



Community Wildfire Protection Plan

Fort Providence

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1 Introduction

In 2010, a Community Wildfire Protection Plan (CWPP) was developed for the Hamlet of Fort Providence to address the hazard and risk to the community from wildfire. The 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 Valhalla Consulting, Diamond Head Consulting and Timberline Resources Group Ltd in cooperation with the Government of the Northwest Territories (GNWT) and the community of Fort Providence.

In 2018 the GNWT, Department of Environment and Natural Resources (ENR) updated the Fort Providence 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 Providence, in cooperation with ENR, 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 two kilometers of the developed areas of Fort Providence north of the Mackenzie River.

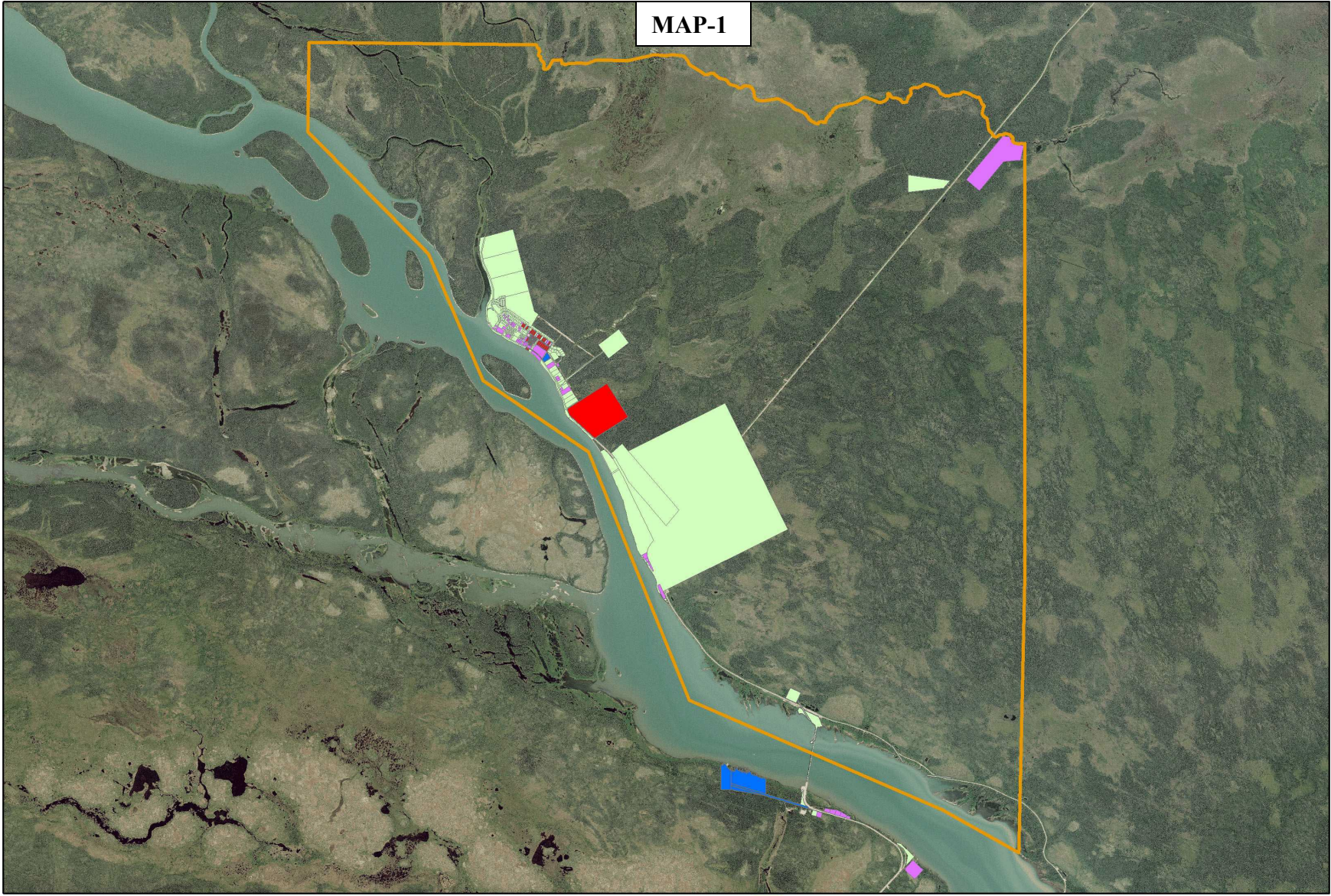
Stakeholders involved in the update process included:

- Government of the Northwest Territories, Environment and Natural Resources
- Hamlet of Fort Providence

Land status authority is varied and is represented by the following (**Map 1**):

- Commissioner
- Indian Affairs Branch
- Mixed
- Municipal
- Private
- Territorial

MAP-1



Fort Providence Land Status Authority

- Land Ownership**
- Commissioner
 - Indian Affairs Branch
 - Mixed
 - Municipal
 - Private
 - Territorial
- Planning Area**

N

1:115,000

0 500 1,000 2,000
Meters

Northwest Territories Environment and Natural Resources

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

An assessment of recent fire incidence was completed using historical fire data from GNWT Environment and Natural Resources (ENR) for the period from 2009 to 2018.

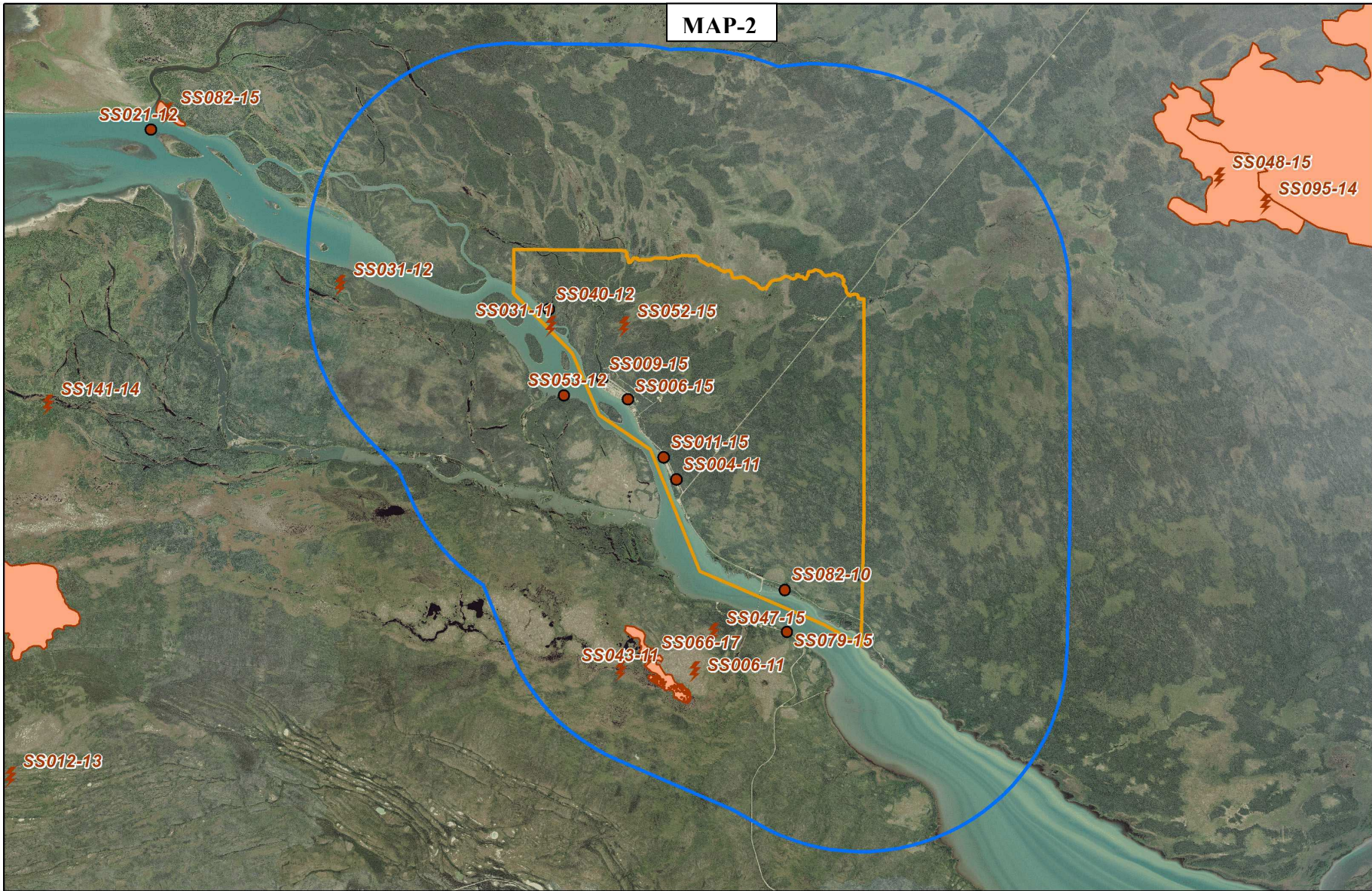
Data within a 10 km radius of Fort Providence indicates that wildfire incidence is moderate to high. Fire incidence data shows a total of 15 wildfires in the planning area (Map 2 and Table 1). Predominant fire causes are recreation and residents near the settled areas and lightning outside the settled areas.

Table 1: Fire Incidence by Cause (2009 - 2018)







General Cause	Number of Fires	Percent of Total
Human-Caused	7	46%
Lightning-Caused	8	54%
Total	15	100%

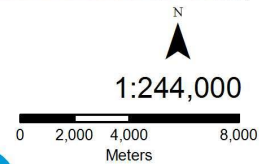
Wildfire incidence in the planning area is moderate to high and is mostly due to residents and recreational activities within the community or near the Mackenzie River. In addition, wildfires do occur by lightning.

MAP-2



Fort Providence Ten Year Fire History

-  Planning Area 10km Buffer
-  Planning Area
-  Large Fire History
-  Human Caused
-  Lightning
-  Unknown



3.2 Wildfire Behaviour Potential

3.2.1 Forest Fuel Types

Fire Behaviour Prediction (FBP) fuel types (Taylor, 1997) were used to analyze the fuel types and fire behaviour potential within and adjacent to Fort Providence.

The overall area is dominated with black spruce (C-1), boreal spruce (C-2) and deciduous fuel types while the Fort Providence town-site area is mainly non-fuel (NF) and cured-grass (O1), and deciduous fuel types with boreal spruce (C-2) fuels along the north and south perimeter of town. The area between the dozer guard and the homes is boreal mixed wood (M-2 > 50%). Each of these fuel types can present hazard to interface structures based on fuel moisture conditions and time of year.

Forest fuel types and data indicates a moderate potential for landscape-level wildfire exists in the areas surrounding Fort Providence with the highest potential along the north and southeast perimeter of the town-site in M-2 fuel types.

3.3 FireSmart Hazard Assessments

FireSmart hazard assessments (Partners in Protection, 2003) were conducted on developments and adjacent wildland fuel types 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 and to help set priorities for mitigative options.

FireSmart hazard for each of the development areas is discussed below.

Table 2: FireSmart Hazard Assessments

Developed Area	Structure/ Site Hazard
Fort Providence Town site	Low to High
South Area	Moderate
North Area	Moderate to High
Highway 3 Dehcho Bridge	Moderate to High

Fort Providence Town site Area

FireSmart hazard for the Fort Providence town site area is **Low to High**. Many of the perimeter structures and homes are at High hazard based on proximity to M-2 fuels. Some structures are FireSmart but the majorities require Zone 1a and Zone 1 improvements. Exterior structure materials are primarily asphalt shingle or metal roofing and wood or vinyl siding. Access roads are all-weather loop and dead-end. The highest wildfire threat is to structures backing onto M-2 fuels on the north and southeast perimeter of the town-site area and south of the townsite on the west-side of the community access road from Highway 3.



Fort Providence town site area

Fort Providence South Area

This area between the downtown and southern homes has had minimal FireSmart work. Continue to thin prune and clean to ensure 3 m crown spacing and limb all branches up 2 m. Homeowners in this area need to ensure they have Zone 1a (up to 1.5 meters around their homes) complete and improve on their Zone 1, 10 meters area.

Fort Providence North Area

The north area of the community has a dozer guard that runs parallel to the community to the dump access road and then to the community access road. It is important that this dozer guard is maintained to ensure it remains fuel free.

This area has been where the majority of FireSmart effort has been implemented. The reduction in fuels requires more attention. Continue efforts to thin, prune and clean to ensure 3 m crown spacing and to limb all branches up 2 m. Homeowners in this area need to ensure they have Zone 1a (up to 1.5 meters around their homes) complete and improve on their Zone 1, 10 m area.

Highway/ Dehcho Bridge South Area

There are a number of homes and developed property from the Big River gas bar to the Dehcho Bridge and further to the old ice river crossing area. Most of these properties are on the river bank of the Mackenzie River with the access road or highway between their homes and the forest.

Most of these homes require FireSmart improvements to reduce them from being at a high hazard. Homeowners need to remove combustible objects from around their homes and out buildings. Zone 1a and Zone 1 improvements need to be considered.

FireSmart hazard is Moderate to High for most of the main town site and around rural structures south of the main town site.

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.

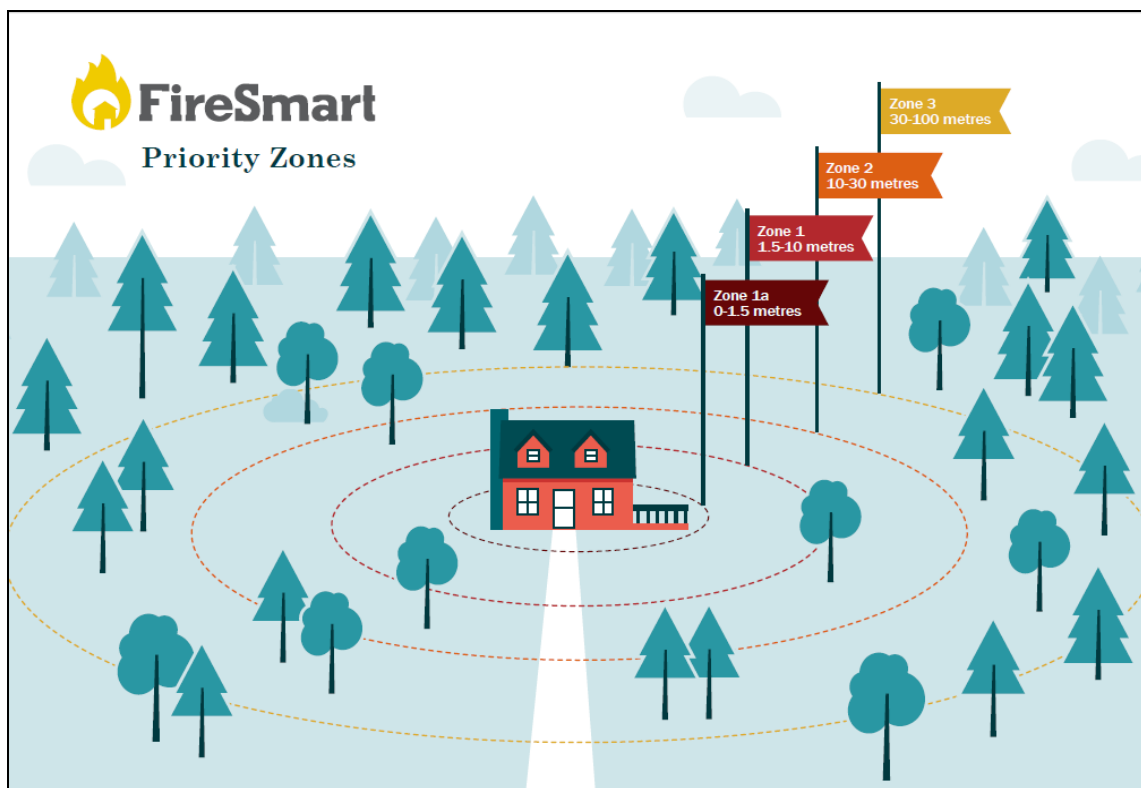


Figure 1– Interface Priority Zones (PIP, 2017)

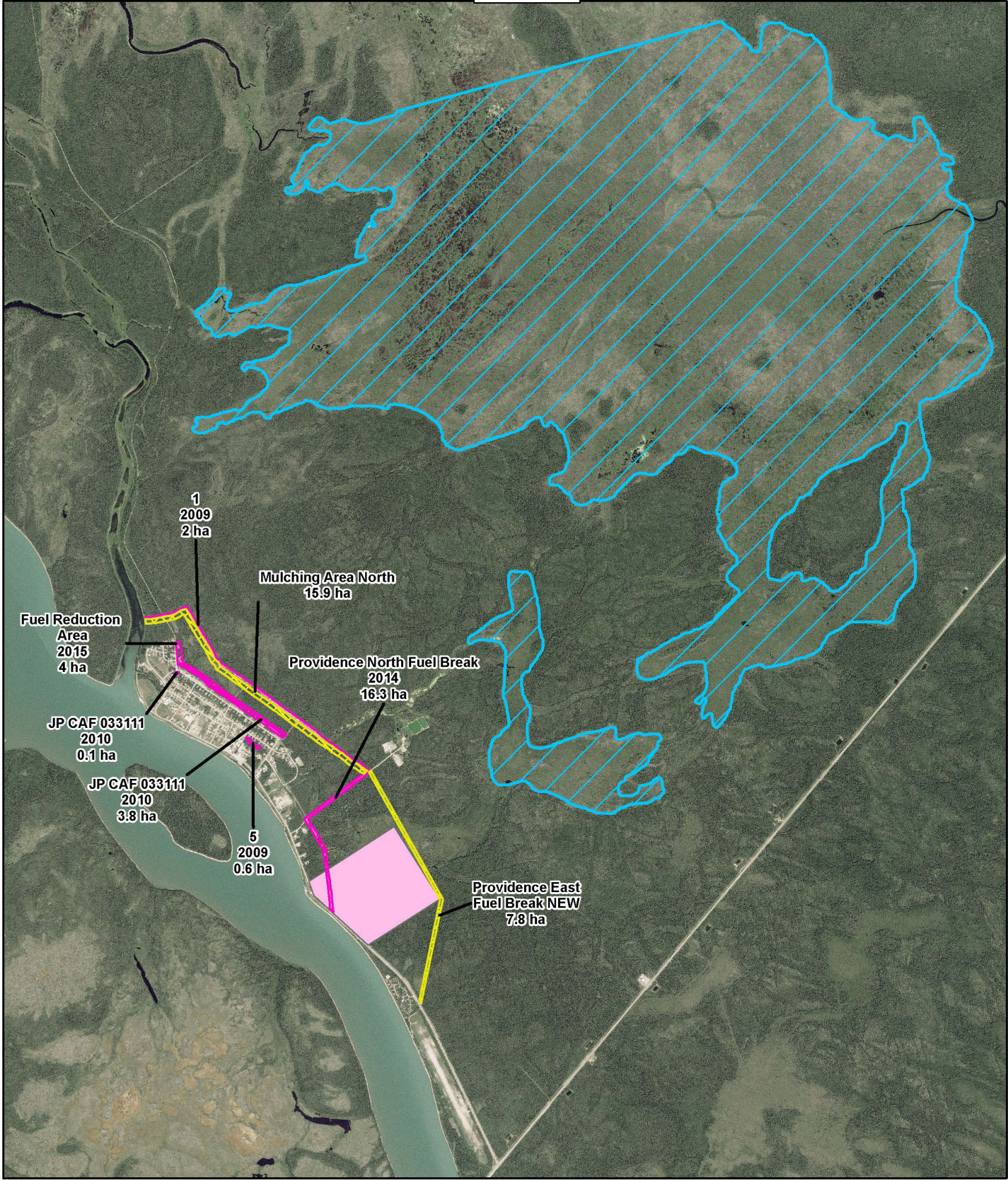
4.1 Existing Vegetation Management

Fort Providence has implemented some of the vegetation management recommendations as per the 2010 CWPP. Vegetation management has occurred in the form of fuels removal through fireguards and fuels reduction immediately adjacent to structures (Map 3 & Table 3).

Table 3: Existing Vegetation Management Areas

Name		Year	Mod_Type	Size
1	FireSmart	2009	Fuel Removal	2.0 ha
5	FireSmart	2009	Fuel Reduction	0.6 ha
JP CAF 033111 (2)	FireSmart	2010	Fuel Reduction	3.9 ha
North Fuel Break	Fuel Break	2014	Fuel Removal	16.3 ha
2015/2016	FireSmart	2015	Fuel Reduction	4.0 ha

Fuel breaks were completed along the north perimeters of the hamlet in 2009 and 2014 that connect with the landfill access road and continue further south to connect with the main road (Map 3 & Table 3). These guards will require maintenance in the future.



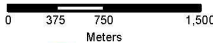
Fort Providence Fuel Modifications

Completed and Proposed


 Prairies	Fuel Modifications
 IAB Land	 Completed
	 In Progress
	 Proposed

N

1:54,000



0 375 750 1,500 Meters



4.2 Proposed Vegetation Management

4.2.1 Zone 1a and Zone 1 (0-10meters)

Zone 1a vegetation management is **inadequate** for many of structures due to advancement of grass.

FireSmart Zone 1a vegetation management options include:

- Creating a non-flammable zone around structures by clearing trees, shrubs and grass down to mineral soil within 1.5 m of structures.
- Use non-flammable materials in this critical zone of 1.5 m directly next to your home such as gravel, bricks or concrete.
- Woody shrubs, trees or tree branches should be avoided in this zone.

FireSmart Zone 1 vegetation management options include:

- Removal of flammable forest vegetation within 10 meters of structures.
- If you choose not to remove trees in this Zone, remove all limbs to a minimum height of 2 meters from ground.
- Removal of all dead and down trees and brush from the forest floor.
- Increased maintenance to ensure that all flammable needles, leaves, and grass are removed from on and around structures.
- Use of a non-flammable surface cover around the structure including the use of FireSmart landscaping species.
- Removal of all flammable 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 2-3

Zone 2-3 fuels management is recommended for areas surrounding and along the north and east perimeters of the Hamlet to reduce the threat of wildfire in M-2 fuels to perimeter structures (**Table 4 & Map 3**). Proposed fuels management areas are conceptual at this time and will require detailed fuels reduction planning to identify fuels management prescription, unit boundaries, and operational constraints.

Table 4: Proposed Vegetation Management Projects

Name	Area (Ha)	Type	Land Status Authority
1. North East area	15.9	▪ Mulch area adjacent to existing fuel break	Hamlet of Fort Providence
Fuel Break	7.8	▪ Fuel Removal - Dozer guard-	Hamlet of Fort Providence
Total	23.7		

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.

5 Development Options

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 fuelbreak effectiveness and an increase in wildfire threat to the new or existing development in the area.

Recommendation 4: If a new development removes or reduces the effectiveness of any existing or proposed FireSmart mitigation measures or introduces new wildfire hazards, the area must be assessed and measures implemented to maintain the community protection standards.

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 steeper 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.

The most common roofing materials in the planning area are asphalt shingle, metal, and roll-roof asphalt. The most common siding materials are wood/vinyl with scattered log and hardi-plank.

Structures are typically elevated above-ground and many are not skirted allowing wildfire access to the underside of structures.

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 adequate for an interface community with primarily all-weather loop roads that are sufficient for emergency vehicles to access.

5.2.2 Water Supply

Fort Providence does not have municipal hydrant water-supply. All development areas rely on water-tender supply from the local fire department for structure protection activities.

The river could be an additional water source as well in the event of an emergency.

5.2.3 Utilities

Utilities affected by an interface fire include electrical power. The Northland Utilities power generating station runs on diesel and power distribution could be affected in the wake of a wildfire reaching the interface.



Northland Utilities Diesel Power Generation, Fort Providence

Electrical Power

Power distribution and residential service is provided through above-ground lines. Power could be interrupted during a wildland urban interface fire.

Home Heating

Heating fuel is primarily provided by heating oil with scattered propane tanks.

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 ENR, Forest Management Division website at: <https://www.enr.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 down to mineral soil within 1.5 metres of structures.
- Using nonflammable materials in this critical zone of 1.5 metres directly next to your home such as gravel, bricks or concrete.
- Woody shrubs, trees or tree branches should be avoided in this zone.
- Storing firewood and other flammable materials more than 10 metres away from the home.
- Keeping roof and eaves clear of leaves and other flammable debris.
- Creating propane and fuel-tank FireSmart defensible space.
- Creating a non-flammable 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 ENR 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 5: Public education on acceptable FireSmart Zone 1a and Zone 1 standards is recommended for all 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.

Interagency stakeholders within the planning area include:

- Hamlet of Fort Providence
- Deh Gáh Got'îê First Nation
- Fort Providence Métis Council
- GNWT

Cross-training for Fort Providence Volunteer Fire Department members and ENR wildfire suppression personnel should include basic wildfire, wildland/urban interface fire, and incident command system training courses.

The following cross-training courses are available.

Wildland Fire

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

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 6: Fort Providence Volunteer Fire Department and GNWT MACA & ENR should 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.

In 2016 Fort Providence completed an Emergency planning workshop with MACA and completed the Hamlet of Fort Providence Emergency Plan.

Fort Providence does not have a wildfire pre-plan to provide emergency responders with detailed 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 7: Develop a Community Wildfire Pre-Plan for Fort Providence to provide greater operational detail to emergency responders during a wildland/urban interface incident.

9 Recommendations 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.	Hamlet of Fort Providence
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.	Hamlet of Fort Providence
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.	Hamlet of Fort Providence GNWT

Development

Issue	Recommendation	Responsible Agency
FireSmart Development Planning	Recommendation 4: If a new development removes or reduces the effectiveness of any existing or proposed FireSmart mitigation measures or introduces new wildfire hazards, the area must be assessed and measures implemented to maintain the community protection standards.	Hamlet of Fort Providence GNWT

Public Education

Issue	Recommendation	Responsible Agency
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Public Education Priorities	Recommendation 5: Public education on acceptable FireSmart Zone 1a and Zone 1 standards is recommended for all Fort Providence residents.	Hamlet of Fort Providence GNWT
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Interagency Cooperation & Cross-Training

Issue	Recommendation	Responsible Agency
Cross-Training	<p>Recommendation 6: Fort Providence Volunteer Fire Department members and the GNWT should partner on cross-training initiatives to ensure emergency responders are cross-trained to the following:</p> <ul style="list-style-type: none"> ▪ Wildland Firefighter ▪ Structure and Site Preparation Workshop (S-115) ▪ Incident Command System (I-100 to I-300) as applicable 	Hamlet of Fort Providence GNWT

Emergency Planning

Issue	Recommendation	Responsible Agency
Community Wildfire Pre- Planning	Recommendation 7: Develop a Community Wildfire Pre-Plan for Fort Providence to provide greater operational detail to emergency responders during a wildland/urban interface incident.	Hamlet of Fort Providence GNWT