

2022 DISTRICT OF MACKENZIE COMMUNITY WILDFIRE RESILIENCY PLAN



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SIGNATURE PAGE



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FREQUENTLY USED ACRONYMS

AOI	Area of Interest
BC	British Columbia
BCTS	British Columbia Timber Sales
BCWS	British Columbia Wildfire Service
BEC	Biogeoclimatic Ecosystem Classification
CFFDRS	Canadian Forest Fire Danger Rating System
CFS	Community Funding and Support
CI	Critical Infrastructure
CRI	Community Resiliency Investment
CWRP	Community Wildfire Resiliency Planning
DP	Development Permit
DPA	Development Permit Area
DOM	District of Mackenzie
FBP	Fire Behavior Prediction System
FCFS	FireSmart Community Funding and Supports
FESBC	Forest Enhancement Society of British Columbia
FESIMS	Forest Enhancement Society Information Management System
FMP	Fuel Management Plan
FSCCRP	FireSmart Canada Community Recognition Program
FSP	Forest Stewardship Plan
FNESS	First Nations Emergency Services Society
HIZ	Home Ignition Zone (also see Structure Ignition Zone)
HRVA	Hazard Risk and Vulnerability Analysis
LRMP	Land and Resource Management Plan
MLMCF	McLeod Lake Mackenzie Community Forest
MOF	Ministry of Forests
MOTI	Ministry of Transportation and Infrastructure
MWAC	Mackenzie Wildfire Advisory Committee
PSOE	Provincial State of Emergency
PSTA	Provincial Strategic Threat Assessment
OCP	Official Community Plan
RSWAP	Resource Sharing Wildfire Allocation Protocol
SOLE	State of Local Emergency
SWPI	Strategic Wildfire Prevention Initiative
UBCM	Union of British Columbia Municipalities
VAR	Values at Risk
WRR	Wildfire Risk Reduction
WUI	Wildland Urban Interface

DEFINITIONS

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

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

Values at Risk (VAR): The human or natural resources that may be impacted by wildfire. This includes human life, property, critical infrastructure, high environmental and cultural values, and resource values.

Wildfire Risk: commonly defined as the likelihood of a fire occurring, the associated fire behaviour, and the impacts of the fire on human values (consequence). The exposure to the chance of loss from wildfire.

Wildfire Threat: The inherent ability of a wildfire to ignite, spread, and consume organic material (trees, shrubs, and other organic materials) in the forest. The major components used to define wildfire threat are fuel, weather, and topography, also known as the wildfire environment.

Wildland-Urban Interface (WUI): any area where combustible forest fuel is found adjacent to homes, farm structures or other outbuildings. This may occur at the interface, where development and forest fuel (vegetation) meet at a well-defined boundary, or in the intermix, where development and forest fuel intermingle with no clearly defined boundary.

EXECUTIVE SUMMARY

Wildfire is becoming increasingly prevalent across the BC landscape, with climate change impacting moisture regimes, temperatures, and weather patterns. Wildfire threat and the associated risk to communities within the Wildland Urban Interface (WUI) is therefore likely to increase due to climatic changes, making it more critical than ever to understand wildfire risk and identify the most effective strategies for its mitigation.

The purpose of this Community Wildfire Resiliency Plan (CWRP) is to identify wildfire threats within and surrounding the District of Mackenzie (DOM), and to quantify the risks and impacts to the community from wildfire. The CWRP outlines strategies to reduce threat and risk by providing recommendations to decrease the likelihood of wildfires entering the community, to increase the preparedness of the community to respond to wildfires, and reduce the potential loss of homes, businesses, and critical infrastructure from wildfire. This CWRP is intended to provide guidance to the District of Mackenzie staff and to educate and motivate DOM’s community members.

The CWRP focuses on wildfire risk assessment and the seven FireSmart disciplines including:

- Education,
- Legislation and planning,
- Development considerations,
- Interagency cooperation,
- Cross-training,
- Emergency planning, and
- Vegetation management.

Several factors are considered when determining a community’s wildfire risk, including the landscape surrounding the AOI, the fuel types, fire history, and weather data. The fire threat for the District of Mackenzie’s Wildland Urban Interface is **low to moderate** due to high modification of forest fuel types from harvesting activities and previously completed fuel management treatments. However, there is only one primary egress route in and out of the community via Highway 39, which increases the risk to the community in the event of a wildfire.

Table 1 lists all of the District’s recommended actions, categorized by the seven FireSmart disciplines. Actions are prioritized as: **moderate, high, and very high**, based on anticipated effectiveness in reducing overall wildfire hazard and risk.

TABLE 1: LIST OF ALL COMMUNITY WILDFIRE RESILIENCE PLAN ACTIONS. PRIORITY LEVELS ‘HIGH’ AND ‘VERY HIGH’ ARE COLOURED RED.

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
Risk Assessment						
<i>The purpose of a risk assessment is to identify the specific risks to a community and its assets. An ongoing review of the risk assessment should occur and an update to this CWRP should occur in at least 10 years.</i>						
1. Read and understand this CWRP’s identified risks and recommended actions. The currently identified risks include:	District staff and Leadership, FireSmart Coordinator, Fire Chief	Very High	Immediate	Fire Chief, District staff and local elected officials to spend some time	Fire Chief, District staff and leadership comprehend the risks and actions to take within this CWRP and	N/A

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
<p>a. FireSmart principles are currently not required for homes or structures – homes and structures remain at risk from ember showers.</p> <p>b. The District is surrounded by a landscape that has been heavily altered and is a patchwork of various vegetative fuel types. This continual change in fuel types makes wildfire spread and intensity difficult to predict.</p> <p>c. The District has only one main egress route along Highway 39 that in the event of a fire could easily become congested or impassable due to smoke, fire, or fallen trees.</p> <p>d. There currently are no development permits requiring the implementation of FireSmart principles, or wildfire Development Permit Areas required for development. Many structures have hazardous materials on or</p>				<p>becoming familiar with this CWRP. This may entail a presentation to Council.</p>	<p>consider next steps for implementing recommendations.</p>	

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
<p>near them, including conifer trees up against homes.</p> <p>e. The District relies on one aboveground communication line that runs along Highway 39. Although the cable line is quite durable, should the line be damaged during an emergency event, communication to community members would become difficult.</p> <p>f. Forest licensees with tenure around the District of Mackenzie, including the McLeod Lake Mackenzie Community Forest and BCTS should employ reduced fire management stocking standards. This is particularly important for harvest blocks within or adjacent to the WUI, or along the Highway 39 egress.</p> <p>g. The Mackenzie area is prone to extreme wind events that often results in significant blowdown of trees. Fuel management treatments have</p>						

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
<p>to balance both fuel reduction to reduce wildfire intensity, and maintenance of stand structure to a level that allows for trees to be windfirm.</p> <p>h. A number of fuel management treatments have been completed within and around the town center over the past 5 years. However, many of these treatments will require monitoring to determine ongoing maintenance activities.</p>						
Education						
<i>Education is a critical piece of resiliency planning as it relates directly to the recruitment and retention of community members in the FireSmart program as well as reduces the probability of wildfire ignitions within the WUI.</i>						
2. Hire a fulltime or parttime FireSmart Coordinator (required for funding by 2024). This position will run all aspects of the FireSmart program for the District and generally support many aspects of this CWRP.	Fire Chief	Very High	Spring 2023	An annual salary of \$70,000 and some training and orientation at the beginning will be required.	Successfully hire or appoint an individual who is enthusiastic about promoting FireSmart, and ideally is a leader in the community or is well known.	Funding is available under UBCM’s CRI ¹ program to support a salary for a FireSmart Coordinator.
3. Hold a FireSmart event/open house to endorse FireSmart concepts to community members and educate them on things they can do around their homes to reduce fire hazard. This should be	Fire Chief, Fire Department, FireSmart Coordinator, Mackenzie Wildfire Advisory	Very High	Annually	Social media, resources to run the event (ie. tent, food, etc.)	Participation by minimum of 40 residents.	Funding is available under UBCM’s CRI ¹ program.

¹ https://www.ubcm.ca/sites/default/files/2022-10/LGPS_CRI-FCFS_2023AppGuide-Oct%206_Rev.pdf

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
held annually between May and October.	Committee (MWAC)					
4. Determine logical boundaries for FireSmart neighbourhoods within the District such as Gantahaz, Centennial, the Fish Streets, etc. Once this has been designed, encourage, and help appoint FireSmart neighbourhood champions for each of the neighbourhoods.	Fire Chief, Fire Department, FireSmart Coordinator	Moderate	Ongoing	FireSmart events and communication resources.	Three residents volunteer to become a FireSmart Neighbourhood Champion	Information and workshops for FireSmart Neighbourhood Champion are available on the FireSmart BC website.
5. Continue to organize annual or semi-annual Community Chipper Day(s) and/or Community Cleanup Day(s) during the wildfire season to assist homeowners with removal of hazardous vegetation and debris around their homes.	FireSmart Coordinator, Fire Chief, Public Works, MWAC	Very High	Annually, semi-annually	Chipper, disposal bins	Removal of hazardous vegetation, invasive plants and other flammable materials around homes.	Funding is available through the UBCM's CRI program ²
6. Continue to promote and encourage private property/homeowners to have a FireSmart Home Assessment completed. Provide recommendations on actions they can take to make their homes more FireSmart and reduce the risk of loss and damages in the event of a wildfire.	FireSmart Coordinator, Fire Chief, Local FireSmart Representative (LFR)	Very High	Ongoing	A certified Local FireSmart Representative is required to complete the home assessments.	Participation by minimum of 10 residents per year.	Funding is available under UBCM's CRI program per structure.
7. Continue to encourage homeowners to implement FireSmart recommended activities around their	FireSmart Coordinator, Fire Chief, Local FireSmart	Very High	Ongoing	A certified Local FireSmart Representative is	Participation by minimum of 10 residents per year who complete at	FireSmart activity rebate program up to \$500 ³

² <https://www.ubcm.ca/funding-programs/local-government-program-services-funding/community-resilience/firesmart-community>

³ <https://firesmartbc.ca/wp-content/uploads/2020/06/FireSmart-Assessment-Work-Hours-Estimate-Form-CRI.pdf>

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
homes utilizing the FireSmart rebate program through use of the District website, social media, and FireSmart events.	Representative (LFR)			required to complete the home assessments	least one eligible FireSmart activity on their home.	
8. Continue to maintain and improve the District's FireSmart webpage to inform the community about numerous ways they can stay updated on FireSmart information.	FireSmart Coordinator, Fire Chief, MWAC	Very High	Ongoing	Communication resources	FireSmart events are well-promoted and attended with 40+ residents	N/A
9. Distribute FireSmart resources and promotional materials to the public at local businesses, FireSmart events, farmers markets or other community events.	FireSmart Coordinator, Fire Chief	Moderate	Ongoing	FireSmart resources and promotional materials	Increased attendance at FireSmart events and overall interest in taking action.	FireSmart promotional items can be found on the FireSmart BC website ⁴
10. Maintain recognition status as being a FireSmart community under FireSmart Canada's Neighbourhood Recognition Program.	FireSmart Coordinator, Fire Chief, MWAC	High	Annually	Application to be filled out and all required actions for recognition. must be completed ⁵	Maintain recognition status	N/A
11. Encourage schools to adopt education programs to engage youth in wildfire management and risk reduction. Provincial emergency preparedness curriculum is available provincially (Master of Disaster)	FireSmart Coordinator, School Division 57, DOM Education Services, MWAC	Moderate	Within 3 years	Master of Disaster curriculum ⁶ , teaching staff on board to deliver program	Master of Disaster curriculum is being taught in local schools by 2026	N/A

⁴ <https://firesmartbc.ca/resource-ordering-form/>

⁵ <https://firesmartbc.ca/resource/how-to-apply-for-the-firesmart-canada-neighbourhood-recognition-program-fcnrp/>

⁶ <https://alpha.gov.bc.ca/gov/content/safety/emergency-management/education-programs-toolkits/master-of-disaster>

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
Legislation and Planning						
<i>Legal or regulatory changes and community planning will improve community resiliency by encouraging and supporting the District's members to change their decisions to build a more resilient community.</i>						
12. As increased recreation activities and development of parks and trails occurs, ensure wildfire prevention is built into recreation planning including: <ul style="list-style-type: none"> a. Fuel reduction and vegetation management around trails, b. Use of FireSmart plant species in park and recreation area landscaping, c. use of fire guard trails, d. access control, e. educational signage informing the public of their role in preventing wildfire. 	District staff, Public Works, MWAC	High	Immediate	Human resources, public communication resources.	Community members and tourists become more aware of the potential impact of recreation and on fire ignitions.	
13. Amend the current Official Community Plan to include more wildfire protection and prevention into development policies. The current OCP does not adequately address wildfire protection or	District staff	High	Immediate	Human resources, public communication resources.	The OCP has been amended to include FireSmart and wildfire protection as a development objective by the year 2027.	Funding is available through the UBCM's CRI program ⁷

⁷ <https://www.ubcm.ca/funding-programs/local-government-program-services-funding/community-resilience/firesmart-community>

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
prevention as an overall community development objective.						
<p>14. Improve and enforce bylaws/legislation to further reduce the risk of wildfire occurrence from open burning or increased recreation. This could include:</p> <ul style="list-style-type: none"> a. Clarification on recreational fire permits, b. Asserting and enforcing fire bans, c. Fire suppression equipment/hydrants at all high-use recreation sites. 	District staff, Public Works	Moderate	Within 3 years (2025)	Communication resources, funds available to purchase equipment, legal oversight	Improvements to bylaw or written rules.	N/A
<p>15. Develop a Total Access Plan for the District to aid in strategic planning of residential and industrial development, parks, recreation, etc. The Plan should include mapping and inventory of trail and road networks in natural areas for suppression planning, identification of areas with insufficient access or access restrictions (ie. gates, deactivation), details regarding inspection and maintenance of access and suppression structures/features, inventory of water sources, etc.</p>	District staff, Public Works, local BCWS officers, MWAC	Moderate	Within 5 years (2027)	Communication and mapping resources	A GIS inventory of all trails and roads is created and utilized in District planning	N/A

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
Development Considerations						
<i>Development considerations deal with how planned development (home, business and critical infrastructure) should be designed to optimize the District's resiliency to wildfire.</i>						
16. Revise development permits to require fire resistant landscaping and/or incorporate FireSmart principles in structure development, such as fire-resistant building materials for roofs, decking, etc.	District staff, Fire Chief	High	Within 2 years (2024)	Public engagement and Communication resources, potential legal oversight	Development permits limit building materials and landscaping vegetation that are a high fire hazard.	Funding is available under UBCM's CRI ⁸ program to support development considerations.
17. Establish a Development Permit Area (DPA) for Wildfire Protection for new development/buildings within forested neighbourhoods. The Wildfire DPA should also align with existing land use and development policies identified within the OCP.	District staff	Moderate	Within 5 years (2027)	Public engagement and Communication resources, qualified wildfire professional input, potential legal oversight	A wildfire DPA is introduced into the OCP within 5 years.	Funding is available under UBCM's CRI program to support development considerations.
18. Complete FireSmart Critical Infrastructure Assessments on all critical Infrastructure (CI) within the District and identify recommendations that can feasibly be implemented to adequately reduce overall risk for each one.	FireSmart Coordinator, Fire Chief	Very High	Immediate	Local FireSmart Representative (LFR)	All CI within the District has been assessed by 2024	Funding is available through the UBCM's CRI program ⁹ to complete FireSmart Assessments
19. Implement FireSmart recommendations resulting from FireSmart Critical Infrastructure	FireSmart Coordinator	Very High	Immediate	Labour, machinery, and construction materials	The top 3 priority Critical Infrastructure have FireSmart	Funding is available through the

⁸ <https://www.ubcm.ca/cri/firesmart-community-funding-supports>

⁹ <https://www.ubcm.ca/funding-programs/local-government-program-services-funding/community-resilience/firesmart-community>

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
Assessment to critical buildings/infrastructure to reduce Hazard Score ratings to Moderate or Low. Prioritize critical infrastructure based on both Hazard Score and structure importance.					recommendations completed.	UBCM's CRI program ⁷
Interagency Cooperation						
<i>To increase and share local knowledge, develop relationships and to collaborate on future projects.</i>						
20. In 2018, the District established the Mackenzie Wildfire Advisory Committee (MWAC). The MWAC contains members and representatives from the McLeod Lake Mackenzie Community Forest, District Councillor and staff, the Fire Chief and Deputy Fire Chief, BC Wildfire Service, McLeod Lake Indian Band Fire Chief, forest industry representatives, Ministry of Forests, and emergency management coordinators. This committee is a critical part of wildfire risk reduction and emergency management and response for the community. The District should continue to foster this committee and work collaboratively with	FireSmart Coordinator, Fire Chief, MLMCF	Very High	Immediate	Communication Resources, human resources	Hold one meeting annually with all committee members involved. Participation in this committee is becoming a requirement for CRI applicants starting in 2024.	Funding is available through the UBCM's CRI program ¹⁰ to support participation in interagency meetings

¹⁰ <https://www.ubcm.ca/funding-programs/local-government-program-services-funding/community-resilience/firesmart-community>

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
involved parties to continue to ensure local wildfire-related efforts are coordinated, focused and effective. An active interagency committee will be a requirement to receive CRI funding starting in 2024.						
Cross-Training						
<i>Cross-training increases the District's wildland firefighting capacity while simultaneously supporting the structural volunteer fire department.</i>						
21. Apply for grant funding opportunities through CRI FireSmart Community Funding and Supports that can support firefighter cross training or direct training like S100 and S185.	FireSmart Coordinator	High	Immediate	N/A	Complete funding application for submission in October.	Funding is available each year through the UBCM's CRI program ¹¹
22. Continue to build the District's fire department and encourage firefighters to participate in cross-training and annual refresher exercises, including: <ul style="list-style-type: none"> a. Hydrant flushing/testing, b. Refresher training of pumps and hose, c. Wildland fire suppression training such as S-100 and S-185. 	Fire Chief	Moderate	Immediate	Volunteers interested in firefighting and suppression	Run at least one refresher exercise or training each year.	Funding for training is available through the UBCM's CRI program

¹¹ <https://www.ubcm.ca/funding-programs/local-government-program-services-funding/community-resilience/firesmart-community>

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
23. Ongoing collaboration with the McLeod Lake Indian Band to extend opportunities to their membership in wildland firefighting/cross training and exercises.	FireSmart Coordinator, Fire Chief	Moderate	Annually	Communications Resources, interested participants, available trainers	At least one instance of an organized training session	Funding for training is available each year through the UBCM's CRI program ¹²
Emergency Planning						
<i>Emergency Planning informs community leaders and members on how to respond to different types of emergencies.</i>						
24. Update the current Emergency Evacuation Plan to ensure the plan specifically addresses: <ul style="list-style-type: none"> a. Established safe zones and pull-outs along Hwy 39. b. Linkages to the Total Access Plan once developed. 	District Emergency Management, Emergency Operations Center, Fire Chief	Moderate	Immediate	Funding and/or source of capital available to allocate time plan updates	Evacuation/Emergency Response Plan is updated annually based on changes in development and local conditions	N/A
25. Promote the importance of emergency planning and evacuation within the community and conduct exercises to test and implement emergency response.	FireSmart Coordinator, District of Mackenzie Emergency Network, Fire Chief	Moderate	Immediate	Communication resources, in-kind contribution from community members	Participation and passing of emergency response tests/exercises by at least 50 residents	N/A

¹² <https://www.ubcm.ca/funding-programs/local-government-program-services-funding/community-resilience/firesmart-community>

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
Vegetation Management						
<i>The purpose of vegetation management is to reduce wildfire risk through the reduction of vegetative fuels available for consumption, while supporting forest values and healthy ecosystems.</i>						
26. Continue to apply for funding to complete proposed fuel management projects to further reduce forest fuels surrounding the community. This includes both small scale demonstration projects in town, and larger fuel management projects.	FireSmart Coordinator, MLMCF	High	Ongoing	An RPF must write the fuel management prescription, contractors to complete operations.	Complete one fuel treatment activity per year (either prescription development or operations)	Funding is available through the UBCM's CRI program for both prescription development and operational work.
27. Encourage homeowners to remove all vegetation from the Non-Combustible Zone and landscape using fire-resistant plants. Conifer trees within the first 10m (Zone 1) of the home should also be encouraged for removal.	FireSmart Coordinator, Fire Chief	High	Immediate	A certified Local FireSmart Representative	5 property owners have implemented FireSmart landscaping and vegetation removal on their property each year	N/A
28. Develop spatially defined areas around the District and Highway 39 where reduced wildfire management stocking standards must be prescribed after harvest activities. This includes for both area based and volume-based tenues and licensees.	FireSmart Coordinator, District staff, Ministry of Forests representative, MLMCF, BCTS representative	Very High	Immediate	Communication resources, GIS and mapping resources, qualified RPF input as to where these management areas should be delineated.	A wildfire management area relating to forest harvest activities is spatially defined where fire management stocking standards are required.	N/A
29. Create a monitoring and maintenance plan which includes a comprehensive database that captures treatment strategies	FireSmart Coordinator, MLMCF	Very High	Ongoing	A qualified RPF to assess treated stands	Existing fuel treatment areas remain a low hazard through maintenance activities.	Funding is available through the UBCM's CRI

Action	Lead(s)	Priority	Time frame	Resources Required	Metric for Success	Notes
and dates, along with the spatial polygon information, to effectively plan monitoring, re-evaluation and possibly maintenance/treatment activities. Windthrow and other forest health agents frequently act upon and impact forest stands within the Mackenzie region. Apply for funding for monitoring and maintenance activities.						program ¹³ for vegetation maintenance

¹³ <https://www.ubcm.ca/funding-programs/local-government-program-services-funding/community-resilience/firesmart-community>