3.3.1, having secondary power sources for critical infrastructure is important to reduce community vulnerability in the event of an emergency that cuts power for days, or even weeks.

Table 22: List of Critical Infrastructure with Known Secondary Power Sources

Critical Infrastructure	Secondary Power Source
Castlegar Fire Department – Main Hall	Natural Gas
Meadowlark Pump House	Diesel
Park Pump House	Diesel

Critical Infrastructure	Secondary Power Source
City of Castlegar South Wastewater Treatment Plant	Diesel
Arrow Lakes Pump House	2 Electrical Power Sources
West Kootenay Regional Airport	Diesel
Castlegar and District Community Health Centre	Diesel
All Sewage List Stations	Diesel

5.5 CROSS-TRAINING

5.5.1 FIRE DEPARTMENT TRAINING

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 the City's Emergency Management staff, other municipal staff that could play a role in the City's Emergency Operations Center (EOC), and Castlegar Fire Response Area Fire Departments. Training opportunities include:

- Basic Wildland Fire Suppression and Safety
- Incident Command System
- FireSmart 101
- FireSmart Local FireSmart Representative (LFR)
- FireSmart Community Champion
- FireSmart Home Partners Wildfire Mitigation Specialist (WMS)
- Post-Wildfire Reclamation and Recovery
- Post-Wildfire Structure Damage Assessment
- BC Structure Protection Program (WSPP-115)

Regular in-person cross-training between agencies is imperative for familiarization with each other's equipment and to address any incompatibilities. Castlegar Fire Department noted that they have participated in BCWS training but there was no mention of scheduled annual cross-training conducted with BCWS staff. All Castlegar Fire Department members are trained in the BCWS certified WFF1 course for structural firefighters. Additionally, ten members have their SPP-115 sprinkler course, seven members have their Engine Boss certification, and four members have their Task Force Leader certification. These are all BCWS certified courses. Additionally, the Castlegar Fire Department was host to an Engine Boss Course and the SPP-1115 course in the spring of 2025. The Department has wildland and forestry specific equipment, but this has not been reviewed by BCWS, as there is no standard requirements for municipal equipment.

Annual cross-training with BCWS and other relevant agencies is a priority to improve coordination and operational efficiency during WUI fire events. Recommendation #25 includes identifying opportunities for prescribed burns, which serve not only as valuable cross-training exercises but also as educational tools to reinforce best practices in fire management. This ongoing inter-agency collaboration is essential for building strong working relationships and ensuring a unified approach to wildfire response.

5.5.2 FIRE DEPARTMENT RESOURCES

Recommendation #24 states the importance of the Castlegar Fire Department maintaining a high level of wildland-specific training and equipment. From interviews with the Acting Fire Chief, it was noted that the following equipment is presently available at the Castlegar Fire Hall:

- Engine 2 1050 IGPM, structural Type 1 Engine
- Engine 1 1050 IGPM, structural Type 1 Engine
- Ladder 1 1750 IGPM, structural Type 1 Engine
- Rescue 1 1250 IGPM, structural Type 3 Engine
- UTV Can am Defender Max with a wildland skid unit. 70-gallon tank
- 2023 Ford F350 with wildland skid unit 160-gallon tank Type 7 Engine
- 2014 Dodge 1500 Command Vehicle
- 2020 Ford Interceptor Explorer Command Vehicle

Additionally, this is the wildfire specific equipment available to municipal firefighters:

- Two portable pumps
- 5 5-gallon water packs
- 2500 feet of 1 ½ forestry hose QC. 25 hoses
- 1000 feet of 19mm Econoline forestry hose. 20 hoses.
- 35 FR Coveralls
- 35 wildland helmets and gloves

Water is the most important resource for fighting wildland and structure fires. Detailed in Section 3.3.2, Castlegar has a well-equipped fire hydrant system usable by the fire department, apart from Lucas Road. Natural water sources are a valuable source of water that can be used for wildfire fighting, especially during summer drought conditions. The Kootenay River has water available year-round but drafting from the river can be tricky.

The entire water supply for the City of Castlegar is on Mercer Celgar property. This water pump is among the most important critical infrastructure for the City. The City of Castlegar is currently investigating a secondary source, but this is still underway. In the interim, high priority must be given to cross

collaboration between the City of Castlegar and Mercer Celgar to ensure that ERPs are shared and up to date. Recommendation #29 and 33 address this.

Valuable training through experience can be acquired from being deployed to wildfires. Castlegar Fire Department has responded to some local wildfires with BCWS in the past and effort should continue toward building capacity a to support cross jurisdiction response in the future.

5.6 INTERAGENCY COOPERATION

The formation of a quarterly FireSmart Committee (Recommendation #27) aims to ensure regional representation and context-specific planning, while improved coordination with utility providers (Recommendation #28) is vital for ongoing maintenance and risk assessments of infrastructure. Continued mutual aid agreements and expanded joint training opportunities (Recommendation #29) are also encouraged to enhance wildfire response capacity across jurisdictional boundaries. Together, these steps support a more resilient and integrated approach to wildfire risk reduction in the region.

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. Cooperation and communication are especially critical for Castlegar as there are multiple jurisdictions side-by-side including RDCK Electoral Areas I and J, as well as multiple land managers including BC Timber Sales, Mercer Celgar, Interfor, Kalesnikoff and Columbia Power Corporation, among others. Landscape-level fire resilience can best be achieved through planning for resilience across jurisdictional boundaries. Engagement can be formal or informal and can take place through existing communication channels or stand-alone committees.

The City of Castlegar hosts a Community FireSmart Resiliency Committee (CFRC) which meets quarterly to coordinate cross-jurisdictional FireSmart and fuel mitigation planning within Castlegar and surrounding RDCK electoral areas (see Appendix E: Community FireSmart Resiliency Committee). A suggestion would be for the Castlegar Fire Chiefs to meet with all mutual aid agreement staff to discuss the CWRP and relevant agreements. This would be inclusive of existing mutual aid agreements that Castlegar has with BCWS and the RDCK Fire Service.

When planning and implementing forest harvesting and fuel management treatments in the community and in adjacent forest tenures, a high-level tracking and communication of fuel treatments needs to occur. Land managers should work with adjacent or overlapping jurisdictions to identify fuel breaks. The CFRC is a great venue to accomplish this in Castlegar.

As discussed in Section 3.3.1, transmission lines can provide excellent fuel breaks and access for first responders in the event of a wildfire – if the vegetation in them is regularly managed and kept in a low-hazard state. They can also be the source of fire ignitions – trees and other vegetation encroaching onto power lines can be ignition sources. Highways and rail lines can also provide excellent fuel breaks if the vegetation in them is regularly managed and kept in a low-hazard state. If not, they can act as wicks

moving fire along them, or ignition sources for fires from burning cars, cigarette butts, sparks, and other means. Additionally, highways are a main access/egress route during an emergency – these routes should be kept at as low a state of risk as possible.

Recommendations #26-29 underscore the importance of fostering collaboration and coordination in managing wildfire risks across the City of Castlegar and its surrounding areas. A central element of this approach is the active engagement of Indigenous communities (Recommendation #26), ensuring that their rights and stewardship responsibilities are integral to the process. This collaborative effort extends to supporting Indigenous-led Forest practices, such as cultural burning and vegetation management, which play a vital role in sustainable wildfire mitigation and broader community resilience.

5.7 LEGISLATION AND PLANNING

Legislation and planning regulation are effective tools to reduce wildfire risk. FireSmart activities on private land, close to residences are among the the most effective strategies towards homes and structures surviving a wildfire event. Two of the most common types of legislation and planning to address wildfire risk is through Wildfire Hazard Development Permit Areas (DPAs) and Open Burning Bylaws.

Section 2.2 outlines the local plans and bylaws currently in place to support wildfire resilience in Castlegar. The City's Community Plan Bylaw 1427 (2024) integrates FireSmart development policies at the heart of all future building guidelines in the city. While there is no DPA specifically for wildfire, the OCP emphasizes wildfire risk reduction as a central element. DPAs are intended to ensure new developments align with the policies set forth in the OCP, including adherence to Provincial and National FireSmart standards.

Recommendations #30-31 emphasize the importance of ongoing wildfire risk management and local government responsibility in fire regulation. Recommendation #30 highlights the need for the CWRP to be treated as a dynamic, living document. It should be reviewed and amended as needed, with a formal update every five years. This ensures the plan remains current and responsive to evolving wildfire risks, carrying forward the approach from the 2020 Community Wildfire Protection Plan.

Recommendation #31 focuses on the development or amendment of local bylaws to regulate aspects of open fire that fall under the jurisdiction of local governments, as outlined in the *Wildfire Act*. This step aims to strengthen local authority and legal clarity in managing fire risks, supporting broader wildfire prevention and community safety efforts.

5.8 DEVELOPMENT CONSIDERATIONS

New developments within Castlegar should be designed to minimize wildfire hazard and contribute to the fire safety of the neighbourhood, thus limiting property damage should a wildfire occur. DPAs can incorporate a variety of FireSmart construction and landscaping principles to achieve the level of risk reduction acceptable by the community and local government. However, three key principles have been proven to provide the greatest risk reduction and should be seriously considered[28] :

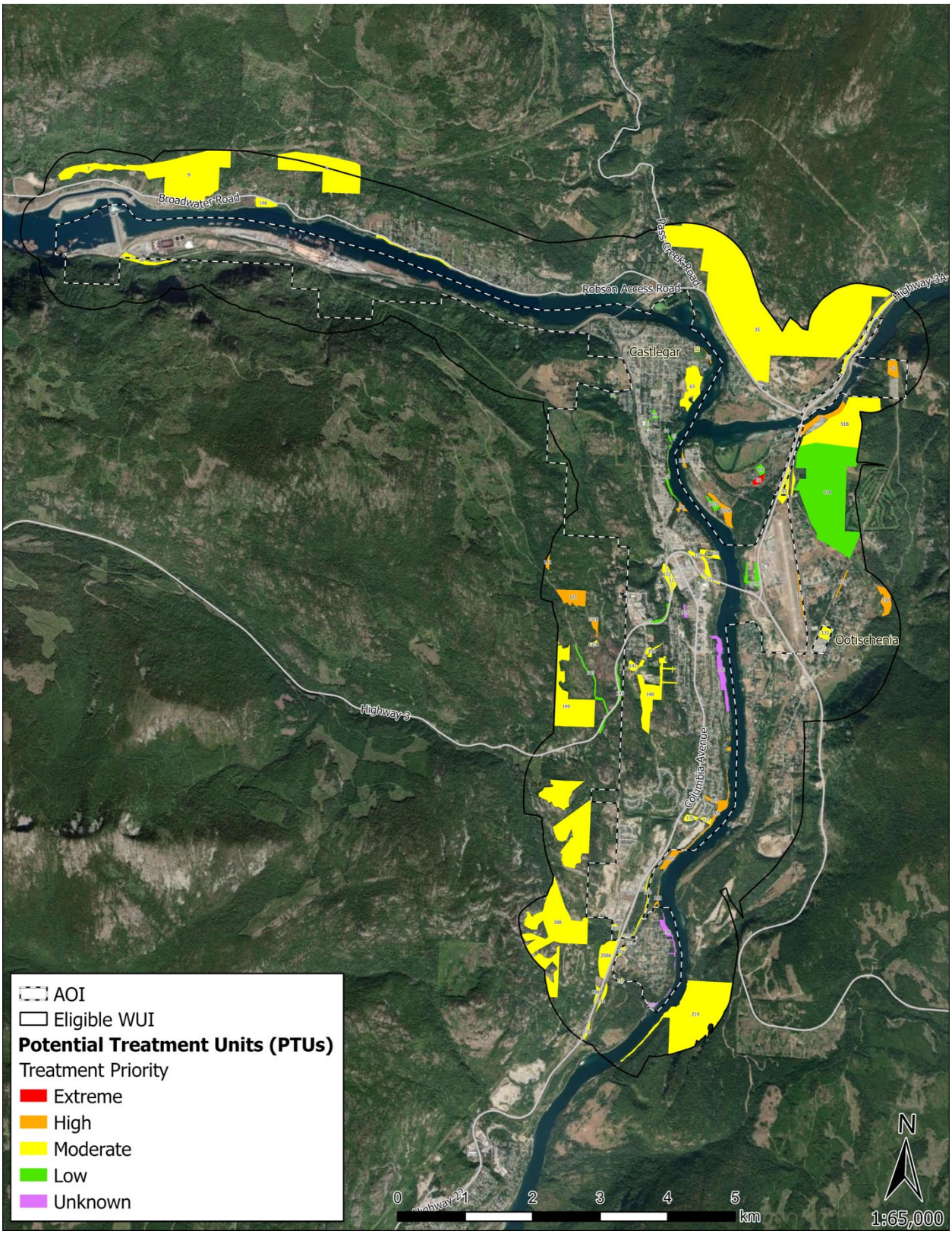
- Creating a 1.5 metre non-combustible zone (inclusive of vegetation considerations) surrounding the structure.
- Installing fire-resistant roofing.
- Installing fire-resistant structure siding.

Water is the most important resource for fighting wildland and structure fires. As such, policies regarding regular access points for fire trucks to known water sources along the Columbia and sections of the Kootenay River (by the Brilliant Dam) should be identified and included in Castlegar's OCP. Recommendations #32-33 emphasize the importance of maintaining and enhancing water infrastructure to support wildfire resilience in high-risk areas. Recommendation #32 calls for the continued requirement that all new fire hydrant systems in developing areas be designed to support adjacent high-risk wildland-urban interface zones. This ensures that firefighting capabilities are not limited by inadequate infrastructure as new developments emerge.

Part of development considerations is ensuring that all critical infrastructure (described in Section 3.3) is constructed or brought up to a high FireSmart standard. Performing FireSmart Critical Infrastructure Assessments on those infrastructures that have not been assessed will identify which are most at risk to wildfire, and what mitigation activities should be performed to reduce those risks. Additionally, including a policy in the OCP stating that all municipal structures are built, landscaped and maintained to FireSmart standards ensures these structures are wildfire resilient and provides an example of FireSmart construction and landscaping to the public.

Recommendation #33 highlights the need for ongoing collaboration between the City and Mercer Celgar to secure water availability during wildfire events. This includes analyzing current and future water supply needs for firefighting, as well as ensuring that critical water systems can function effectively during power outages. These measures are vital for safeguarding both industrial and residential areas from wildfire threats.

[28] As noted in FireSmart™ BC's recently published "An examination of the Lytton, BC wildland-urban fire destruction" document and additionally detailed and discussed in the National Research Council's "National Guide for Wildland-Urban Interface Fires".



Map 11: Overview map of proposed Potential Fuel Treatment Units within Castlegar's eWUI.

Table 23: Summary of Proposed Fuel Treatment Units for Castlegar's CWRP.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
92	Brilliant	Extreme	1.5	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Agency	no	Composed densely stocked C3 pine leading stands with moderate surface fuel loading. Treatment should target the removal of understory stems, surface fuel reduction and pruning of overstory retained trees. Manual thin is recommended. Residences and private land are present to the east of the unit. Treat to reduce wildfire threat within the eWUI adjacent to private property.
53	Thrums	High	3.7	Water License Linear Feature, Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Provincial	yes	A C3 dominated fuel type with mature overstory and dense ladder fuels which integrate into the overstory canopy. A commercial thin treatment regime may be considered, removing smaller diameter stems, however the unit has high recreation values, but it is small in size and therefore a manual thin treatment may be better suited. This PTU ties into a recreation trail to the west and to previous treatments. Utility infrastructure is present to the south and east of the PTU.
54	Brilliant	High	0.4	Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial, Untitled Provincial	yes	Coniferous leading stand with a C3 fuel type dominated by lodgepole pine. Significant fuel loading from dead and downed trees should be targeted for manual, hand thinning. This area is steep with minimal access points for treatment. Treatment plans should identify all viable access to ensure safe work activities working about the Columbia River.
77	Brilliant	High	6.2	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Provincial	straddles	A C3 to C7 fuel type with Pl and Fd leading tree species. Forest health considerations and dense immature conifer ingress elevate the wildfire threat within this PTU. Treatment should target the removal of immature understory conifers to reduce ladder fuels, surface fuel disposal through pile burning and pruning of retained overstory trees. The TransCanada Trail travels through the PTU. Treatment will protect the highway corridor as an access/egress feature, as well as protect Brilliant Dam and Suspension Bridge.
98	Brilliant	High	1.1	Streams, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	yes	A C4 leading fuel type with dense immature Pl and Fd ladder fuels. A manual thin treatment regime targeting dense understory and surface fuel removal is recommended. Municipal water treatment facility infrastructure exists, and private homes are within 50 m of the PTU. This unit has high potential to exhibit FireSmart techniques.
111	Castlegar	High	1.1	Streams, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial, Castlegar Tactical Plan FTU	no	A coniferous, pine leading stand with low to moderate surface fuel loading throughout. Treatment should largely target the removal of dead and dying Pl understory, and prune retained overstory. Ample road access exists throughout the unit. All healthy Pw should be retained. Homes and private land exist to the east, and the West Kootenay Regional Airport is located to the west.
113	Ootischenia	High	1.9	Ungulate Winter Range, Scenic Areas, Crown Agency	yes	Fuel treatment should prioritize removal of understory and immature Hw and Cw as well as pile and burn surface fuels. Access to the unit is via Merry Creek FSR.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
114	Ootischenia	High	0.9	Water License Linear Feature, Ungulate Winter Range, Crown Tenures, Scenic Areas	no	A coniferous, Pl leading stand with low to moderate surface fuel loading throughout. Fuel types are largely C3 in Pl leading areas intermixed with O-1a/b with herbaceous shrub, moss and herb vegetation. Treatment should target understory removal, pruning of retained trees, and surface fuel reduction.
121	Castlegar	High	8.3	Water License Linear Feature, Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Castlegar Tactical Plan FTU, Kalesnikoff Planned Blocks	no	Identified within the 2022 Castlegar Tactical Plan within C-FTU-02, this area has been identified by Kalesnikoff Lumber for proposed harvest activities to support WRR objectives. Any treatment planning in this unit should be conducted in collaboration with Selkirk Natural Resource District staff and Kalesnikoff Lumber.
136	Ootischenia	High	5.2	Streams, Water License Linear Feature, Ungulate Winter Range, Crown Tenures, OGMA - Non-Legal, Scenic Areas, Crown Provincial, Crown Agency, WRR Planned Units	no	This PTU ties into existing walking trail to the south and the east along a well-defined slope break and adjacent creek draw. Ample road access for manual thin crews or mechanical harvesting equipment. Potential for merchantable volume to be removed, removing Pl up to 30 cm DBH, retaining Py, Fd, and Pw.
165	Blueberry Creek	High	4.5	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial, Untitled Provincial	yes	Coniferous leading stand with a C3 fuel type dominated by lodgepole pine. Significant fuel loading from dead and downed trees should be targeted for manual, hand thinning. This area is steep with minimal access points for treatment. Treatment plans should identify all viable access to ensure safe work activities working about the Columbia River.
169	Blueberry Creek	High	1.4	Streams, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	yes	Coniferous leading stand with a C3 fuel type dominated by Pl. Significant fuel loading from dead and downed trees should be targeted for manual, hand thinning techniques. Private land and residences are located adjacent to the subunit boundary, elevating the need for treatment.
185	Blueberry Creek	High	3.1	Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Untitled Provincial	straddle	Coniferous leading stand with a C3 fuel type dominated by Pl. Significant fuel loading from dead and downed trees should be targeted for manual, hand thinning. This area is steep with minimal access points for treatment. Treatment plans should identify all viable access to ensure safe work activities working about the Columbia River. Treatment unit boundaries should tie into low threat deciduous leading fuel types to the south. Located outside of the municipal boundary.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
192	Blueberry Creek	High	0.6	Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	no	Pl leading stand that would benefit from immature thinning and dead standing removal. Limited access.
102A	Brilliant	High	4.8	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Agency	no	West facing, Sloped Py leading area with heavy needle cast from Py. PTU is designed to tie into previous treatments conducted by Selkirk college and trail networks.
102B	Brilliant	High	0.8	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Provincial, Crown Agency	no	PTU targets dense C-4 fuel types, Fd Ingress along trail network from Selkirk College parking lot. PTU also targets a C-5 Py leading stand where FireSmart activities should be considered around Selkirk college buildings.
132B	Ootischenia	High	1.9	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Castlegar Tactical Plan FTU	no	Identified within the 2022 Castlegar Tactical Plan within C-FTU-02, this area has been identified by Kalesnikoff Lumber for proposed harvest activities to support WRR objectives. Any treatment planning in this unit should be conducted in collaboration with Selkirk Natural Resource District staff and Kalesnikoff Lumber.
70	Castlegar	Low	0.1	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Unclassified Crown Land	yes	Largely deciduous leading stand, having a 'low' predicted wildfire behavior, this area supports a manual surface fuel treatment regime where chipping may be the main debris disposal method. Crown land located within the municipal boundary.
71	Castlegar	Low	0.4	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	A coniferous leading stand located largely on municipally owned land, this unit will benefit from a manual thin, with surface fuel reduction through pile burning and chipping.
79	Castlegar	Low	0.7	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	A coniferous leading stand located largely on municipally owned land and crown land, this unit will benefit from a manual thin, with surface fuel reduction through a combination of pile burning and chipping.
81	Castlegar	Low	0.4	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Crown Agency	yes	A coniferous leading stand located largely on municipally owned land and crown land, this unit will benefit from a manual thin, with surface fuel reduction through a combination of pile burning and chipping.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
82	Castlegar	Low	0.4	Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	yes	A coniferous leading stand located largely crown land, this area has been previously treated and should be assessed within 5 years for further treatment. The stand shows signs of forest health concerns and should be monitored as a result.
84	Castlegar	Low	0.5	Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial	yes	A coniferous leading stand located largely on municipally owned land and crown land, this unit will benefit from a manual thin, with surface fuel reduction through a combination of pile burning and chipping. Treatment should target the removal of dead Pl understory.
89	Brilliant	Low	1.5	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Agency	no	Largely dominated by M1/2 fuel types with 30% conifer. Located on crown land outside of the existing municipal boundary.
94	Castlegar	Low	1.6	Streams, Water License Linear Feature, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial, Unclassified Crown Land	yes	Located on crown land within municipal boundaries, this unit has poor access to properly assess the forest conditions. Based on visual assessments from across the river at Selkirk College suggest the area contains steep slopes, poor access but values at risk are directly above. The stand is largely coniferous leading and should be further assessed on the ground.
129	Ootischenia	Low	1.3	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	Located on crown land and municipally owned land within municipal boundaries, this unit is largely deciduous with moderate surface fuel loading, and a dominant ladder fuel of herbaceous shrubs lending to its low wildfire threat. Treatment of removing understory stems, and surface fuel loading may be beneficial for adjacent homeowners and improve access/egress routes along highway rights of way.
143	Blueberry Creek	Low	2.7	Water License Linear Feature, Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Untitled Provincial, Castlegar Tactical Plan FTU	no	Located on crown land, and outside of the municipal boundary, this unit captures the forested area between Merry Creek FSR and private land. Consultation with Selkirk Natural Resource District Staff and Kalesnikoff Lumber, is recommended. Treatment may include mechanical removal of forest fuels along road edge to serve as a fuel break
145	Blueberry Creek	Low	2.6	Streams, Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	no	Located on crown land, and outside of the municipal boundary, this unit captures the forested area between HWY3 and private land. Consultation with Selkirk Natural Resource District Staff and Kalesnikoff Lumber, is recommended. Treatment may include mechanical removal of forest fuels along road edge to serve as a fuel break to homes and the Kinnaird neighborhood.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
213	Blueberry Creek	Low	0.9	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	no	Access is restricted to the unit, reducing the opportunity to assess and treat this unit, thereby reducing its priority for treatment. Based on visual observations from the Bombi Highway, manual thin is suggested to target removal of dense Pl stand, removing dead and declining stems.
214	Blueberry Creek	Low	69.7	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, OGMA - Non-Legal, Scenic Areas, Untitled Provincial	no	Access is restricted to the unit, reducing the opportunity to assess and treat this unit, thereby reducing its priority for treatment. Based on visual observations from the Bombi Highway, manual thin is suggested to target removal of dense Pl stand, removing dead and declining stems.
102C	Ootischenia	Low	3.9	Water License Linear Feature, Ungulate Winter Range, Scenic Areas	yes	PTU targets mid-slope bench adjacent to Doukhobor Discovery Center and SPCA. Treatment should target pruning overstory, thin understory, remove debris from powerline maintenance. Treatment should tie into slop break.
102D	Brilliant	Low	1.8	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Agency	no	C-3 fuel type situated on fluvial bench. PTU designed to reduce ember cast and ignitions around Selkirk College. Consult Selkirk on treatment regime.
91A	Ootischenia	Low	102.5	Spring, Water Licensed Works Point Features, Water License Linear Feature, Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Provincial, WRR Planned Units	no	Dominant fuel type is D1/2 (herbaceous shrub community) with C-7 (Py, Fd) interspersed throughout. This area has been identified under the RDCK Area J CWRP, and a portion of the PTU has been treated through the Selkirk District WRR program. The Dove Hill area captured by this PTU may be eligible for fuel treatment to prepare for a prescribed burn for wildfire risk reduction and ecosystem restoration objectives.
6	Robson	Moderate	45.0	Streams, Spring, Water Licensed Works Point Features, Water License Linear Feature, Ungulate Winter Range, Crown Tenures, Scenic Areas, Unstable or Potentially Unstable Slope, Crown Provincial, Crown Agency, Castlegar Tactical Plan FTU, Castlegar Tactical Plan AMU	no	A C3 fuel type, dominated by Cw and Fd leading overstory, with M-1/2 areas, particularly adjacent to riparian features. A private land driveway intersects the PTU and should be further reviewed prior to implementation. An effort has been made to anchor this PTU to access features. Collaboration with Selkirk Natural Resource District staff and Kalesnikoff Lumber is recommended.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
7	Robson	Moderate	10.5	Streams, Ungulate Winter Range, Crown Tenures, Unstable or Potentially Unstable Slope, Castlegar Tactical Plan FTU	no	Densely stocked conifer forest with low crown base height on Fd overstory along Rialto FSR. Treatment activities may include mechanical thinning along the FSR to provide a tactical fuel break to the Robson community. Transmission lines intersect the northern boundary of this unit.
9	Robson	Moderate	66.4	Streams, Water License Linear Feature, Ungulate Winter Range, Crown Tenures, Scenic Areas, Unstable or Potentially Unstable Slope, Crown Provincial, Crown Agency, CPC Proposed Treatment Unit, Castlegar Tactical Plan FTU, Kalesnikoff Planned Blocks	no	A C7 dominant fuel type, with Lw and Fd dominated overstory composition. This PTU should be planned in collaboration with Kalesnikoff Lumber, Columbia Power and the Selkirk Natural Resource District staff. Sanctioned recreation trails exist within the unit and recreation clubs should also be consulted.
35	Brilliant	Moderate	261.1	Streams, Spring, Water License Linear Feature, Ungulate Winter Range, Crown Tenures, OGMA - Non-Legal, Old Growth Forest, Scenic Areas, Crown Provincial, Crown Agency	no	A C7 and M1/2 dominant stand with mature Lw, Fd, Pl overstory. Significant herbaceous shrub community is present throughout the unit. Fuel management treatment activities may be identified at small scale within the PTU, however this PTU has been created to identify the need for prescribed fire within this ecosystem. Collaboration with regional ecologists, Selkirk Natural Resource District staff, recreation users, Kalesnikoff Lumber and Columbia Power are recommended.
36	Robson	Moderate	4.6	Streams, Water License Linear Feature, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Unstable or Potentially Unstable Slope, Unclassified Crown Land, Untitled Provincial	straddle	M1/2 fuel type with 60% coniferous overstory composition. Situated upslope to the sewage treatment plant and the Mercer Celgar mill, many opportunities exist to collaborate with Selkirk Natural Resource Staff, BCTS, Mercer, Interfor, and Kalesnikoff on treatment unit planning, access, and treatment activities.
45	Brilliant	Moderate	6.4	Streams, Ungulate Winter Range, OGMA - Non-Legal, Scenic Areas	straddle	A C7 stand dominated by Fd, Lw, Pl, and herbaceous shrub. The PTU lies next to the HWY3A and the Brilliant Expansion Generating Station. Treatment may include manual thin, surface fuel reduction pruning and hazard tree removal. Collaboration with Selkirk Natural Resource District Staff, MOTT, and BCTS will be needed. Access to the unit is via Terrace Road.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
52	Brilliant	Moderate	0.7	Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	yes	Located on Municipal Land, this PTU shares WTA plot 63 with PTU52, 54, and 43. This is a mix-wood leading stand with pockets of C4 densely stocked immature Pl and Fd ingress. Treatment should target the removal of dead and declining stems, and areas may allow for mechanical support for debris disposal. Given the proximity to Millenium Park and public access, this may be a good opportunity for public education on FireSmart techniques.
63	Brilliant	Moderate	11.9	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Untitled Provincial	yes	Located on Municipal Land, this PTU shares WTA plot 63 with PTU52, 54, and 43. This is a mix wood leading stand with pockets of C4 densely stocked immature Pl and Fd ingress. Treatment should target the removal of dead and declining stems, and areas may allow for mechanical support for debris disposal. Given the proximity to Millenium Park and public access, this may be a good opportunity for public education on FireSmart techniques.
95	Brilliant	Moderate	6.1	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Agency	no	PTU 95 targets a moderate to densely stocked (PL and Pw) C3 fuel type with light surface fuel loading. To the west the unit abuts highway 3A and to the east, Ootischenia Road. Treatment should largely target the removal of dead and dying Pl understory, and prune retained overstory. Retain all healthy Pw. Lots of road access throughout the unit. Residences and private land are situated to the east, and upslope of the unit.
108	Ootischenia	Moderate	2.0	Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Unclassified Crown Land	yes	A C3 Fd leading stand surrounding South Castlegar Wastewater Treatment facility. Treatment should focus on understory stem removal, pruning and surface fuel reduction, thereby increasing the crown base height within the stand.
109	Ootischenia	Moderate	2.8	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	A C5 Fd leading stand located within the right-of-way and vegetated corridor next to railway tracks. Treatment should consider manual thin of conifer stems and reducing surface fuel and ladder fuels. Hazard tree removal may be necessary to reduce tree strike potential to adjacent powerlines and railway infrastructure. Collaboration with the rail provider will be needed.
112	Ootischenia	Moderate	2.1	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	A C7 mature Lw, Fd leading overstory stand with herbaceous and shrub dominated surface fuel. Areas with understory conifer should be targeted for removal using manual thin treatment strategies. Treatment is designed to improve tactical response and access/egress along Highway 3. Kinnaird Elementary school is located to the east of the unit. Collaboration with MOTT on access, and proximity to Highway 3.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
115	Ootischenia	Moderate	0.8	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	A C7, Fd, Pl and Py leading unit situated on the south of Highway 3, to the west of Kinnaird Bridge. Vehicle and foot access to the unit should be from the Community Center. Treatment should consider manual thin to remove forest fuels. Prescribe fire may be considered to create joint agency training opportunities and for maintenance accumulated surface fuels. Adjacent values are Highway 3 as an egress route, and the Castlegar & District Recreation Centre to the south.
117	Ootischenia	Moderate	1.6	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	A C7 mature Lw, Fd leading overstory stand with herbaceous and shrub dominated surface fuel. Areas with understory conifer should be targeted for removal using manual thin treatment strategies. Treatment is designed to improve tactical response and access/egress along Highway 3. Private land and homes are located to the west and upslope of the unit. Collaboration with MOTT on access, and proximity to Highway 3.
118	Ootischenia	Moderate	0.1	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	Largely dominated by C5 Fd, Lw and Hw overstory species. Located on municipal land, access to the PTU is via Crestview Crescent. Homes are located to the East, West and South of the unit. Treatment should be a manual thin understory targeting dead standing trees and conifers up to 20 cm DBH.
128	Ootischenia	Moderate	5.4	Water License Linear Feature, Ungulate Winter Range, Scenic Areas	yes	Collaboration with BCWS and Fire Department. Investigate if Invasive species are present. Consider burn plan development with Fire Department staff.
131	Ootischenia	Moderate	3.0	Water License Linear Feature, Ungulate Winter Range, Scenic Areas	yes	A C5/C3 leading fuel type with areas of D1/2 intermixed. Treatment should target densely stocked patches of C3 and C5. PTU ties into Ootischenia road and Columbia Road and is next to Fortis BC substation and local office.
138	Ootischenia	Moderate	1.4	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	A C5 Lw, Cw, Hw and Fd leading stand, accessed via 24th street. The treatment unit is targeting vegetated fuels adjacent to 24th street, to improve egress routes in the event of an evacuation due to wildfire. Private homes and public road found to the north of the Kinnaird Elementary School.
141	Ootischenia	Moderate	2.2	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	A C7 fuel type with a mixed conifer stand of Lw, Cw, Hw, and Fd. Treatment should be a manual thin, remove surface and ladder fuels. The unit is next to Kinnaird School, homes to the north, and to enhance 14th Avenue as a potential evacuation route for students and staff from the school. This PTU is located on municipal land.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
148	Ootischenia	Moderate	17.7	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Unclassified Crown Land	yes	A large contiguous forest directly to the south of Kinnaird School and Park. Treatment should be a manual thin to target immature conifers, surface fuel and ladder fuels. This PTU is located on municipal land.
149	Blueberry Creek	Moderate	34.3	Streams, Water License Linear Feature, Ungulate Winter Range, Wildlife Habitat Area, Old Growth Forest, Scenic Areas, Untitled Provincial, Castlegar Tactical Plan FTU, Kalesnikoff Planned Blocks	no	A C7 fuel type dominated by Pl, Fd, Lw, with areas of C5 in receiving sites. PTU is accessed off of Merry Creek FSR and may require access through private land agreements. Further collaboration with private landowners, Selkirk Natural Resource District Staff and Kalesnikoff Lumber prior to further project development.
176	Blueberry Creek	Moderate	1.5	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Unclassified Crown Land	yes	A C7 fuel type, with Lw, Py, Pl and some deciduous areas. Private homes area located to the south, and north. The unit is located on municipal land and treatment should target understory conifers, surface fuels and ladder fuels. The PTU is accessed via 5th Avenue.
177	Blueberry Creek	Moderate	1.0	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	yes	A C7 fuel type, with Lw, Py, Pl and some deciduous areas. Private homes area located to the south, and north. The unit is located on municipal land and treatment should target understory conifers, surface fuels and ladder fuels. The PTU is accessed via 5th Avenue.
188	Blueberry Creek	Moderate	108.2	Streams, Spring, Water License Linear Feature, Community Watersheds, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, OGMA - Non-Legal, Scenic Areas, Unstable or Potentially Unstable Slope, Crown Provincial	no	A C7/C5 leading fuel type. Rocky ground with sloped terrain will limit machine operations, lending the unit to manual thin treatment activities. However, during prescription development, some areas may be identified for merchantable harvest and mechanized thinning. Access is via Upland Crescent. Collaboration with private landowners, and The Association of West Kootenay Rock Climbers (TAWKROC) to discuss access routes.
190	Blueberry Creek	Moderate	1.4	Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial	no	A long narrow corridor of crown land within the municipal boundary with a mix-wood fuel type with Pl, Act, At, and herbaceous shrubs. Treatment should target understory conifers, surface and ladder fuels for removal. Access is via Dubé Road, and treatment is designed to bolster this road feature for fire suppression activities.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
198	Blueberry Creek	Moderate	1.0	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial	straddle	A long narrow corridor of crown land within the municipal boundary with a mix-wood fuel type with Pl, Act, At, and herbaceous shrubs. Treatment should target understory conifers, surface and ladder fuels for removal. Access is via Dubé Road, and treatment is designed to bolster this road feature for fire suppression activities.
200	Blueberry Creek	Moderate	0.7	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	no	A deciduous leading stand with mixed ownership, of municipal and crown land. Treatment should target understory Pl, through manual thin activities. Limited access off of Trowelex Road.
203	Blueberry Creek	Moderate	0.3	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Crown Provincial, Crown Agency	no	A C4 leading fuel type with dense immature Pl and Fd ladder fuels. A manual thin treatment regime targeting dense understory and surface fuel removal is recommended. Municipal water treatment facility infrastructure exists, and private homes are located to the south and east of the PTU.
206	Blueberry Creek	Moderate	1.0	Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial	no	A C4 leading fuel type with dense immature Pl and Fd ladder fuels. A manual thin treatment regime targeting dense understory and surface fuel removal is recommended. Municipal water treatment facility infrastructure exists, and private homes are located to the east of the PTU.
210	Blueberry Creek	Moderate	0.6	Streams, Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	yes	Located on municipal land, and within the municipal boundary, this area presents moderate threat rating based on stand conditions (C7 fuel type), however this PTU is relatively far from values (100-500m), which may reduce its priority for treatment, relative to other areas. Access is off of Blueberry Road, and a gate restricts vehicle access.
212	Blueberry Creek	Moderate	1.6	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Crown Agency, Untitled Provincial	no	A C7 stand with Pl, Py, Lw, and Act. Treatment should consider manual thin of immature Pl under 17.5cm, DBH. Located on crown land outside of the municipality, collaboration with Selkirk Natural Resource District staff is recommended.
216	Blueberry Creek	Moderate	0.9	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	no	An M1/2 fuel type with immature Pl understory interspersed. Manual treatment is recommended to remove immature Pl, surface and ladder fuels. The treatment is designed to reduce fuel loading adjacent to Highway 22 to support access/egress in the event of a wildfire.
132C	Ootischenia	Moderate	0.6	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Castlegar Tactical Plan FTU	no	General Comments: WRR flagging present

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
14A	Robson	Moderate	3.5	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Agency	no	A deciduous leading stand located on crown land outside of the municipal boundary. Observed pockets of dense immature Pl which should be thinned using manual treatment activities.
14B	Robson	Moderate	3.1	Streams, Ungulate Winter Range, Crown Tenures, Scenic Areas	no	General Comments: Young Pl mixed with deciduous.
208A	Blueberry Creek	Moderate	9.9	Streams, Water License Linear Feature, Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Crown Provincial, Crown Agency	no	A C7 stand with Pl, Py, Lw, and Act. Treatment should consider manual thin of immature Pl under 17.5 cm, DBH. Located on crown land outside of the municipality, collaboration with Selkirk Natural Resource District staff is recommended.
208B	Blueberry Creek	Moderate	0.9	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas	no	A C7 stand with Pl, Py, Lw, and Act. Treatment should consider manual thin of immature Pl under 17.5 cm, DBH. Located on crown land outside of the municipality, collaboration with Selkirk Natural Resource District staff is recommended.
91B	Brilliant	Moderate	43.2	Ungulate Winter Range, Crown Tenures, Scenic Areas, Crown Provincial, WRR Planned Units	no	A C3 leading fuel type dominated by Cw, Fd, Lw, and Hw, interspersed with deciduous leading patches near wet sites. Treatment may include mechanized merchantable selective harvest, targeting Cw, Hw, and unhealthy stems.
125	Ootischenia	Unknown	0.8	Ungulate Winter Range, Wildlife Habitat Area, Scenic Areas, Unclassified Crown Land	yes	General Comments: C-3/C-4 fuel type. Very minimal access. Consultation with Stellar Place is required to assess and confirm access and potential to treat this isolated forested unit within the city.
142	Ootischenia	Unknown	7.8	Streams, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	yes	General Comments: access is very limited. Either we need to work with residents or perhaps access by boat.
191	Blueberry Creek	Unknown	0.2	Water License Linear Feature, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas	yes	A conifer leading stand dominated with Pl. The main treatment required is a manual understory, with surface fuel reduction and pruning of retained trees.

PTU Name	Nearest Community	Priority	Area (ha)	Overlapping Values / Treatment Constraints	Within Municipal Boundary (y/n)	Treatment Rationale
199	Blueberry Creek	Unknown	3.3	Streams, Critical Habitat for Federally - Listed Species at Risk, Ungulate Winter Range, Wildlife Habitat Area, Crown Tenures, Scenic Areas, Crown Provincial	yes	General Comments: assessment made form vantage point on the Bombi. Tons of dead standing pine with overall high stand density. Negligible access observed.

SECTION 6: APPENDICES

6.1 APPENDIX A: REVIEW OF 2020 CWPP RECOMMENDATIONS

This review is based on interviews with staff from the both the City of Castlegar and the Fire Department.

Item	Priority	2019 CWPP Recommendation	Comments from Castlegar City staff to Develop 2025 Recommendations
1	Medium	Continuously review the CWPP as a living document and complete an update every 5 years.	*In Progress*
2	High	Develop fuel treatment prescriptions for high priority interface fuel treatment areas. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #9 Fuel and Vegetation Management).	*Unknown*
3	High	Develop a partnership with the RDCK to pursue treatment of RDCK lands adjacent to the City (CRI Activity #9 Fuel and Vegetation Management).	*Not Completed*
4	Moderate	Consult and coordinate with utility providers to create defensible spaces and reduce risk around all substations.	*Not Completed*
5	Moderate	The City and Regional District should assess the condition of fuels and wildfire risk around their facilities and develop fuel treatment prescriptions with the target of establishing a 30 m defensible space around them.	*Not Completed*
6	High	Develop neighbourhood level FireSmart plans for the above priority neighbourhoods. This should include neighbourhood level FireSmart committees with the District, Fire Department, BCWS, and First Nations representative. This should also include a variety of strategies with the objective of increasing private land resilience to wildfire. Participating communities should apply for FireSmart Community Recognition status and funding for mitigation projects through FireSmart Canada. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #1 Education).	*Unknown and does not specify area*
7	Moderate	Use recommended interface fuel treatment areas to promote similar projects on private lands. Showcase these treatments though a “FireSmart Day” with neighbourhood FireSmart committees. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #1 Education).	*Not Completed*

Item	Priority	2019 CWPP Recommendation	Comments from Castlegar City staff to Develop 2025 Recommendations
8	Moderate	Distribute FireSmart brochures to all houses within higher risk interface areas. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #1 Education).	*Distributed at BP Issuance*
9	Low	Distribute a list of ecologically suitable fire-resistant landscape plants (Appendix 4) to residents by mail and through local nurseries. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #1 Education).	*Distributed at BP Issuance*
10	Low	Establish community chipping days in the spring to encourage residents to reduce vegetation fuel loads on private land. Provide a location where woody debris can be dropped off for chipping and request tree companies volunteer as a promotional event, similar to Christmas tree chipping events. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #8 FireSmart Activities for Private Land).	*Not Completed*
11	High	Review the City's Official Community Plan (OCP) to include wildfire as a Development Permit Area. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI #3 Development Considerations).	*Completed*
12	High	Include Wildfire as a Development Permit Area. The specific requirements and GIS area for this DPA should be developed with a Wildfire specialist. This should aim to include areas that are within 100m of moderate, high, or extreme Wildfire Threat/Risk as a starting point. The specific language should include FireSmart construction materials and landscaping, and the removal of hazardous fuels. Specific objectives should be established, as well as recommended strategies to meet those objectives. This DPA should also include professional review and sign off. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI #3 Development Considerations).	*Completed*
13	High	Ensure that Wildfire DPA applications are reviewed by City or Fire Department staff to ensure the objectives of the DPA are achieved. This will require coordination between City staff and Fire Department staff.	*Completed*
14	Moderate	During large event have City and/or Fire Department staff on hand to provide educational material.	*Completed*
15	Moderate	Include Open House component to fuel treatments to allow public input and education.	*Not Completed*

Item	Priority	2019 CWPP Recommendation	Comments from Castlegar City staff to Develop 2025 Recommendations
16	High	Expand current school education program to discuss wildfire prevention and preparedness.	*Not Completed*
17	High	Continue to develop wildfire education partnerships with Selkirk College. Consider opportunities for expansion of this program. This may include partnership with other agencies and other jurisdictions.	*Completed*
18	Moderate	Update the City's digital media, including video and web content, to reflect this CWPP update. Provide print material at public locations including City Hall, Fire Departments, Community Centres, and Libraries. Risk maps should be presented at some of these locations.	*Not Completed*
19	Moderate	Ensure all road edges are mowed frequently during the summer months.	*Completed for City Roads*
20	Moderate	Post wildfire danger signage along major transportation corridors, at campsites, parks and recreation, and at high use trail heads areas. Signages should address current fire danger, how to report a wildfire and, when relevant, emphasize the need to fully extinguish campfires and properly dispose of cigarettes.	*Not City Jurisdiction*
21	High	Develop an annual fire season social media campaign to raise awareness of individual responsibility to prevent ignitions and of the enforcement of fire bans.	*Completed*
22	Moderate	Work with utility providers to ensure that distribution lines, transmission corridors and substations are assessed regularly for tree risk and that the associated fuel hazards are abated.	*Done by Utility*
23	High	Maintain the mutual aid agreement between the City and the Regional District Fire Protection Areas to enable sharing of suppression resources when responding to a wildfire. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #4 Interagency Co-operation).	*Completed*
24	Moderate	Continue to require that all new fire hydrants systems for new development areas are able to serve adjacent high-risk interface areas.	*On-going*
25	High	The City should continue to work with Mercer Celgar to determine solution(s) ensuring water availability is not compromised through wildfire. This may involve an analysis of water supply needs for firefighting purposes, as well as maximum operating time without grid power.	*On-going*

Item	Priority	2019 CWPP Recommendation	Comments from Castlegar City staff to Develop 2025 Recommendations
26	High	Update City of Castlegar Evacuation Plan. Explicitly plan for evacuation in the context of a wildfire.	*Not Completed*
27	High	Work with the Regional District to maintain a coordinated evacuation plan in case of wildfire or other large disaster.	*Not Completed*
28	High	Develop an early evacuation notification system. Include specific recommendations for heavy industry which need extra time to shut down facilities safely.	*Completed*
29	Moderate	Continue to train all City firefighters in S100 Basic Fire Suppression and Safety training. Select firefighters should receive S185 Fire entrapment avoidance and safety training, as well as Incident Command System 100 training. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #6 Cross training).	*Completed*
30	High	Continue to conduct annual training exercises with the local BCWS to enhance response in the event of wildland urban interface fire. Apply for funding for this initiative through the UBCM Community Resiliency Investment Program (CRI Activity #6 Cross training).	*Completed*

6.2 APPENDIX B: LOCAL WILDFIRE RISK PROCESS

Wildfire Risk Assessment plot worksheets are provided in 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).[vii] Both the HIZ and CIIZ include the structure itself and three concentric, progressively wider Priority Zones out to 30 m from the structure (Figure 9 below). More details on priority zones can be found in the FireSmart Manual.

Figure 9: FireSmart Ignition Zone (HIZ)

During extreme wildfire events, most home destruction is a result of low-intensity surface fire flame exposures, usually ignited by embers. Embers 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 / m2. 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, FireSmartTM homes with low ignitability may survive high-intensity fires, whereas highly ignitable homes may be destroyed during lower intensity surface fire events.[33] Increasing ignition resistance would reduce the number of homes simultaneously on fire; extreme wildfire conditions do not necessarily result in WUI fire disasters. For this reason 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 28 shows in more detail the the distances and their relation to the HIZ for appropriate treatment.

Table 28: Proximity to the Interface for Home Ignition Zones

Proximity to the Interface	Distance*	Description of HIZ
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.*

Appendix C: Wildfire Risk Assessment – Worksheets and Photos, plot locations are summarized in Appendix B-2: , and the field data collection and spatial analysis methodology is detailed in Appendix B-2 and B-3.

6.2.1 APPENDIX B-1: FUEL TYPING METHODOLOGY AND LIMITATIONS

The Canadian Forest Fire Behaviour Prediction (FBP) System outlines five major fuel groups, and 16 fuel types based on characteristic fire behaviour under defined conditions.[29] Fuel typing is recognized as a blend of art and science. Although a subjective process, the most appropriate fuel type was assigned based on field observations, experience, and practical knowledge. This system has been used in BC, with continual improvement and refinement, for 20 years.[30]

There are limitations with the fuel typing system which should be recognized, including:

- 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.

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 to 10 years to determine the need for threat assessment updates and the timing for their implementation.

Table 24 summarizes the fuel types by general fire behaviour including crown fire and spotting potential. These fuel types were used to guide the threat assessment.

Table 24: Fuel Type Categories and Crown Fire Spot Potential encountered within the eWUI

Fuel Type	FBP / CFDDRS Description	AOI Description	Wildfire Behaviour Under High Wildfire Danger Level	Fuel Type – Crown Fire / Spotting Potential
C-3	Mature jack or lodgepole pine	*Fully stocked, late young forest (Douglas fir, hemlock, cedar), with crowns separated from the ground*	Surface and crown fire, low to very high fire intensity and rate of spread.	High*

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

[30] 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.

Fuel Type	FBP / CFDDRS Description	AOI Description	Wildfire Behaviour Under High Wildfire Danger Level	Fuel Type – Crown Fire / Spotting Potential
C-5	Red and white pine	*Well-stocked mature forest, crowns separated from ground. Moderate understory herbs and shrubs. Little grass or surface fuel accumulation.*	Moderate potential for active crown fire in wind-driven conditions. Under drought conditions, fuel consumption and fire intensity can be higher due to dead woody fuels.	Low
C-7	Ponderosa pine and Douglas-fir	*Low-density, uneven-aged forest, crowns separated from the ground, understory of discontinuous grasses and shrubs. Exposed bed rock and low surface fuel loading.*	Surface fire spread, torching of individual trees, rarely crowning (usually limited to slopes > 30%), moderate to high intensity and rate of spread.	Moderate
O-1a/b	Grass	*Matted and standing grass that can cure, sparse or scattered shrubs, trees, and down woody debris. Seasonal wetlands that can cure*	Rapidly spreading, high-intensity surface fire when cured.	Low
M-1/2	Boreal mixed wood (leafless and green)	*Moderately well-stocked mixed stand of conifers and deciduous species, low to moderate dead, down woody fuels*	Surface fire spread, torching of individual trees and intermittent crowning, (depending on slope and percent conifer).	<26% conifer (Very Low); 26-49% Conifer (Low); >50% Conifer (Moderate)
D-1/2	Aspen or birch (leafless and green)	*Deciduous stands*	Always a surface fire, low to moderate rate of spread and fire intensity.	Low
N	N/A	*Non-fuel: irrigated agricultural fields, urban or developed areas void or nearly void of vegetation and forests*	N/A	N/A
W	N/A	*Water*	N/A	N/A

**C-3 fuel type is considered to have a high crown fire and spotting potential within the WUI due to the presence of moderate to high fuel loading (dead standing and partially or fully down woody material), and continuous conifer ladder fuels.*

6.2.2 APPENDIX B-2: WILDFIRE THREAT ASSESSMENT PLOTS

Table *25* summarizes the Wildfire Threat Assessment (WTA) plots completed during CWRP field work. The most recent 2020 WTA threat plot worksheets and methodology were used.[31] The plot forms and photos are submitted as a separate document. The following ratings are applied to applicable point ranges:

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

Table 25: Summary of WUI Threat Assessment Worksheets

WTA Plot ID	WTA Score	Priority
81	28	Low
70	31	Low
71	31	Low
79	33	Low
102C	33	Low
102D	33	Low
91A	35	Low
89	38	Low
143	44	Low
145	44	Low
82	46	Low
84	46	Low
94	47	Low
98	47	Low
129	47	Low
118	48	Moderate
148	48	Moderate
176	49	Moderate
190	49	Moderate
198	49	Moderate
210	49	Moderate
212	49	Moderate
216	49	Moderate
140A	49	Moderate
141	50	Moderate
14A	50	Moderate
14B	50	Moderate
52	51	Moderate
63	51	Moderate

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

WTA Plot ID	WTA Score	Priority
95	52	Moderate
112	52	Moderate
131	52	Moderate
140B	52	Moderate
177	53	Moderate
188A	53	Moderate
188B	53	Moderate
188C	53	Moderate
188D	53	Moderate
188E	53	Moderate
188F	53	Moderate
117	54	Moderate
200	54	Moderate
214	54	Moderate
132D	54	Moderate
208A	54	Moderate
208B	54	Moderate
108	55	Moderate
133	55	Moderate
138	55	Moderate
149	56	Moderate
91B	56	Moderate
203	57	Moderate
206	57	Moderate
45	58	Moderate
132C	58	Moderate
7	60	Moderate
109	60	Moderate
9	61	Moderate
36	64	Moderate
115	64	Moderate
35	65	Moderate
6	66	High
77	66	High
113	66	High
114	66	High
121	66	High
136	66	High
169	66	High
132A	66	High
132B	66	High
165A	66	High
165B	66	High
165C	66	High
185	67	High
192	67	High
53	71	High
54	71	High
111	71	High
102B	74	High

WTA Plot ID	WTA Score	Priority
102A	77	High
92	83	Extreme

6.2.3 APPENDIX B-3: FIRE RISK THREAT ASSESSMENT METHODOLOGY

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
- BC Wildfire Wildland Urban Interface Risk Class
- BC Wildfire WUI Human Interface Buffer
- BC Wildfire WUI 1km Buffer
- Current Fire Polygons
- Current Fire Locations
- Historical Fire Perimeters
- Historical Fire Incident Locations
- Historical Fire Burn Severity
- BC Wildfire Fuel Types

As part of the program, proponents completing a CWRP are provided with a supplementary PSTA dataset from BC Wildfire Services. This dataset includes:

- Structures
- Structure Density

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

- AOI and Values at Risk
- Local Fire Risk
- Proposed Fuel Treatment Units

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.

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 2020 form, and as per the Wildland Urban Interface 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 26 below summarizes the components and scores to determine the Fire Behaviour Threat.

Table 26: 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	
	C-6	25
	M-1/2, >75% conifer	20
	C-7	
	M-3/4, <50% dead fir	
	M-1/2, 50-75% conifer	15
	M-1/2, 25-50% conifer	10
	C-5	
	O-1a/b	
	S-1	
	S-2	
	S-3	
	M-1/2, <25% conifer	5
	D-1/2	0
	W	0
	N	0
Weather - BEC Zone	AT, irrigated	1

	CWH, 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, N1, 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

Table 27 WUI Risk Classes and their associated summed scores.

Risk Class	Score
Very Low	0
Low	0-35
Moderate	35-55
High	55-65
Extreme	>65

As discussed in Section 4.3, a WUI Risk Class analysis is only completed for areas with a 'High' or 'Extreme' Wildfire Threat Class. Through a Risk Class analysis, the above attributes are summed to produce polygons with a final WUI Risk Score. To determine the Fire Threat score, only the distance to structures is used, based on buffer distance classes of <200 m, 200-500 m and >500 m. Polygons within 200 m are rated as 'extreme', within 500 m are rated as 'high', within 2 km 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 Threat 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 CRI program.

6.2.4 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).[32,33] Both the HIZ and CIIZ include the structure itself and three concentric, progressively wider Priority Zones out to 30 m from the structure (Figure 9 below). More details on priority zones can be found in the FireSmart Manual.[34]

[32] 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)

[33] 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)

[34] Available for download here: FireSmartBC_HomeownersManual_Printable.pdf

Figure 9: FireSmart Ignition Zone (HIZ)[35]

During extreme wildfire events, most home destruction is a result of low-intensity surface fire flame exposures, usually ignited by embers. Embers 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 / m^2. 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.[33] Increasing ignition resistance would reduce the number of homes simultaneously on fire; extreme wildfire conditions do not necessarily result in WUI fire disasters. For this reason 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 28 shows in more detail the the distances and their relation to the HIZ for appropriate treatment.

[35] FireSmart Canada. 2024. The Home Ignition Zone. Retrieved from: The Home Ignition Zone | FireSmart Canada

Table 28: Proximity to the Interface for Home Ignition Zones

Proximity to the Interface	Distance*	Description of HIZ
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.*

6.3 APPENDIX C: WILDFIRE RISK ASSESSMENT – WORKSHEETS AND PHOTOS

Provided separately as PDF package.

6.4 APPENDIX D: MAPS

Provided separately as PDF package.

6.5 APPENDIX E: COMMUNITY FIRESMART RESILIENCY COMMITTEE

The Castlegar FireSmart Resiliency Committee (CFRC) was formed in response to implemenation of the 2020 CWPP recommendations. The Committee met monthly (starting June 2025) throughout the course of the CWRP development, with each meeting focused on one or more FireSmart disciplines. This committee's feedback was appreciated and incorporated into this CWRP.

Table 29: Members of the 2025 Castlegar Community FireSmart Resiliency Committee

Agency	Role	Name
BC Wildfire Service	Wildfire Prevention Specialist	Adriana Burton
Regional District of Central Kootenays	FireSmart Co-Ordinator	Jessie Lay
	Disaster Mitigation and Adaptation Senior Advisor	Nora Hannon
	Wildfire Mitigation Specialist	Greg Barnhouse
Ministry of Forests	District Wildfire Coordinator	Richard Garner
	Resource Operations Manager	Grant Walton
	Wildfire Risk Reduction Specialist	Amber Cooke
City of Castlegar	Acting Director of Community Safety and Development	Meeri Durand
	Acting Fire Chief	Nick Ahlefeld
	Assistant Fire Chief	Tony Mackie
	Assistant Fire Chief	Brad Stickles
Columbia Power Corporation	Environmental Lead	Michael Hounjet
Kalesnikoff	Forest Development Manager	Gerald Cordeiro
Mercer Celgar	Health and Safety Manager	Jeff Fish
Interfor	Planning and Development Forester	Taylor Frehr-Smith
Okanagan Nation Alliance	tmxʷulaxʷ (Land) Technician	Alysia Dobie
Selkirk College	Forestry Instructor	Peter Schroeder