Community Wildfire Protection Plan

Fort Smith

Government of
Northwest Territories

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1 Introduction

In 2010 a Community Wildfire Protection Plan (CWPP) was developed for the Town of Fort Smith to address the hazard and the risk to the community from wildfire. That CWPP was developed to provide practical and operational wildland /urban interface (WUI) risk mitigation strategies to reduce the threat from wildfire to the community.

The original CWPP was developed by Montane Forest Management Ltd in cooperation with the Government of the Northwest Territories (GNWT) and the Town of Fort Smith.

In 2025 the GNWT, Department of Environment and Climate Change (ECC) updated the Town of Fort Smith's CWPP by using the most recent information, science and expertise available. This included using standardized FireSmart assessment protocols and mitigative measures were developed based on the 7 disciplines of FireSmart.

1. Vegetation Management
2. Development
3. Legislation
4. Public Education and Engagement
5. Inter-Agency Cooperation
6. Cross Training
7. Emergency Planning

The update included:

- The FireSmart mitigation efforts completed around the community
- The change in hazard around the community.
- New recommendations or modification to existing recommendations

Fort Smith, in cooperation with ECC, implemented some of the original recommendations but there is still work to do.

The update includes recommendations to assist in setting priorities to reduce the threat from wildfire. It is important to note that while implementing these recommendations will reduce the threat from wildfire to structures, it will never completely remove the threat.

This plan should be reviewed regularly to ensure that it remains a priority to the community and its residents.

2 Planning Area and Stakeholders

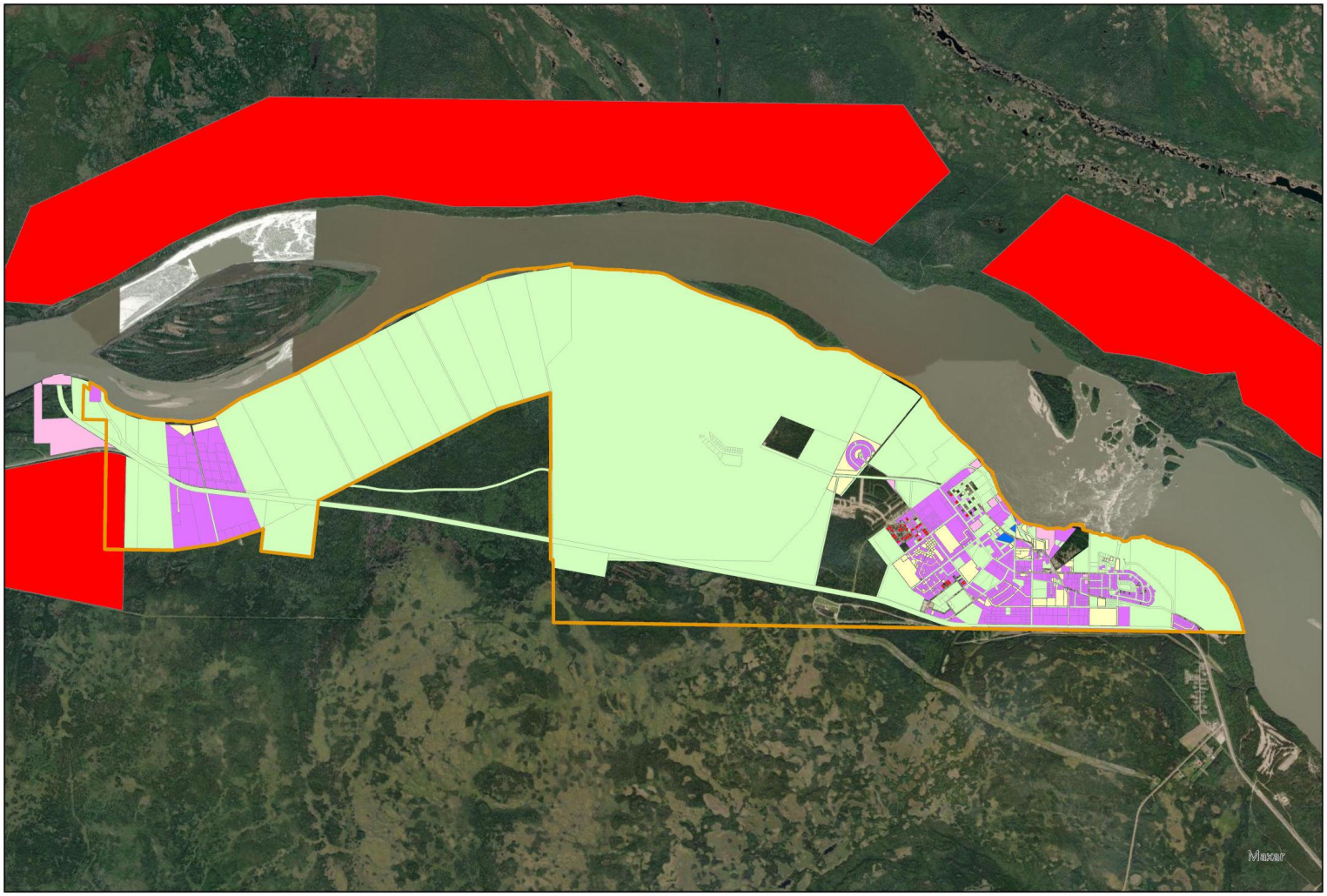
The planning area includes all lands within the Town of Fort Smith municipal boundaries (**Map 1**).

Stakeholders involved with in the planning process included:
Town of Fort Smith
Government of the Northwest Territories, Municipal and Community Affairs
Government of the Northwest Territories, Environment and Climate Change
Salt River First Nation #195
Fort Smith Metis Council
Smith Landing First Nation #196

The planning area has been divided into six development zones to focus the hazard and risk assessment and mitigative measures:
Town East
Town Central
Town West
Towering Pines
Airport
Bell Rock

Land ownership throughout the planning area is varied and is represented by the following (**Map 1**):
Commissioner
Mixed
Municipal
Private
Salt River Indian Reserve
Territorial
Interim Land Withdrawal Areas

Map 1



Fort Smith
Land Status Authority

Government of Northwest Territories

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3 Hazard & Risk Assessment

In the original 2010 CWPP a hazard and risk assessment was undertaken to determine the potential impact wildfire could have on the community. This was based on an analysis of the historical wildfire ignition sources, fire incidence and the wildland fire potential of the forest surrounding the community.

3.1 Wildfire Ignition Potential

The assessment of recent fire incidence was completed using historical fire data from GNWT Environment and Climate Change (ECC), Parks Canada Wood Buffalo National Park (WBNP), and Alberta Forestry and Parks for the period from 2009 to 2024, and personal conversations with local authorities.

Data within a 10 kilometer radius of the Town of Fort Smith indicates that the risk of wildfire is high. Fire incidence data shows total 22 incidents, including 4 Alberta fires, in the planning area; 11 human-caused and 11 lightning caused. In 2005 a 390 hectare fire in Alberta approximately 9 kilometers south of Fort Smith created the need for community protection strategies and tactics for development in Fort Smith and Smith Landing First Nation (**Map 2**).

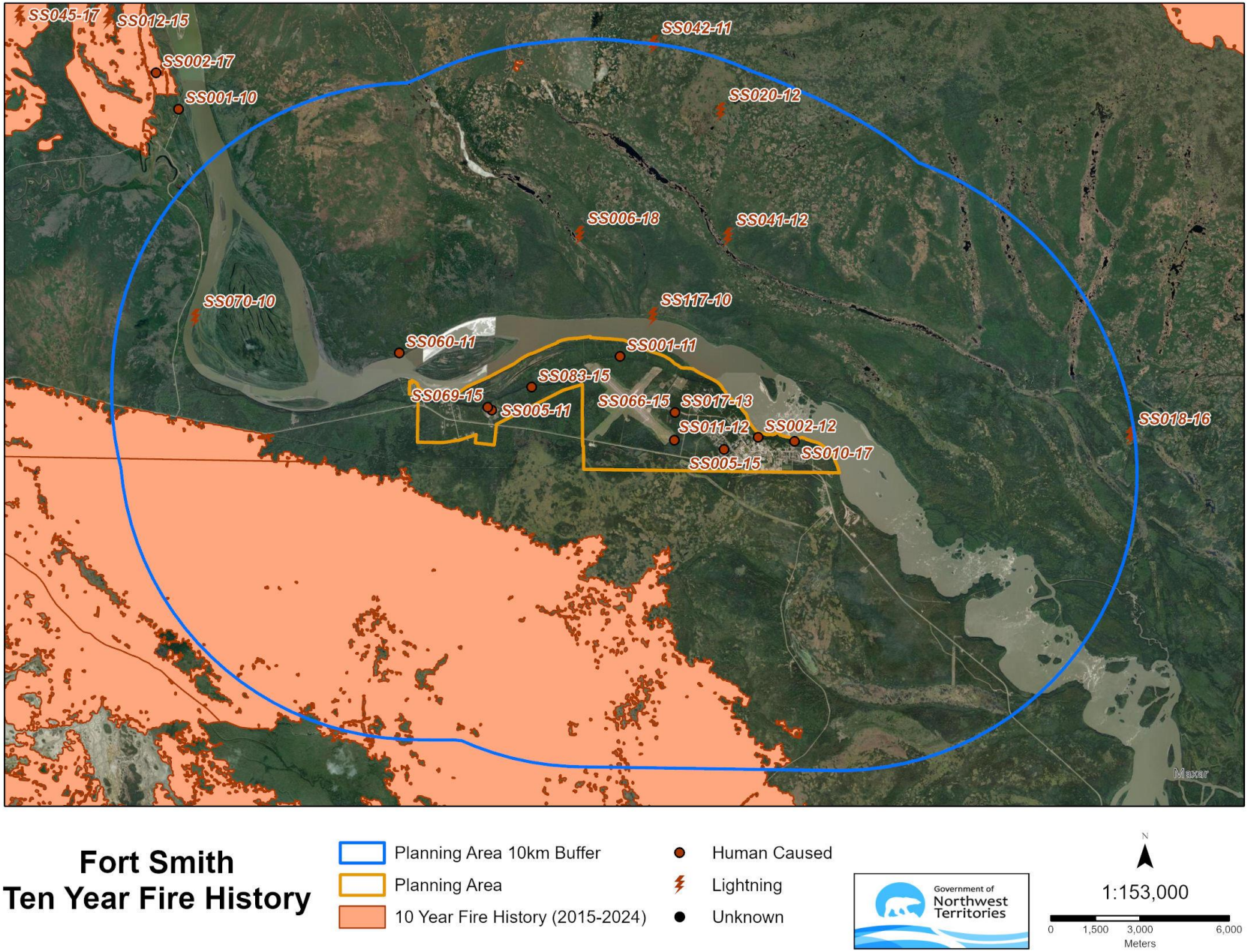
Table 1: Fire Incidence by General Cause (2009 – 2024)

General Cause	Number of Fires	Percent of Total
Human-Caused	103	9.2%
Lightning-Caused	1015	90.8%
TOTALS	**1118**	**100%**

While Wood Buffalo National Park is outside the 10 km study area, it is important to consider the wildfire history. Fire incidence is high with the main cause being lightning. Large fires occur frequently in the Park with major fires occurring on or over the Park boundaries near Fort Smith over the past several decades.

The Town of Ft. Smith Fire Department reports that the fire department responds to several grass fires annually with the spring season being the most problematic; these grass fires are not included in Table 1.

Map 2



Fort Smith
Ten Year Fire History

- Planning Area 10km Buffer
- Planning Area
- 10 Year Fire History (2015-2024)
- Human Caused
- Lightning
- Unknown

Government of Northwest Territories

N

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Meters

3.2 Wildfire Behavior Potential

3.2.1 Forest Fuel Types

Analysis of the forest fuel types around Fort Smith were completed in 2010 and indicated the main fuel types listed below. The forest fuels have not changed significantly since that time.

The planning area is characterized with a combination of fuel types including:

- Spruce-lichen woodland (C-1)
- Boreal spruce (C-2)
- Mature pine (C-3)
- Deciduous (D-1)
- Deciduous (D-2)
- Cured grass (O1)
- Non-fuel (NF)

Each of these fuel types can present hazard to interface structures based on fuel moisture conditions and time of year, however it is typically the C-2 and C-3 fuel types that present the highest wildland/urban interface hazard.

Primary fuel types in each of the development zones are discussed below. The analysis reveals that the large areas of coniferous fuel types within and adjacent to the planning area presents significant wildland/urban interface hazard.

Town East

The east and north sides of the zone has heavy C-3 and C-2 fuels which presents wildfire threat to the development perimeter of Carl's Drive and Axe Handle Hill subdivisions. The center portion of the development area consists of non-fuels and patches of D-1 and cured grass.

Town Central

The Town Central zone is primarily developed and consists of non-fuels with patches of D-1 and cured grass fuels. There are smaller scattered patches of C-3 and C-1 fuels however wildfire threat is minimal from these areas.

Town West

The Town West zone has heavy C-3 and C-2 fuels on the west and south sides from Highway 5 and Trout Street to the development perimeter of Frontier Grove, West Village, and Indian Village subdivisions. There are also significant C-3 fuels within the developed areas in West Grove and on the Kaeser and Bevington properties; fuels within and on the perimeter of this zone present significant risk to development.

Towering Pines

The Towering Pines zone consists primarily of heavy C-3 fuels throughout the zone with scattered patches of D-1, C-2, and non-fuel. The Towering Pines subdivision is primarily non-fuel with C-3 fuels in the middle of the development and some cured grass areas around the perimeter.

Airport

The Airport zone has heavy C-3 and C-2 fuels on the east, south and north sides and D-1 fuels on the west side. The developed airport area is primarily non-fuel and cured grass and presents minimal risk to airport structures.

Bell Rock

The Bell Rock zone has heavy C-3 and C-2 fuels throughout, including within the Bell Rock Estates subdivision, and scattered patches of D-1 throughout the zone; fuels within and adjacent to the Bell Rock zone present significant threat to structures in Bell Rock Estates.

3.3 FireSmart Hazard Assessments

FireSmart hazard assessments (P.I.P. 2003) were conducted on developments and community infrastructure within the planning area. The FireSmart hazard assessment process evaluates wildland and structural fuel types, structural features, and topography within and adjacent to the development area to consistently quantify the wildland/urban interface hazards within the planning area in conjunction with setting priorities used for hazard mitigation.

Table 2: FireSmart Hazard Assessments

Developed Area	Structure/Site Hazard (0 – 30m)
Town East	High - Extreme
Town Central	Low - Moderate
Town West	High - Extreme
Towering Pines	High - Extreme
Airport	Low
Bell Rock	Extreme

Perimeter developments at the highest risk to wildfire include:

1. Carl's Drive/Axe Handle Hill
2. Frontier Village/Indian Village/SRFN Development
3. Bell Rock Estates
4. Towering Pines Trailer Park

Hazard factors for each of the development zones are discussed below:

3.3.1(a) Town East

This area includes residential development in Axe Handle Hill and Carl's Drive subdivisions. FireSmart hazard is rated as low to moderate for dwellings in the central portion and high to extreme for perimeter structures along McDougal Rd, Pine Cres., Primrose Lane, and Carl's Drive due to adjacent C-3 and C-2 fuel types and a lack of adequate Zone 1 defensible space around many structures.

3.3.1(b) Town Central

This area includes a mixture of residential, commercial, light industrial, and community infrastructure development. FireSmart hazard is rated as low except for structures with lack of Zone 1 defensible space next to isolated patches of wildland fuels scattered throughout the area or those with combustible wood-shake roofing materials or significant debris accumulations in the yards that are susceptible to airborne firebrand ignition.

3.3.1(c) Town West

This area includes primarily residential development in the West Grove, Frontier Village, Coop Housing, and Indian Village subdivisions. FireSmart hazard is rated as low to moderate for structures in central developed areas and high to extreme for perimeter structures adjacent to wildland C-3 and C-2 fuel types with inadequate Zone 1 defensible space, combustible roofing, or debris piles in the yard.

3.3.1(d) Towering Pines

This area includes residential development in the Towering Pines trailer park and recreational development at the Queen Elizabeth Park/Campground. FireSmart hazard is rated as moderate on the south and west sides of the Towering Pines trailer park due to the light fuels adjacent and existing fuel breaks surrounding the development and high on the north side due to the heavier C-3 fuels between the development and the campground.

3.3.1(e) Airport

This area includes commercial and infrastructure development at the Fort Smith airport. FireSmart hazard is rated as low to all airport structures due to the non-combustible building materials and significant fuel breaks around the entire area.

3.3.1(f) Bell Rock

Bell Rock Estates includes rural-residential development on the north and south side of Hwy 5. FireSmart hazard is high to extreme for the entire development due to the intermix with wildland fuels, lack of defensible space, and structural factors such as exposed decks, combustible siding materials, and combustible materials piles.

Old Bell Rock consists of a rural development in the on the south side of Hwy 5. FireSmart hazard is rated as low to moderate due to the deciduous and grass fuels and the significant clearing around the structures. Cured grass in the spring and fall seasons could present some risk to these structures.

FireSmart hazard assessments were conducted on critical infrastructure facilities within the planning area (Table 3). Most of the facilities are located within the urban development area and have a low or moderate hazard rating.

Table 3: Critical Infrastructure FireSmart Hazard Assessments

Map Key	Development Name	Structure/Site Hazard (0 – 30m)
1	Fort Smith Fire Hall	Low
2	St. Josephs Cathedral	Low
3	Parks Canada/GNWT Admin Bldg	Low
4	NWT Power Corporation Admin & Substation	Low
5	Fort Smith Water Treatment Plant	Low
6	Hospital	Low
7	Salt River First Nation Band Office	Low
8	Fort Smith Recreation Centre	Low
9	GNWT ECC Regional Admin Office	Moderate
10	RCMP Station	Low
11	Mission Farm	Low
12	Fort Smith Town Hall	Low
13	Fort Smith Airport	Low
14	Northern Lights Special Care Home	Low
15	Fort Smith Water Tower/Pumping Station	Low
16	NorthWestel Cell Tower	Low
17	Northern Life Museum	Low

3.3.2 Future Development

New residential development is planned and/or occurring in the West Grove subdivision and on the Salt River First Nations block on the west perimeter of town.

Residential development is currently occurring in the West Grove subdivision area. There are several serviced undeveloped lots available at this time in addition to an undeveloped portion in the northwest corner of the area. The partially built development is situated in C-3 fuels and the town indicates that it may be several years before this area is fully developed based on current building rates. The result is a blend of wildland fuels and residential development rated at high to extreme hazard.

New development is proposed on the Salt River First Nations lands in the southwest corner of the Town West zone. The proposed development will include residential and commercial development and is phased over the next several years. The present area is a heavily forested C-2/C-3 fuel type and presents extreme wildfire hazard and risk to present adjacent development and future development within this subdivision.

4 Vegetation Management Options

The goal of vegetation management is to create a clear space between the community and the forest to reduce the intensity and rate of spread of wildfire approaching or leaving the community. Vegetation management options are proposed at the appropriate scale, based on hazard and risk, to reduce the threat of wildfire to developed areas. While fuel modification projects reduce the threat of wildfire to developments, they do not ensure structure survival under all hazard conditions.

Vegetation management consists of one or any combination of the following options:

- Fuel removal (remove trees)
- Fuel reduction (thin and prune trees)
- Species conversion (plant less flammable trees)

Complete descriptions of the methods included in each of the above options are included in the link:
https://www.firesmartcanada.ca/mdocs-posts/firesmart-priority-zones-2017/

FireSmart standards refer to the interface priority zones with vegetation management for interface structures recommended in Zones 1 and 1a, 2 at a minimum and in Zone 3 based on hazard and risk.

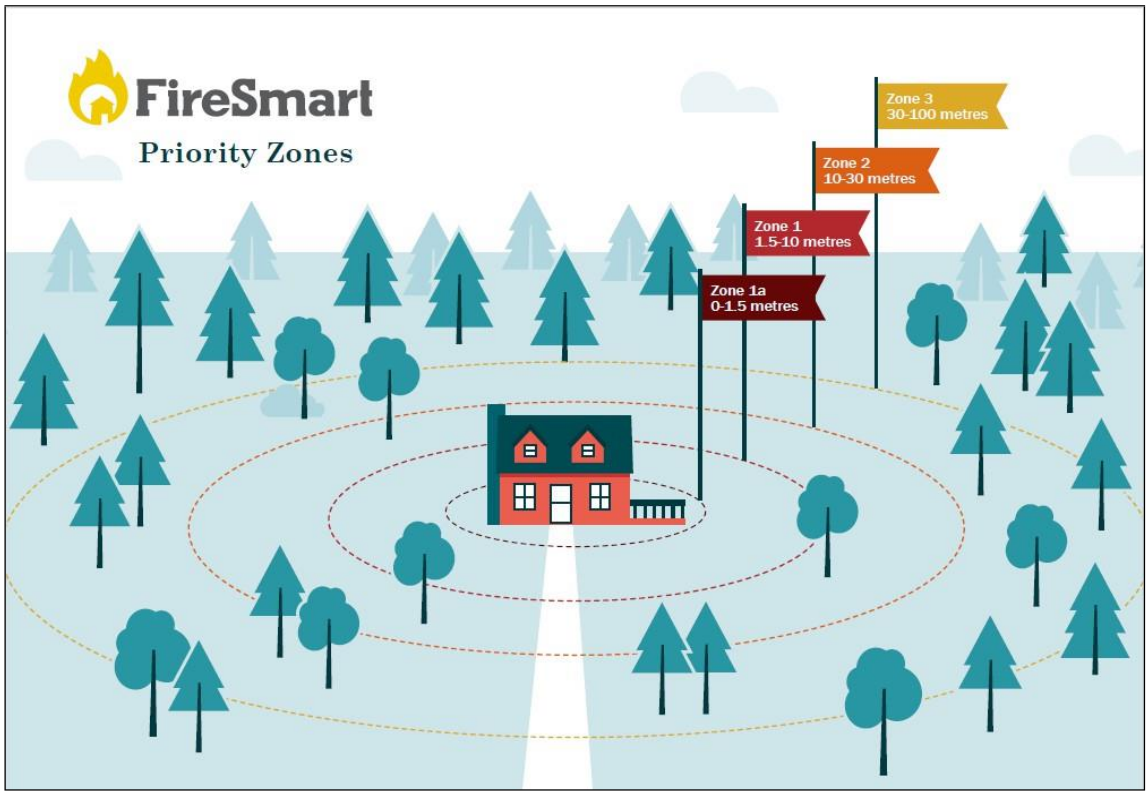


Figure 1– Interface Priority Zones (PIP, 2017)

4.1 Existing Vegetation Management

Fuels reduction projects have been completed by the GNWT ECC Department in several locations within the planning area (**Map 3**) in the form of fuels reduction or woodlot harvesting. The Town of Fort Smith fire department conducts annual spring hazard reduction burns in several areas to reduce cured-grass fuel loads.

Table 4: Existing Vegetation Management Areas

NAME	AREA (ha)	YEAR	AGENCY
Axe Handle Hill	5.7	1996	GNWT-ECC
ECC Office	1.9	2000	GNWT-ECC
Wren Crescent	4.6	2005	GNWT-ECC
NWT Power Corp	5.3	2005	Town of Fort Smith
Portage Avenue	0.9	2007	GNWT-ECC
Wilderness Road	2.4	2008	GNWT-ECC
Hwy 5 East/Paddle Street	4.3	2008	GNWT-ECC
Primrose Lane	3.9	2009	Town of Fort Smith
Axe Handle Hill	7.2	2010	Town of Fort Smith
upkeep Bell Rock South	2.2	2010	Town of Fort Smith
Bell Rock North	1.2	2010	Town of Fort Smith
Wintergreen Street North	0.1	2010	Town of Fort Smith
Wanderingspirit/Wren	1.7	2011	Town of Fort Smith
Skiddyway Road	1.4	2011	Town of Fort Smith
Wintergreen Street North	0.7	2011	Town of Fort Smith
Wintergreen/Calder	2.2	2011	Salt River First Nation
Wintergreen/Hwy 5 Road	9.0	2011	Salt River First Nation
Hwy 5 - Km 261	3.2	2014	GNWT-DOT
Nanook 1- Axe Handle Hill	2.4	2015	Town of Fort Smith
Nanook 2- Trailer Court	3.7	2015	Town of Fort Smith
Landslide Area	3.8	2016	Town of Fort Smith
Marine Drive	3.8	2017	Town of Fort Smith
YSM Airport South	7.1	2018	GNWT-ECC
Airport Woodlots	58.6	Ongoing	Public
Airport North Runway	5.7	2019	GWNT - ECC
Aurora College HEO	14.2	2023	Aurora College
Frog Ponds	16.7	2023	Town of Fort Smith
West of Westgrove	19.8	2023	Town of Fort Smith
Tamarac	6.6	2023	Town of Fort Smith
Water Plant	1.9	2023	Town of Fort Smith
Snow Dump	1.6	2023	Town of Fort Smith
Landfill	2.9	2023	Town of Fort Smith

Several of the existing treated areas will require ongoing maintenance to remove blowdown trees, residual ground and surface fuel to ensure the upkeep of these areas. The ongoing woodlot harvesting program should be continued with more frequent disposal of harvesting debris to reduce residual fine fuel loading.

4.2 Proposed Vegetation Management

4.2.1 Zone 1a (0-1.5 meters)

Zone 1a vegetation management is **inadequate** for many of the structures due to encroachment of native grass fuels, combustible material piles and coniferous trees located in close proximity of home.

FireSmart Zone 1a vegetation management options include:

- Creating a noncombustible zone around structures by clearing vegetation and combustible material down to mineral soil within 1.5 meters of structures.
- Use noncombustible materials, in this critical zone of 1.5 meters directly adjacent to your home, such as gravel, bricks or concrete.
- Woody shrubs, trees or tree branches should be avoided in this zone and any that are present should be properly mitigated.

FireSmart Zone 1 vegetation management options within 10 meters of the structure include:

- Removal of flammable forest vegetation within 10 meters of structures.
- Removal of all coniferous ladder fuels (limbs) to a minimum height of 2 meters from ground level on residual overstory trees.
- Removal of all dead and down forest vegetation from the surface.
- Increased maintenance to ensure that all combustible needles, leaves, and native grass are removed from on and around structures.
- Establishment and maintenance of a non-combustible surface cover around the structure.
- Removal of all combustible material piles (firewood, lumber, etc) within 10 meters of the structure.

For more information on FireSmart Zone 1 standards refer to *FireSmart – Protecting Your Community from Wildfire* (PIP 2003).

Recommendation 1: Encourage residents to establish adequate Zone 1a and Zone 1 defensible space around their structures.

4.2.2 Zone 2 (10m-30m)- Zone 3 (30m-100m)

Zone 2-3 vegetation management is the responsibility of the GNWT on Commissioner Lands, private landowners or the Salt River First Nation on the larger undeveloped deeded parcels of land, or the Town of Fort Smith on municipal lands (Map 2).

Perimeter developments at the highest risk to wildfire include:

1. Carl's Drive/Axe Handle Hill
2. Frontier Village/Indian Village
3. Bell Rock Estates
4. Towering Pines Trailer Park

These areas are recommended as priorities for Zone 2-3 fuel management projects and are divided into several smaller units **(Table 5).** The intent is to establish fireguards around the development area perimeters as the first priority with fuels reduction inside the developed areas as second or third priority. Vegetation management has not been proposed in areas along the unstable banks of the Slave River to reduce the risk of further slumping.

Proposed areas are conceptual at this time and will require detailed fuels reduction planning to identify fuels management prescription, unit boundaries, and operational constraints.

Table 5: Vegetation Management Areas

Name	Area (ha)	Type	Land Status Authority
Southeast Perimeter	22.5	Fuel Reduction	Commissioner/AB. SRD
Northwest Perimeter	14.6	Fuel Reduction	Commissioner
Northwest Perimeter	7.5	Fuel Reduction	Salt River First Nation
Southwest Perimeter	5.4	Fuel Reduction	Commissioner
Bell Rock Estates	28.5	Fuel Reduction	Commissioner
Towering Pines	5.2	Fuel Reduction	Municipal
Kaeser/Bevington Lands	7.3	Fuel Reduction	Private
West Grove	2.8	Fuel Reduction	Municipal

Southeast Perimeter

The project is on lands administered by the GNWT Commissioner and Alberta Sustainable Resource Development and consists of four new fuels reduction units and maintenance of two existing units. Fuels are primarily C-3 with C-2 fuels in the Hwy 5/Primrose Lane unit.

Full fuels reduction consisting of overstory/understory thinning and ground and ladder fuels removal for a minimum width of 100 metres from development is proposed. Maintenance required in the existing blocks consists of removal of dead and down and minor improvements to overstory spacing and pruning.

Northwest Perimeter

This unit is on lands administered by Salt River First Nation and the GNWT Commissioner. It consists of three sub-units, one on the Salt River proposed development block, and two on the west side of Wintergreen Street, north and south of McDougall Road. Fuel types consist of heavy C-3 and C-2 fuels on the Salt River block and C-3 fuels on the Commissioner lands.

Full fuels reduction is proposed for these units for a minimum width of 100 metres from development edge. Detailed fuel modification prescription planning will need to consider the most recent development plans and timelines for the Salt River block prior to determining actual fuel reduction unit location.

Southwest Perimeter

This unit is on lands administered by the GNWT Commissioner. The project consists of new fuels reduction to widen the existing strip of 2002/03 fuels reduction to a minimum width of 100 metres and maintenance of the existing fuel reduced strip. Fuel types consist of moderate to heavy C-2 and C-3 fuels.

Future development of the block to the west of Frontier Village by the Salt River First Nation will reduce the threat of wildfire to development in Frontier Village however final completion of the Salt River block is not scheduled for several years.

Full fuels reduction consisting of overstory/understory thinning and ground and ladder fuels removal is proposed in the new unit and maintenance in the existing blocks consists of removal of dead and down and minor improvements to overstory spacing and pruning.

Bell Rock Estates

This unit is on lands administered by the GNWT Commissioner and consists of two fuels reduction units on the west and south sides of Bell Rock Estates, north and south of Hwy 5. Fuels are primarily C-3 with scattered patches of C-2.

Full fuels reduction consisting of overstory/understory thinning and ground and ladder fuels removal for a minimum width of 100 meters on the west and 150 meters on the south is proposed.

Towering Pines

This unit is on lands administered by the Town of Fort Smith and consists of fuels reduction around the outside perimeter of the Towering Pines development. Fuels are moderate to light C-3 with heavier C-3 fuels on the north side between the development and the Queen Elizabeth Park and campground. The existing 30 metre wide fireguard and active woodlot harvesting to the northwest provides a good Zone 3 fireguard.

Full fuels reduction consisting of overstory/understory thinning and ground and ladder fuels removal for a minimum width of 100 metres is proposed with a priority on the north side of the development before the south and west sides.

Bevington/Kaeser Properties

The Bevington and Kaeser properties are two privately-owned blocks of forested land within the developed town area, immediately adjacent to developed lots. Fuel types are primarily moderate to heavy C-3 fuels with patches of scattered C-2 and provide significant wildland fuel to threaten urban development.

Full fuels reduction consisting of overstory/understory thinning and ground and ladder fuels removal for a minimum width of 75 metres surrounding development on McDougal Rd., Wilderness Rd., and Field St. is proposed.

West Grove

This unit is on lands administered by the Town of Fort Smith and is planned for development in the future however the Town does not anticipate the area will be fully developed for several years. Fuels are primarily C-3 and are located immediately within and adjacent to new homes in the West Grove subdivision.

Full fuels reduction consisting of overstory/understory thinning and ground and ladder fuels removal in the area based on the future development timelines for the area.

4.2.3 Zone 3

It is important to recognize the importance of establishing containment lines outside the community to provide fire managers with the opportunity for burnout/backfire or other wildfire containment options to reduce the threat of landscape-level wildfire from entering into the developed area.

A containment line strategy is recommended along the south and west perimeters of Bell Rock Estates and to the south of the airport where wildland fuel types and ground conditions dictate to the intersection with the fireguard constructed by Alberta during the 2005 fire season **(Map 3/Table 6).**
Proposed fuel removal widths of 40-60 metres are recommended using mechanical mulching.

The existing Towering Pines and 2005 Alberta/Smith Landing containment lines will require regular maintenance to ensure effectiveness.

Table 6: Proposed Vegetation Management Projects

Name	Area (Ha)	Type	Land Status Authority
Alberta Border Control Line Extension	3.8	Fuel Removal - Dozer	Commissioner
Bell Rock Control Line	17.0	Fuel Removal, Thinning & Pruning – Dozer & Mulching	Commissioner
Whispering Pines Trailer Court – 100m Buffer	24.8	Thinning & Pruning -Mulching	Town of Fort Smith
Frog Pond	16.8	Thinning & Pruning - Mulching	Town of Fort Smith
Wilderness Road	10.9	Thinning & Pruning - Mulching	Town of Fort Smith
Airport South Extension	3.5	Fuel Removal - Mulching	GNWT-INFRASTRUCTURE
Landfill 100m Buffer	54.0	Thinning & Pruning - Mulching	Town of Fort Smith

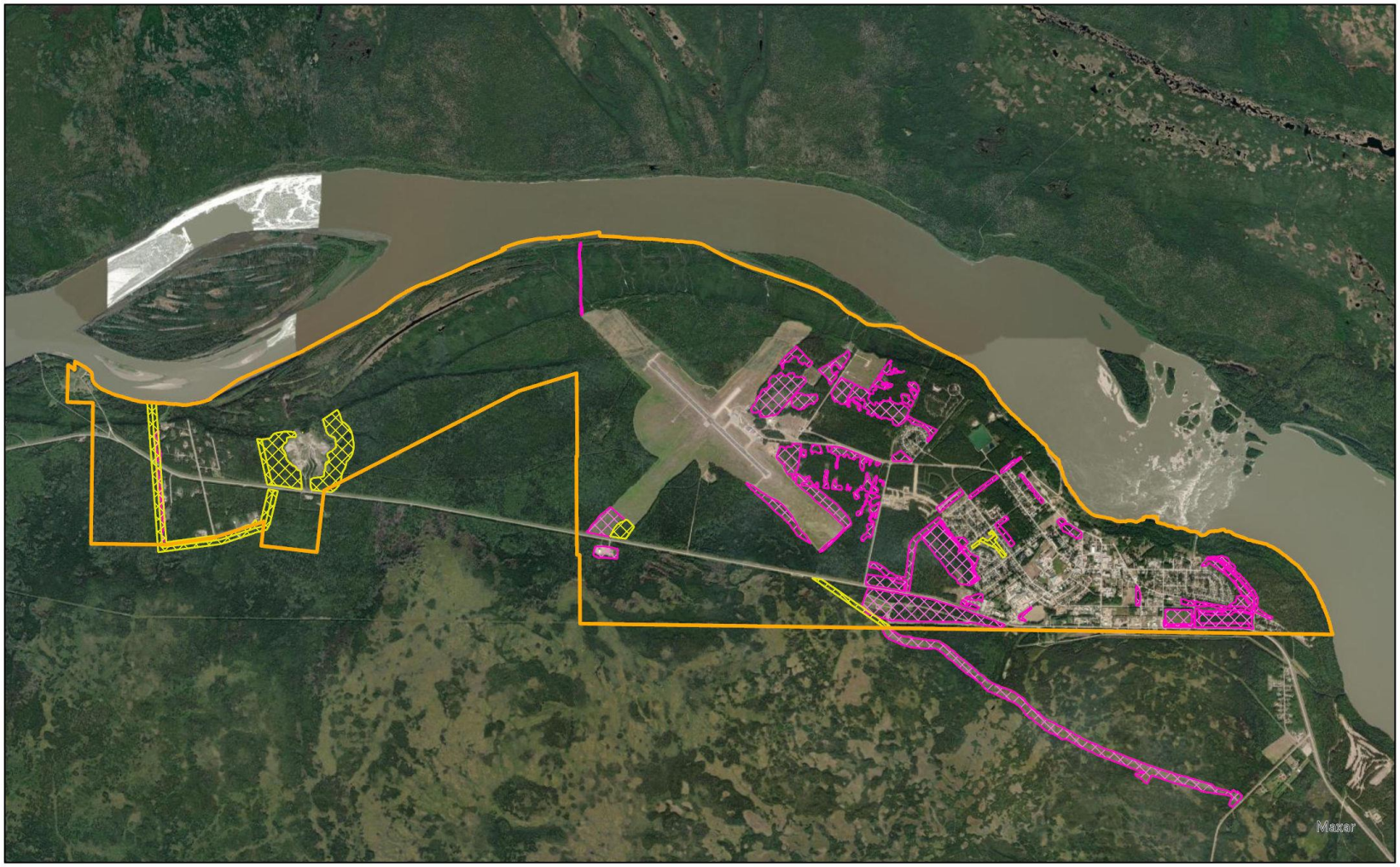
Recommendation 2: Zone 2-3 fuels reduction and maintenance is the responsibility of the Land Status Authority holder(s) and should be implemented based on the priorities identified in this plan.

4.3 Vegetation Management Maintenance

Fuel modification area maintenance schedules depend on many factors including fuel type, soil and moisture conditions, and specific weather events. It is suggested that land managers provide periodic inspections of their fuel modification project areas and complete maintenance as required. It is projected that fuel modification maintenance will be required at least each five-year period.

Recommendation 3: Ensure that all existing fuel modification projects are inspected on a regular basis and maintained as necessary to ensure effectiveness. Maintenance should be the responsibility of the land manager or landowner.

Map 3



Fort Smith
Fuel Modifications

Completed and Proposed

Planning Area

Fuel Modifications

Completed

In Progress

Proposed

Government of Northwest Territories

N

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Meters

5 Development Options

In 2014 the Town of Fort Smith updated the Community Plan Bylaw 935 to replace Bylaw 793.

Wildfire Hazard Mitigation

(1) All development occurring at the wildland /urban interface, or in areas with a high or extreme hazard rating as identified in the Fort Smith FireSmart Community Protection Plan, shall incorporate the following mitigation measures:

a. Skirting will be used to enclose any areas under a building or deck with less than 2 meters clearance to the ground.
b. Fire resistant siding materials will be used for all exterior wall finishes.
c. All roofing materials shall have a U.L.C. Class C fire rating.
d. Defensible space for a minimum 10m or to lot boundary.
e. A minimum clearance of 3 meters from combustible vegetation and materials shall be provided around all propane storage tanks

Consideration of wildfire at the planning stage of new development is encouraged to ensure that wildfire hazard and appropriate mitigation measures are developed and implemented prior to development.

New developments may overlap or conflict with existing fuel modification resulting in a reduction in fuel-break effectiveness and an increase in wildfire threat to the new or existing development in the area.

5.1 Structural Options

Structural characteristics that contribute to a structure's ability to withstand wildfire ignition include type of roofing and siding material, structure siting with respect to steep forested slopes, and proper construction and maintenance of eaves, vents, and openings that can accumulate flammable debris and allow wildfire to gain entry to the structure. Structure design and exterior structural materials may be controlled through municipal development bylaws and regulation while others such as combustible woodpiles locations are best dealt with through public education and awareness.

The most common roofing material in the planning area is asphalt shingle. Combustible wood-shake roofing materials are uncommon however they are present on structures in the planning area including Kaesers Stores, Bank of Montreal and a few homes.

The most common siding materials are combustible vinyl and wood with a smaller amount of non-combustible stucco and metal.

Exposed combustible decks and porches are present on many of the dwellings in the planning area.

5.2 Infrastructure Options

Infrastructure options include provision of adequate access standards to ensure quick and safe ingress and egress for residents and emergency responders during a wildfire, adequate and accessible water supply for structure protection and suppression, and utility installation standards that do not increase risk to emergency responders during a wildfire emergency.

5.2.1 Access

Access road standards throughout the planning area are mainly adequate for an interface community. Most access roads are paved loop-road design and cul-de-sacs have adequate turnaround dimensions for fire apparatus.

Access driveways to several dwellings in Bell Rock Estates are narrow with inadequate turnaround room for fire apparatus making them unsafe for response personnel during an interface fire.

5.2.2 Water Supply

The Fort Smith town centre and airport areas are provided with municipal hydrant supply with adequate volume and pressure for interface fire incidents.

Bell Rock Estates has no dedicated fire suppression water supply and presently depends on mobile water tender supply.

Development of borrow pits has been discussed in the Fort Smith Community Interface Protection Guide (SRD, 2005) and the Town of Fort Smith Community Protection Plan (Golder, 2006) and both recognize the difficulty and expense of trying to establish water holding pits in the sandy soils of the area. Consideration of high-volume pumps and hose may be a more practical and economical solution to provide structure protection water supply to the Bell Rock Estates development.

5.2.3 Franchised Utilities

Franchised utilities affected by an interface fire include electrical power and fuel. Proper installation and maintenance of these services can minimize the risk to residents and emergency services personnel.

Electrical Power

Power distribution and residential service is provided through above-ground transmission and distribution lines. Overhead distribution and service lines in the area are at risk to hazard trees which could result in wildfire ignition or downed lines during a wildfire resulting in a risk to emergency responders and a loss of power, and critical services, during the emergency.

Home Heating

Buildings are heated by heating oil or propane. Some of the propane tanks in Bell Rock Estates do not have adequate defensible space from wildland fuels, creating a safety hazard for residents and responders during an interface fire.

6 Public Education Options

Public education plays a key role in promoting and implementing FireSmart principles and projects. Residents, landowners, municipal administration, and elected officials all need to be aware of the risk of wildfires and the solutions to minimizing the risk, and need to become a partner in implementation of the solutions in their communities. If stakeholders understand the issues relating to wildland/urban interface hazard they will be more likely to take action on their own property or to support actions taken by other authorities.

Residents and stakeholders can refer to the GNWT ECC, Forest Management Division website at: https://www.ECC.gov.nt.ca/en/services/be-firesmart for further information on the GNWT FireSmart program, current wildfire updates, and other wildfire management related information.

Key Messages

FireSmart hazard assessments identified the need for the following key messages to target audiences in the planning area.

Homeowners

Homeowners can increase resiliency of homes and make them less vulnerable to wildfire by development and maintenance of the FireSmart Non-Combustible Zone 1a (0-1.5 metres) and Zone 1 (1.5-10 metres) defensible space surrounding the home, by:

- Clearing vegetation and combustible material down to mineral soil within 1.5 metres of structures.
- Using noncombustible materials in this critical zone of 1.5 metres directly adjacent to your home such as gravel, bricks or concrete.
- Woody shrubs, trees or tree branches should be avoided in this area and any that are present should be properly mitigated.
- Storing firewood and other combustible materials more than 10 metres away from the home.
- Keeping roof and eaves clear of leaves and other combustible debris.
- Creating propane and fuel-tank FireSmart defensible space.
- Creating a non-combustible zone for underneath and around any trailers/vehicles and mitigate sheds and other structures to the same standards as those of your home.
- If possible and/or applicable maintain Zone 2 (10-30 metres) and Zone 3 (30-100 metres) recommendations, and work with neighbors in any overlapping Priority Zones.

Communities

Communities can reduce wildfire risk and adopting FireSmart principles by:

- Holding a FireSmart Wildfire Community Preparedness Day or workshop
- Using local government websites, social media and newsletters to promote FireSmart principles.
- Asking ECC staff what educational and/or promotional resources they have available, such as: wildfire information pamphlets, posters, educational resources, videos etc.
- Applying for the FireSmart Community Recognition Program. For more information visit: www.firesmartcanada.ca/firesmart-communities/firesmart-canada-community-recognition-program/.

Recommendation 4: Public education on acceptable FireSmart Zone 1a and Zone 1 standards is recommended for all Fort Smith residents.

7 Inter-Agency Cooperation and Cross-Training Options

Interagency cooperation and cross-training between all stakeholders is necessary to ensure cooperative and effective implementation of wildland/urban interface mitigation options and to coordinate an effective response to a wildland/urban interface fire. Since 2016, and yearly thereafter, ECC conducted basic Wildland/Interface Fire Operations training and sprinkler/pump set-up with the Fort Smith Volunteer Fire Department members. Furthermore, ECC and the Fire Department conducted spring prescribed burning of cured grass areas within the Town of Fort Smith with the purpose of lessening fire hazards within the community. Refresher training and prescribed burning should be conducted each spring.

Interagency stakeholders within the planning area include:

- Town of Fort Smith Fire Department
- GNWT
- Parks Canada – Wood Buffalo National Park

Cross-training for wildland/urban interface response personnel should include wildland fire, wildland/urban interface fire, and incident command system training courses. Formalized structural fire training should only be provided to fire department members although fire department orientation sessions could be provided to wildland agency members to familiarize them with structural terminology and procedures.

The following cross-training courses are available:

Wildland Fire

- Wildland Firefighter – (NFPA 1051 Level I, S-131, or equivalent)
  - Wildfire Orientation

Wildland/Urban Interface Fire

- Structure and Site Preparation Workshop (S-115)

Incident Command System

- ICS Orientation (I-100)
- Basic ICS (I-200)
- Intermediate ICS (I-300)

Recommendation 5: Fort Smith Volunteer Fire Department and the GNWT should continue to partner on cross-training initiatives to ensure emergency responders are cross-trained to the following:

- Wildland Firefighter
- Structure and Site Preparation Workshop (S-115)
- Incident Command System (I-100 to I-300) as applicable

8. Emergency Planning Options

Emergency preparedness is an important part of any disaster planning. The need for organization, clear chain of command, and an understanding of job responsibilities during an interface fire are of paramount importance.

A review and update of the Town of Fort Smith Emergency Management Plan (TOFS, 2015) was conducted. The Plan outlines the plan objectives, composition and responsibilities of the Emergency Response Advisory, location of the Municipal EOC, and emergency implementation and termination protocols and procedures. The Plan is a general all-hazards document and does not deal with specific procedures to be followed during a wildland/urban interface incident. For more information on the Fort Smith Emergency Response Plan, please check link below.
https://www.fortsmith.ca/municipal/emergency-preparedness

At present the Town does not have a wildfire pre-plan to provide emergency responders with tactical information with respect to values at risk and operational strategies and tactics to minimize losses during a wildland/urban interface fire. A suggested outline is as follows:

- Planning Area Jurisdictional Authority
- Values at risk (life, structures, infrastructure)
- Fire operations plan (strategies/tactics, water sources, equipment, communications plan)

Recommendation 6: Develop a Community Wildfire Pre-Plan for the Town of Fort Smith to provide greater operational detail to emergency responders during a wildland/urban interface incident.

The Town of Fort Smith, the GNWT and Operations Nanook conducted a tactical wildland/urban interface incident deployment in 2015.

9 Recommendation Summary

Vegetation Management

Issue	Recommendation	Responsible Agency
Zone 1a and Zone 1	**Recommendation 1:** Encourage residents to establish adequate Zone 1a and Zone 1 defensible space around their structures.	Town of Fort Smith
Zone 2-3	**Recommendation 2:** Zone 2-3 fuels reduction and maintenance is the responsibility of the Land Status Authority holder(s) and should be implemented based on the priorities identified in this plan.	Town of Fort Smith
Maintenance	**Recommendation 3:** Ensure that all existing fuel modification projects are inspected on a regular basis and maintained as necessary to ensure effectiveness. Maintenance should be the responsibility of the land manager or landowner.	GNWT Town of Fort Smith

Public Education

Issue	Recommendation	Responsible Agency
Public Education Priorities	**Recommendation 4**: Public education on acceptable FireSmart Zone 1a and Zone 1 standards is recommended for all Fort Smith residents.	Town of Fort Smith GNWT

Interagency Cooperation & Cross-Training

Issue	Recommendation	Responsible Agency
Cross-Training	**Recommendation 5:** Town of Fort Smith Volunteer Fire Department members and GNWT MACA & ECC should continue to partner on cross-training initiatives to ensure emergency responders are cross-trained to the following minimum standards: ▪ Wildland Firefighter (S-131) ▪ Structure and Site Preparation Workshop (S-115) ▪ Incident Command System (I-100 to I-300) as applicable	Town of Fort Smith GNWT

Emergency Planning

Issue	Recommendation	Responsible Agency
Community Wildfire Pre-Planning	**Recommendation 6:** Develop a Community Wildfire Pre-Plan for the Town of Fort Smith to provide greater operational detail to emergency responders during a wildland/urban interface incident.	GNWT Town of Fort Smith