ATHABASCA COUNTY No 12

FIRESMART COMMUNITY MITIGATION STRATEGY

FireSmart Plan UPDATE 2010

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WILDFIRE consulting

Government of Alberta

1 Introduction

This FireSmart Plan identifies the potential risk of wildfire to the communities within the Forest Protection Area in the Athabasca County and provides recommendations to minimize that risk through the use of vegetation management, development control, legislation, public education, interagency cooperation, and emergency planning initiatives.

Development of this update plan for the communities within the Athabasca County included a review of the original 2003 FireSmart Plan, an assessment of wildland/urban interface site hazards, review of past wildfire history, review of municipal development and emergency response plans and examination of the potential for interagency cooperation and cross-training

This plan will provide a working document to assist elected officials, municipal staff, emergency responders, land managers and local residents to plan and implement FireSmart initiatives within the communities in the Athabasca County.

In 2003 supported by the Athabasca County, the Summer Villages, Hamlets and Country Residential Subdivisions SRD completed a FireSmart Plan covering communities around Baptiste Lake, Crooked Lake, Island Lake, recreation areas and club facilities around Narrow and Long Lakes. This original 2003 FireSmart Plan also included the hamlets of Breynat and Wandering River.

This 2010 Athabasca County No 12 FireSmart Plan is an update to the original plan for all the communities outlined in the project area section.

The update plan was initiated by SRD to:

1. Review the original Athabasca County FireSmart Plan vegetation management recommendations to capture and assess the FireSmart projects that were completed in the communities.
2. Reassess and identify within the communities the remaining FireSmart fuel modification and infrastructure development options that should be completed
3. Re-evaluate the current wildfire threat to the community.
4. Develop a vegetation fuel modification and maintenance plan for future projects.
5. Summarize the Public Education and Communication initiatives and recommend objectives for the future.
6. Review current Legislation and Municipal Development Plan Bylaws and the 2003 FireSmart recommendations for incorporating FireSmart into the counties and summer village's bylaws.

2 Project Area

The Athabasca FireSmart Plan update within the Forest Protection Area includes municipal reserve lands, freehold lands and provincial crown lands hamlets, summer villages and country residential subdivisions in the Athabasca County, Development control jurisdiction is held by the Athabasca County on freehold lands and crown lands within the hamlets and country residential subdivisions. Structural and wildfire suppression within the developed hamlets and on private lands is the jurisdiction of the Athabasca County outside the Forest Protection Area.

The summer villages are responsible for the administration of the development on the lands within the summer village boundary. Structural fire suppression is provided by the Athabasca County under agreement with the respective summer village.

Alberta SRD has jurisdiction for land management on crown lands, and is responsible for wildland fire suppression on all crown lands with the Forest Protection Area. The Athabasca County provides wildfire suppression on all crown lands outside the Forest Protection Area and may claim cost recovery from the Province for wildfire suppression on crown lands.

The Athabasca FireSmart Plan update includes the following communities;

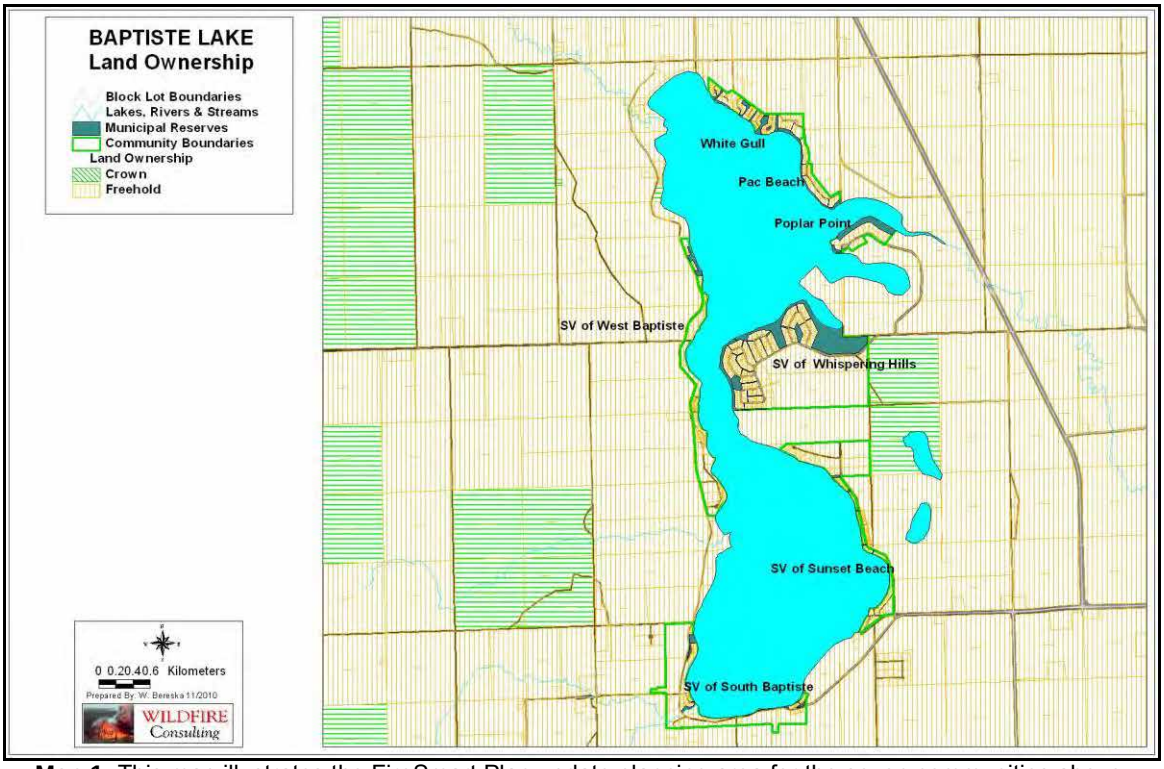
A Baptiste Lake area includes**;**

Country Residential Communities of;

- Pac Beach
- Poplar Point Estates
- White Gull

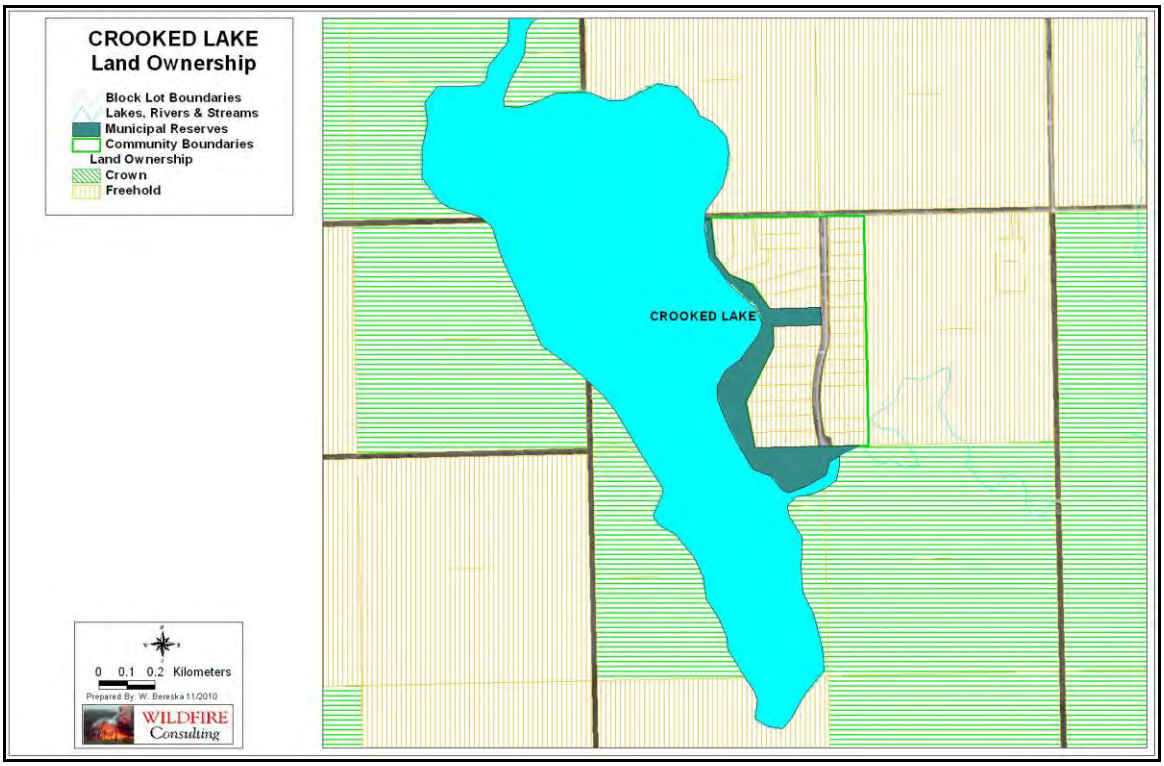
Summer Villages of;

- South Baptiste
- Sunset Beach
- West Baptiste
- Whispering Hills



Map 1: This map illustrates the FireSmart Plan update planning area for the seven communities above.

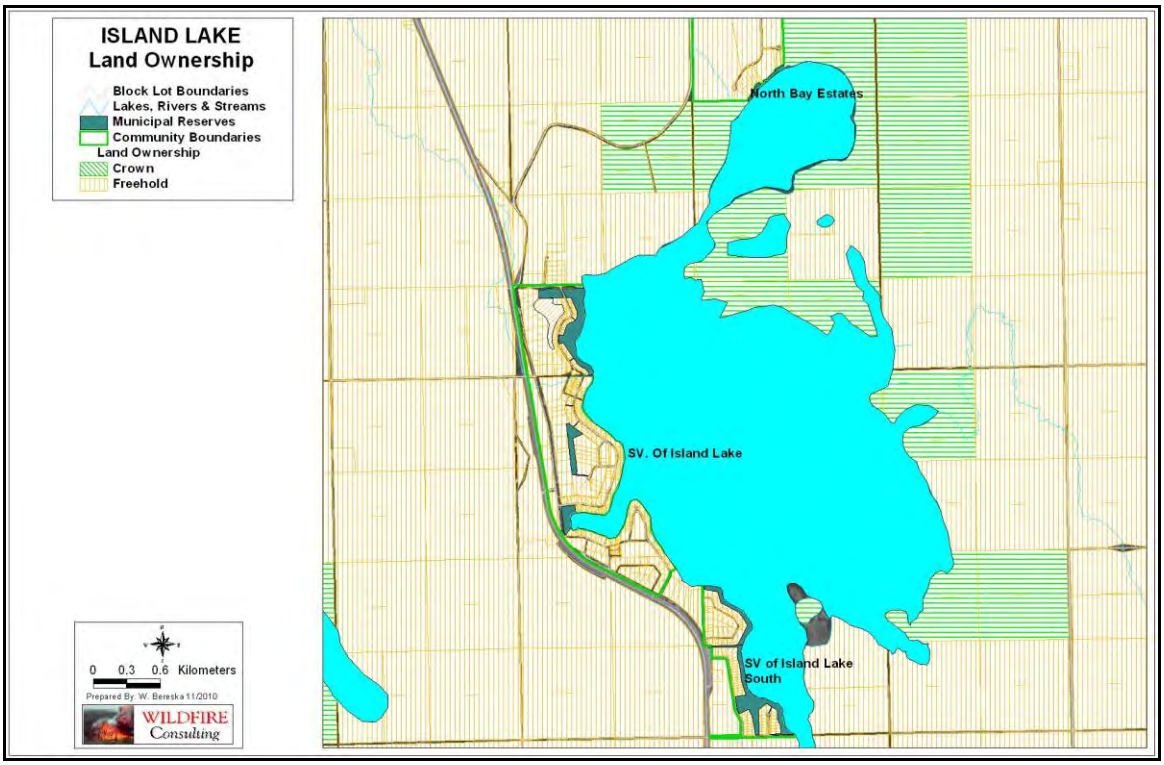
B Community of Crooked Lake



Map 2: This map illustrates the FireSmart Plan update planning area for the community of Crooked Lake.

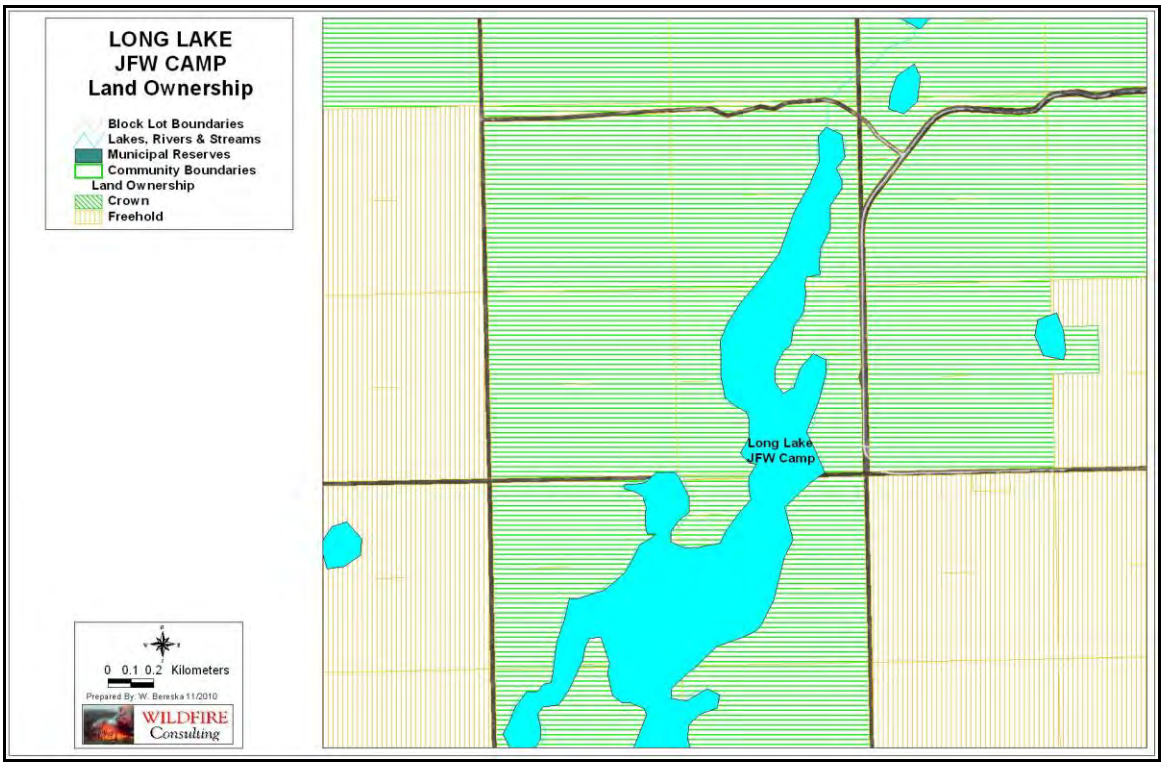
C Island Lake area includes;

Community of North Bay Estates
Summer Village of Island Lake
Summer Village of Island Lake South



Map 3: This map illustrates the FireSmart Plan update planning area for the three communities above.

D Long Lake Junior Forest Warden Camp



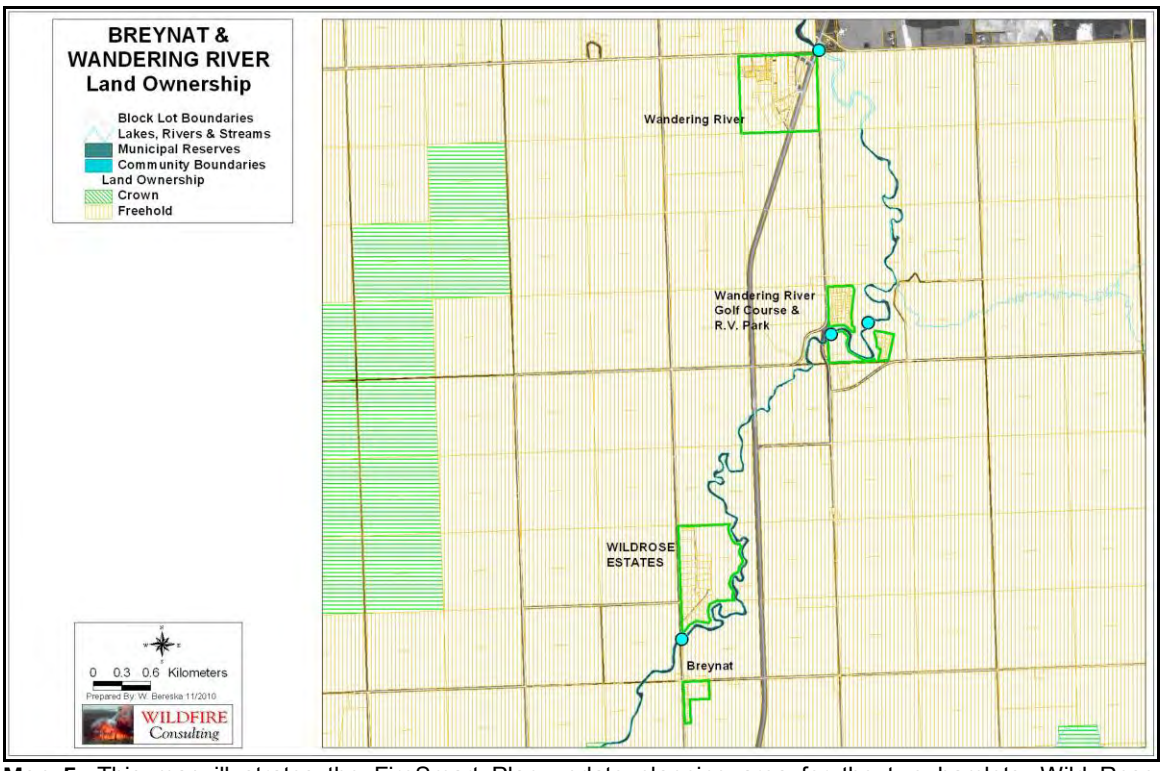
Map 4: This map illustrates the FireSmart Plan update planning area for the Long Lake JFW camp.

E Breynat Hamlet

Hamlet of Breynat
Wild Rose Estates

F Wandering River

Hamlet of Wandering River
Wandering River Golf Course Development
Wandering River RV Park



Map 5: This map illustrates the FireSmart Plan update planning area for the two hamlets, Wild Rose Estates, the golf course and R.V Park above.

3 Fire History

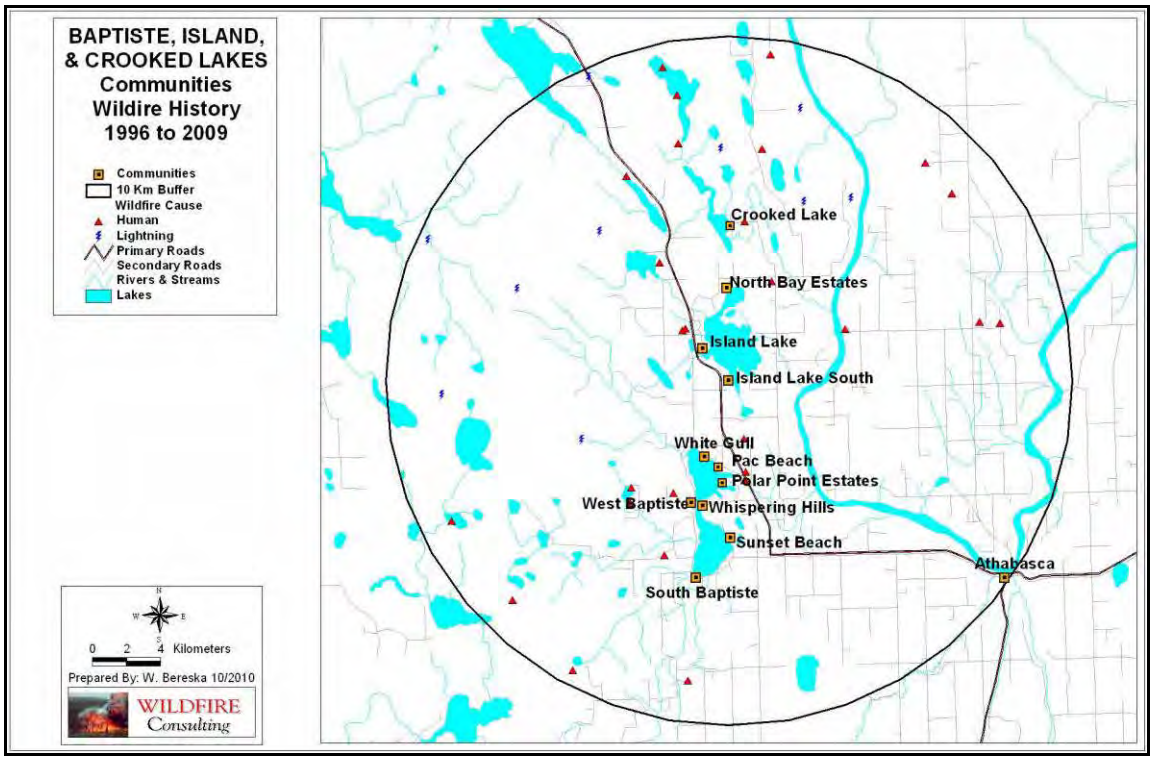
Wildfire is a natural and frequent occurrence within the boreal forest region of Alberta. Both lightning and human-caused wildfires are common within and adjacent to the communities in this study area throughout the wildfire season.

Within 20 kilometres of the Baptiste Lake, Crooked Lake, Island Lake and Long Lake there have been thirty eight (38) wildfires during the past fourteen (14) years from 1996 to 2009. Of the thirty eight (38) fires, ten (10) were caused by lightning and twenty eight (28) were caused by human activities.

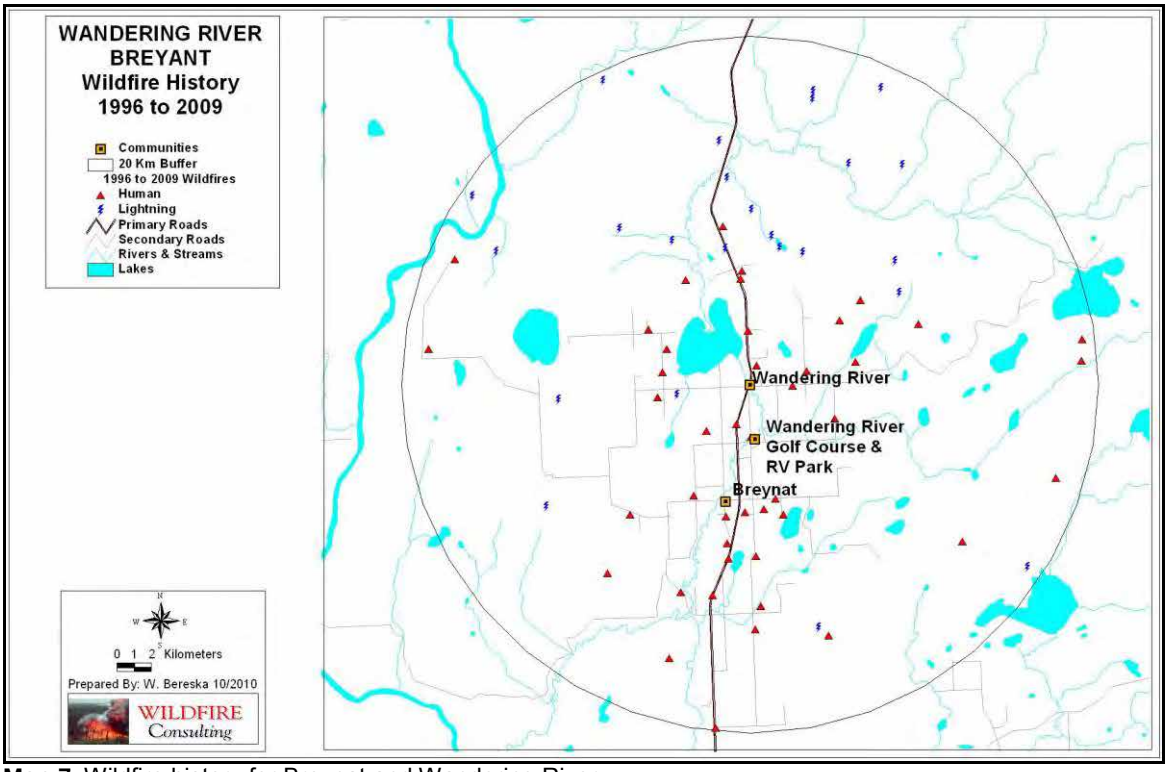
Within 20 kilometres of the of Wandering River hamlet, Golf Course, R.V. Park, Wild Rose Estates and the hamlet of Breynat there have been sixty nine (69) wildfires during the past fourteen (14) years from 1996 to 2009. Of the sixty nine (69) fires, twenty four (24) were caused by lightning and forty five (45) were caused by human activities.

Based on this historical data, there is the potential for an average of three (3) fires per year within 20 kilometres of the Baptiste Lake, Crooked Lake, Island Lake and Long Lake communities. In the Wandering River and Breynat area there is the potential of five (5) fires within 20 kilometres of the two communities. During the period from 1996 to 2009 residential and recreational use of fire resulted in the greatest number of accidental wildfires, thirty four (34) in the Wandering River area and twenty (20) in the Baptiste Lake and surrounding areas. The largest number of wildfires occurred during the spring fire season when the grass is in the cured stage and the deciduous trees are leafless.

The communities are all at the highest risk from wildfire during the spring cured grass stage. Fires that start near or within the communities, can be driven by strong winds during times of very dry fuels, and may threaten several residents and Industrial values in these areas. Good FireSmart landscape planning and preparedness is essential to mitigate the wildlife threat.



Map 6: Wildfire history for Baptiste Lake, Crooked Lake and Island Lake.



Map 7: Wildfire history for Breynat and Wandering River.

4 Wildland/Urban Interface Hazard Assessment

Wildland/urban interface hazard assessments were conducted in the study area during the preparation of the 2003 FireSmart Plan on all structures within this study area and on the vegetation types surrounding the communities. The purpose of the assessment was to collect hazard rating information in a consistent manner, to quantify the wildland/urban interface hazards within the study area, and to help set priorities for mitigative options. During the 2010 update only the infrastructure and vegetation types were reassessed in all communities within this study area.

A Structural Characteristics

The 2003 *FireSmart* Structure and Site Hazard Assessments revealed the following common characteristics within the developed areas. The 2010 reassessment revealed no significant changes in structural materials and in how decks are constructed.

Roofing Material

Ignition of combustible roofing materials is the main cause of structure loss in the wildland/urban interface. The majority of structures (80%) in this study area have non-combustible roofing materials with the remaining small percentage (20%) having combustible wood-shake roofing materials.

Siding Material.

The majority of structures (80%) have combustible vinyl or wood siding, 15% have non-combustible stucco or metal siding and 5% are log buildings. Structures with combustible siding in areas with significant fuels reduction are not at significant risk to wildfire ignition providing adequate Zone 1 clearance is maintained around the structure.

Decks and Open Spaces.

Exterior decks constructed of combustible materials or not skirted increase the risk of structure ignition through airborne firebrand ignition of accumulated dead needles and leaves and firewood or combustible woodpiles storage under the deck. A number of structures (57%) have exterior decks and porches with exposed undersides while the remaining (43%) structures either have no deck or non-combustible/sheathed decks.

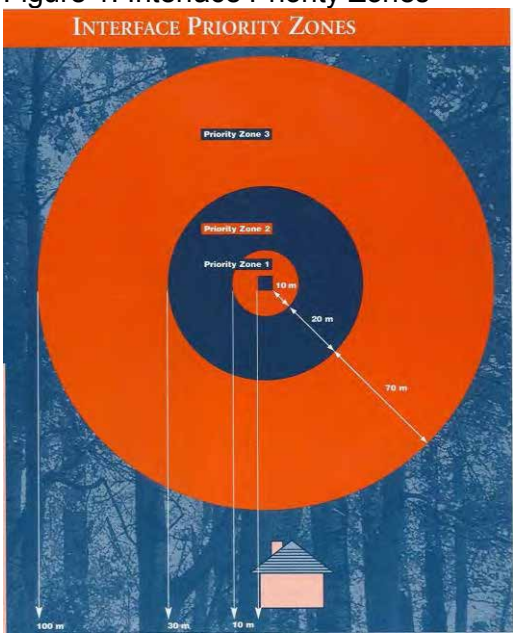
Combustible Materials.

Combustible materials found within 10 metres of the structure increases the risk of structure ignition from airborne firebrands, radiant heat, or direct flame impingement. Some structures (30%) have combustible materials such as firewood or construction materials, within 10 metres of the structure.

B Vegetation Characteristics

FireSmart standards (Partners in Protection, 2003) refer to three interface priority zones (Figure 1) with vegetation management for interface structures recommended in Zones 1 and 2 at a minimum and in Zone 3 based on hazard and risk.

Figure 1: Interface Priority Zones



The communities in this study area are primarily within a deciduous forest type with only minor stands of coniferous in some areas. The most flammable vegetation will be the grass while in the cured stage. The deciduous aspen is reaching maturity in some communities and will add dead and down fuels to the forest surface. This added fuel will increase the fire intensity if a wildfire should occur in these areas. Removing the dead and down woody debris and managing the grass growth will reduce the potential of a wildfire threat to most communities.

The structural house density is very high in some areas within the summer villages of West and South Baptiste, Island Lake and Sunset Beach and this has the potential for fire spread from structure to structure.

Because the primary landownership is private lands within and surrounding these communities FireSmart projects can only be accomplished by the landowner in most cases. The Athabasca County, SRD and the summer villages would be responsible for FireSmart vegetation management on the provincial crown lands, and within municipal reserves in the hamlets, summer villages and country residential subdivisions.

5 Wildfire Threat Assessment

A Wildfire Threat Potential

The wildfire threat assessment is a process that evaluates the negative ecological, social and economic impacts of wildfire. Four components are combined, and evaluated to identify those areas on the landscape most threatened by wildfire.

1. **Fire Behavior Potential-** Fire behavior is the manner in which fuel ignites, flame develops, fire spreads and exhibits other related phenomena:
    - Assessment of fuels
    - Fire weather and climate assessment
    - Topography and fire interactions
    - Existing barriers to fire spread
    - Fire growth potential and landscape interactions

2. **Fire Occurrence Risk- Fire** occurrence risk is the probability of fire igniting as determined by presence of causative agents (i.e. potential number of ignitions).
    - Assessment of fire probability depending on weather and fuel moisture
    - Seasonal changes (moisture regime, green-up stages)
    - Causes- human, lightning, etc.
    - Other potential ignition sources (i.e. burning coal seams.

3. **Values at Risk-** Values at risk are a specific or collective set of natural resources and manmade improvements and/or developments that have measureable or intrinsic worth which could potentially be destroyed or otherwise altered by fire in any given area. The specific values and priorities within the Forest Protection Area (outside of the Town jurisdiction) are identified by Provincial Priorities in Fire Suppression.

4. **Suppression Capability-** Suppression capability includes the factors and limitations that are related to the ability to contain a wildfire upon detection in order to protect values at risk.

    Landscape Biophysical Elements
    - Steepness of terrain/slopes
    - Water availability (lakes, river, non-draining borrow pits)
    - Existing barriers to fire spread (non-fuels, deciduous stands, linear disturbances, hydrography

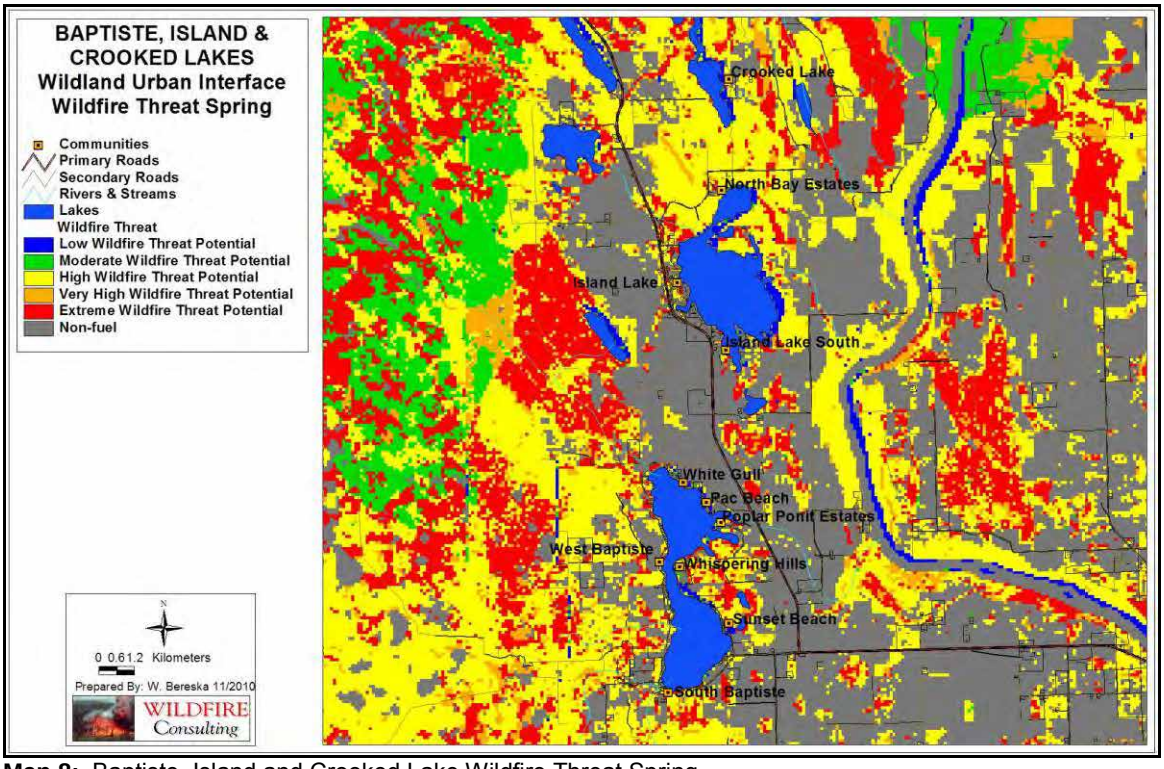
    Non-Biophysical elements
    - Detection
    - Initial Attack response time targets by fire danger and fire management areas
    - Access availability (all weather and dry weather roads)
    - Anchor points and helipads
    - Attack weight, capability of resources dispatched
    - Topography/valley orientation

    The forest vegetation within this study area and the surrounding area (10 km) is primarily deciduous (aspen) with open grass fields and scattered pockets of black spruce (C2).

Long Lake JFW camp and Wandering River R.V Park supports the largest stands of mixed wood.

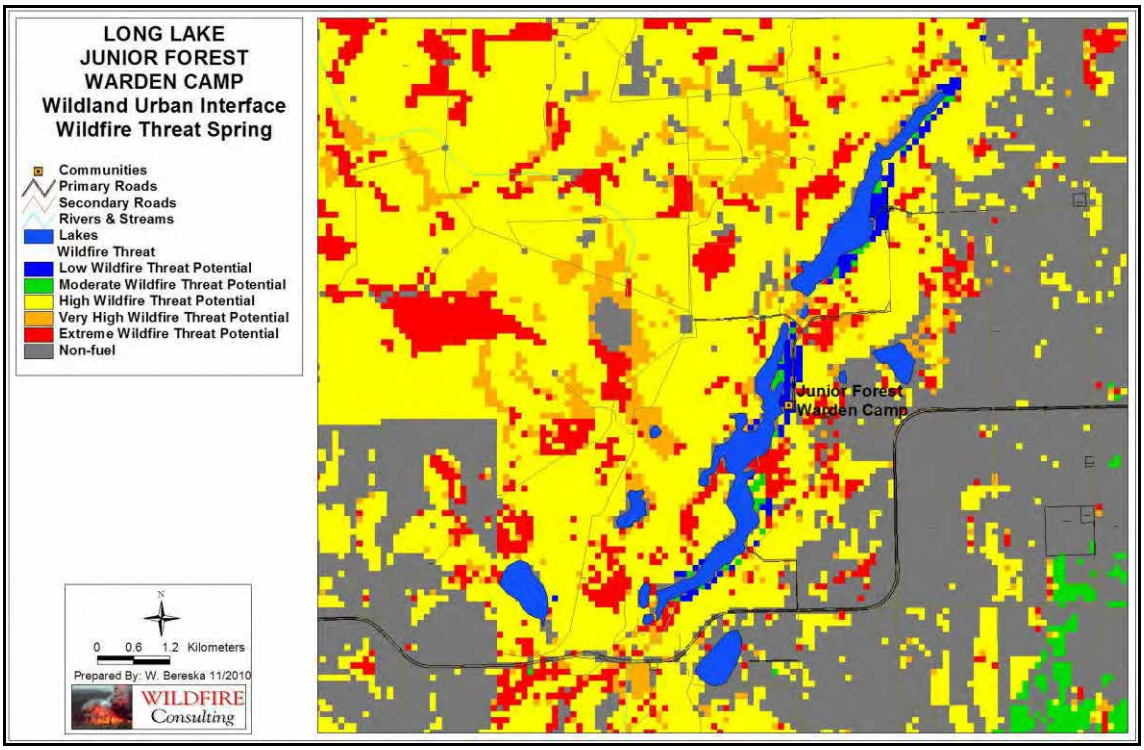
The greatest wildfire threat to the communities within the Athabasca County will occur during the spring and fall of each year during the cured grass stage. The location and type of forest fuels are the primary factors influencing the wildfire threat. During the spring of each year there is a threat for a wildfire to start within the community boundaries and spreading rapidly with west or southeast winds into the surrounding forest areas. The risk of wildfire ignitions is higher in the agricultural zones and the residential areas within the summer villages and subdivisions. ATV use within and surrounding the communities during the cured grass stage also increases the risk of wildfire ignitions. FireSmart mitigation strategies will help to reduce this threat to the communities covered by this plan.

Wildfire Threat - Spring: The wildfire threat model output (Map), indicates the greatest wildfire threat to the communities within the study area will occur during the spring of each year. The overall wildfire threat potential is high during the spring fire season because of the cured grass and leafless aspen forest cover allowing rapid drying with direct sunlight. Agricultural lands with dry vegetation can provide rapid fire spread during dry windy spring periods. The wildfire threat in coniferous stands will be high to extreme during the spring. The wildfire threat potential is lower around most of these communities because of the large amount of deciduous forest vegetation and agricultural land surrounding most of the communities.



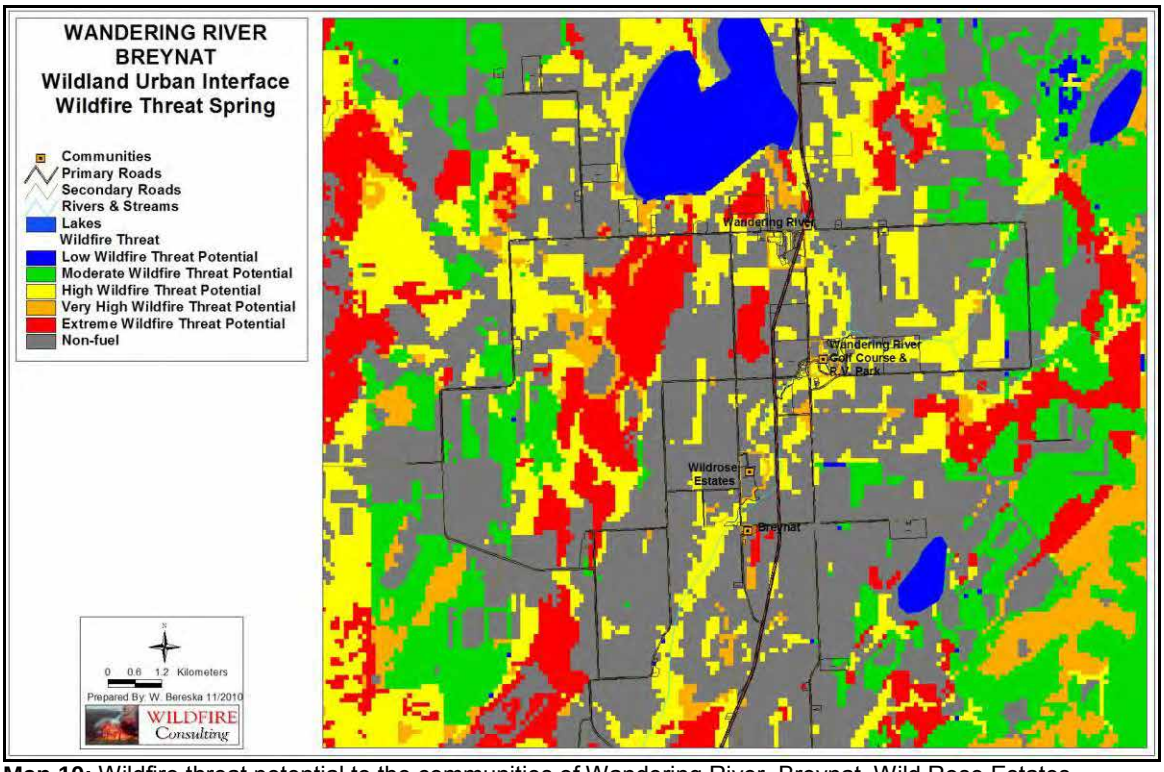
Map 8: Baptiste, Island and Crooked Lake Wildfire Threat Spring

The wildfire threat to the communities of Baptiste Lake, Crooked Lake and Island Lake will come from the southeast and southwest quadrants during the spring of each year. The agricultural lands break up the fuel continuity



Map 9: Wildfire Threat potential to the Long Lake Junior Forest Wardens camp

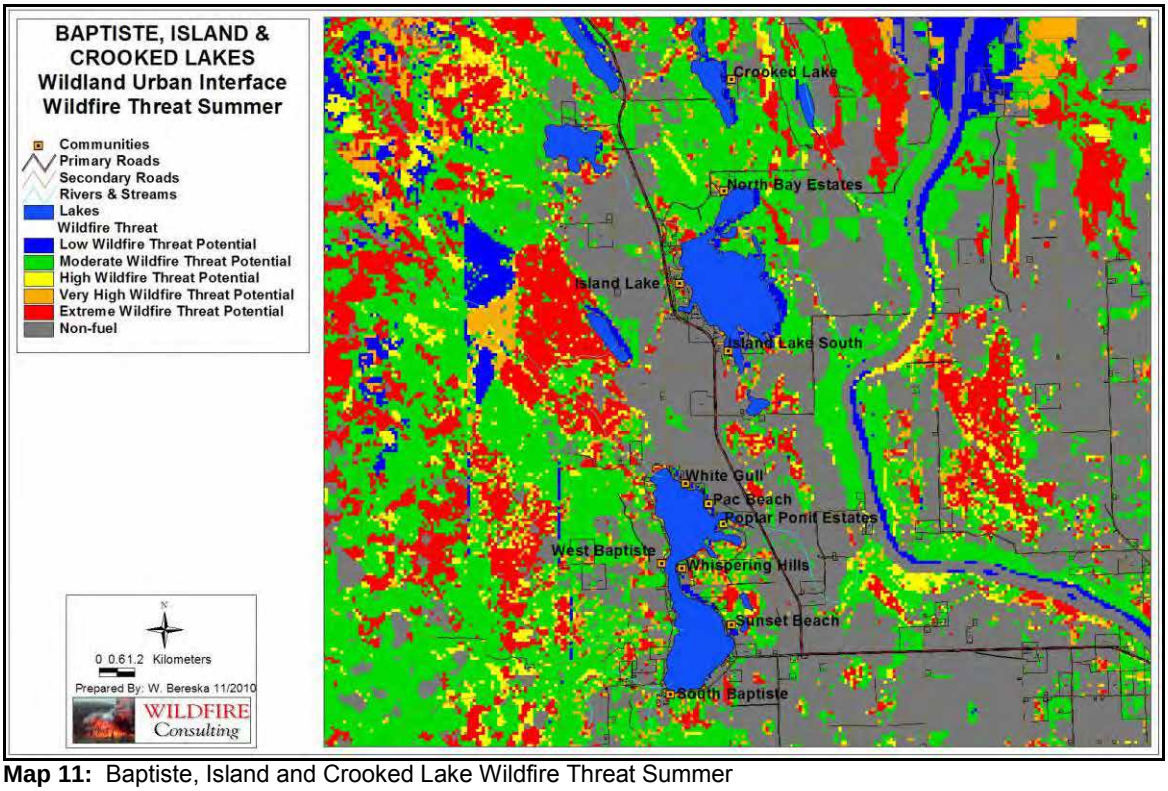
The wildfire threat to the Long Lake, Junior Forest Wardens camp will come from the southeast and south quadrants during the spring of each year. The overall wildfire threat potential is high during the spring fire season because of the cured grass and leafless aspen forest cover allowing rapid drying with direct sunlight. This combine with increased fuel loading with dead and down aspen can increase fire intensities and make containment more difficult.



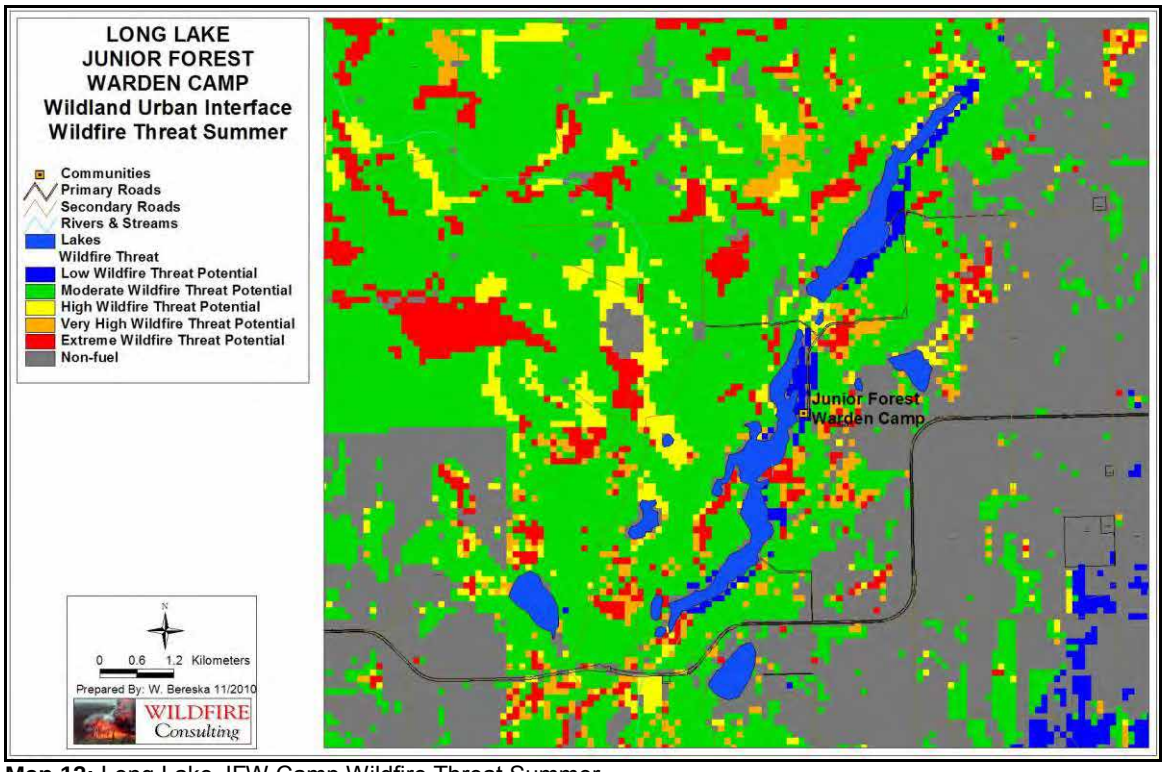
Map 10: Wildfire threat potential to the communities of Wandering River, Breynat, Wild Rose Estates Subdivision and the R.V. Park

Agricultural lands surround the communities of Wandering River, Breynat, Wild Rose Estates Subdivision and the R.V. Park reducing the overall wildfire threat, however during the spring cured grass period dry vegetation on agricultural lands can carry a wildfire during dry windy periods.

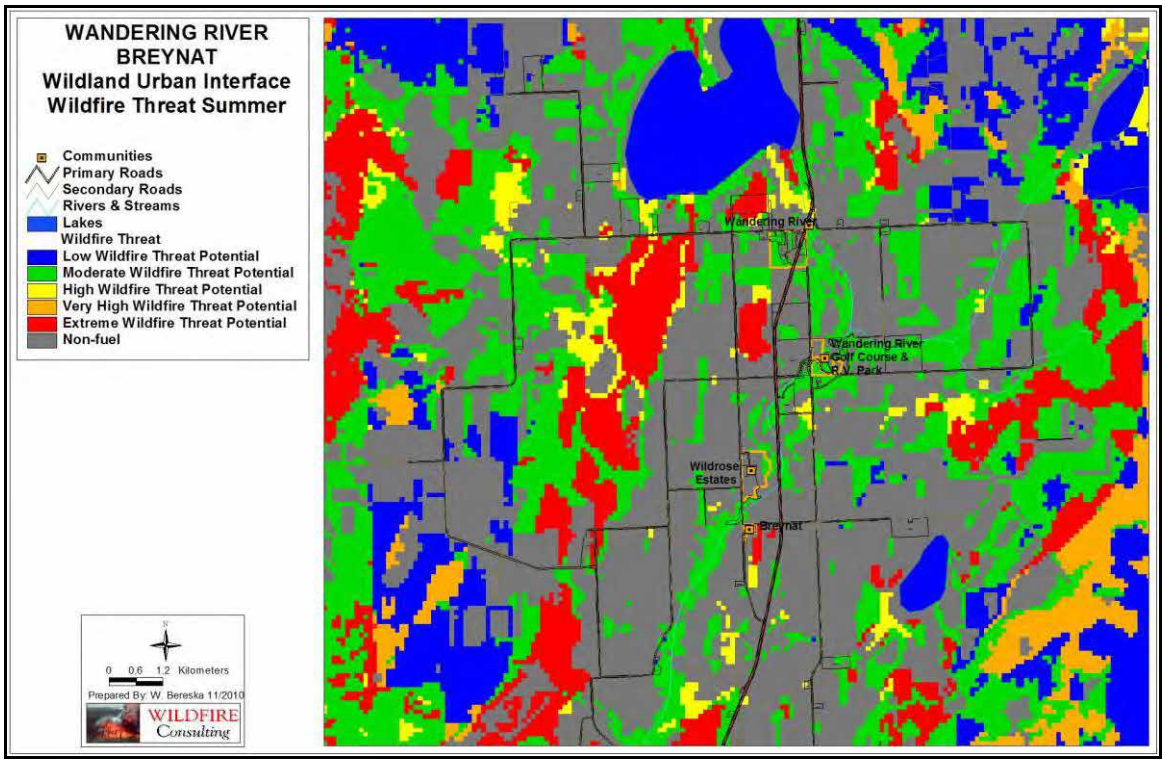
Wildfire Threat - Summer: The summer wildfire threat (Map), in these communities will be reduce substantially. The areas with grass fuels and aspen will provide a lower fire behavior potential due to green-up therefore reducing the overall threat to the residential areas. The wildfire threat potential in coniferous C2 fuels remains at high and extreme during the summer period.



Map 11: Baptiste, Island and Crooked Lake Wildfire Threat Summer

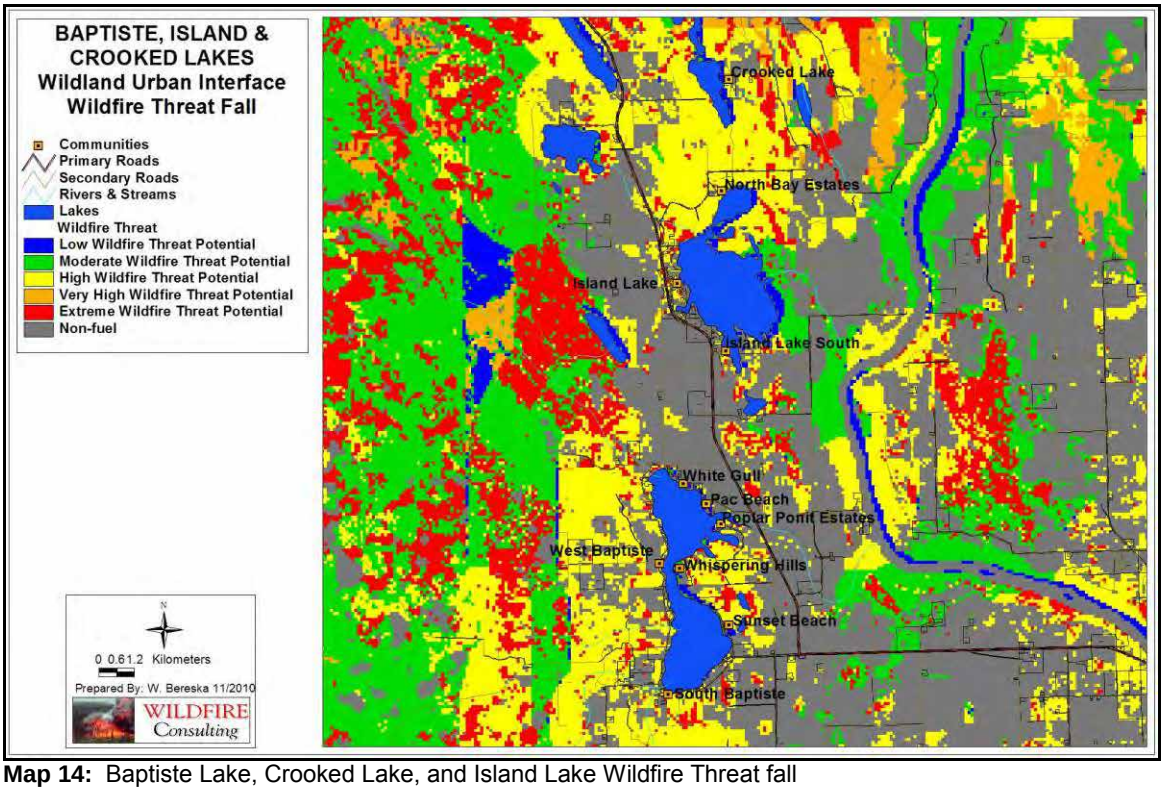


Map 12: Long Lake JFW Camp Wildfire Threat Summer

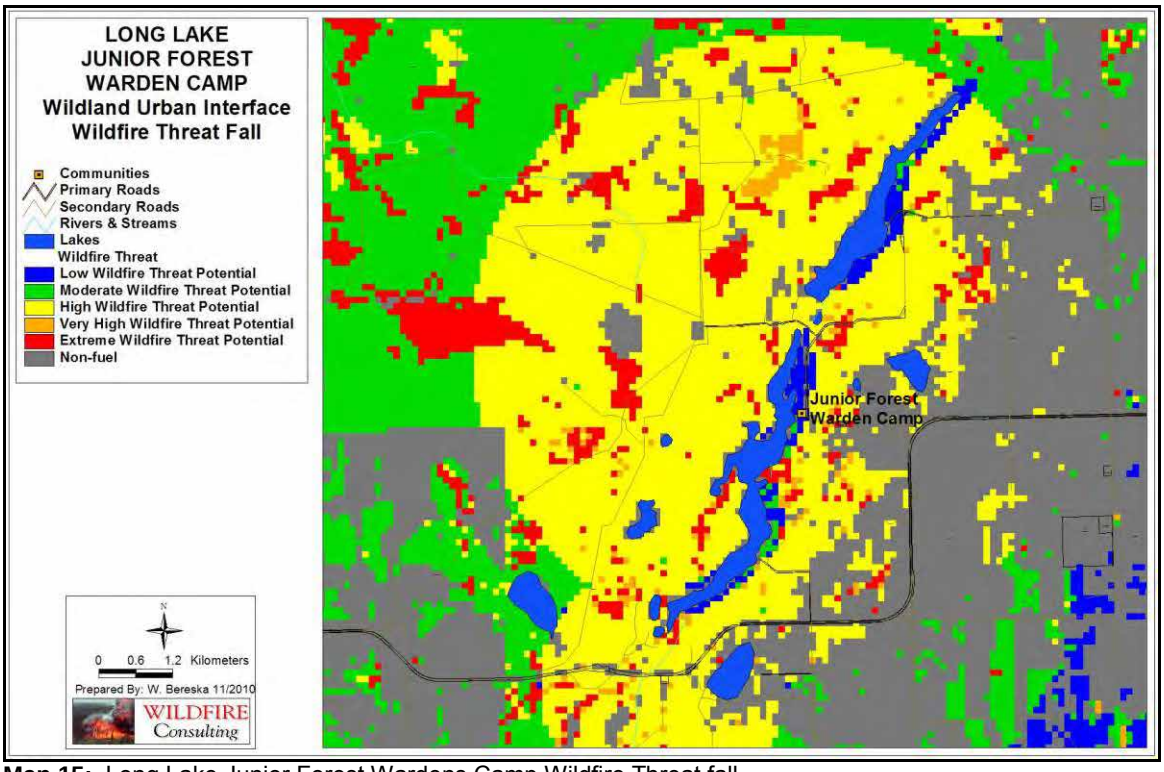


Map 13: Breynat and Wandering River Wildfire Threat Summer

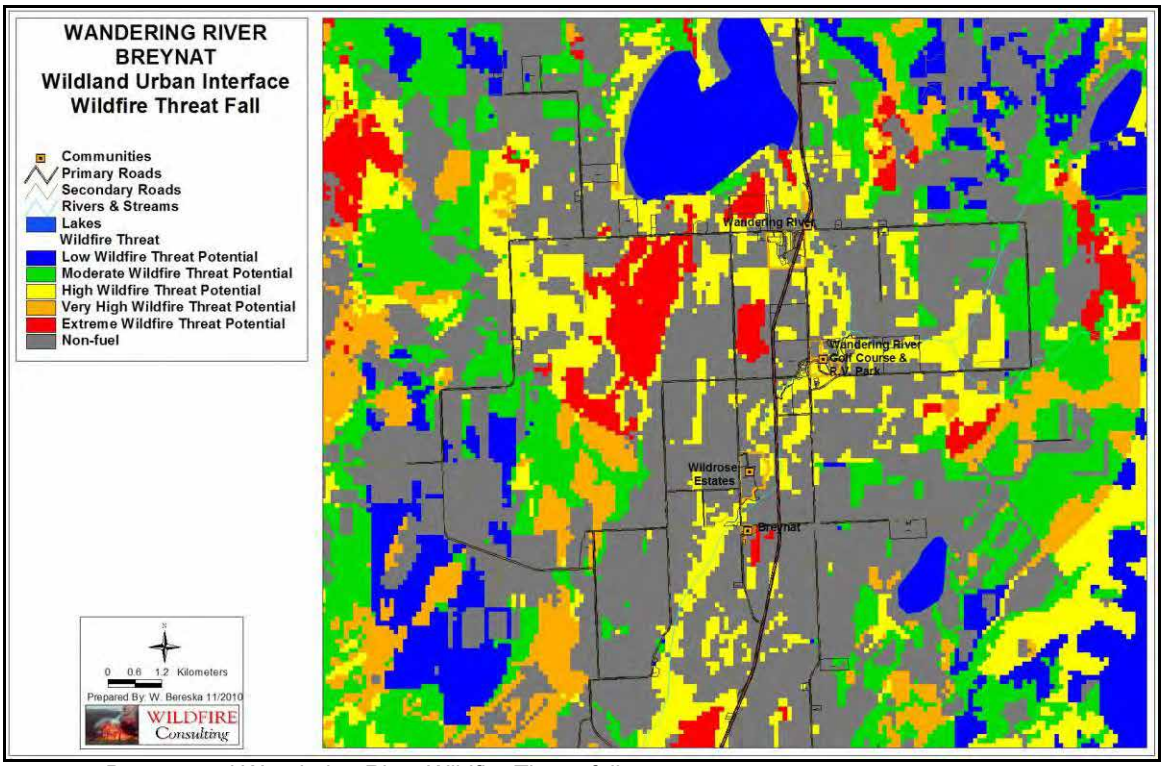
Wildfire Threat - Fall: The fall wildfire threat to the communities in the study area is moderate to high from the northwest, west and south quadrants. The increased threat will come from the cured grass and leafless aspen stands. The reduced daylight hours and higher humidity reduce the actual wildfire behavior during the fall season. The overall rating is very high in coniferous C2 fuels.



Map 14: Baptiste Lake, Crooked Lake, and Island Lake Wildfire Threat fall



Map 15: Long Lake Junior Forest Wardens Camp Wildfire Threat fall



Map 16: Breynat and Wandering River Wildfire Threat fall

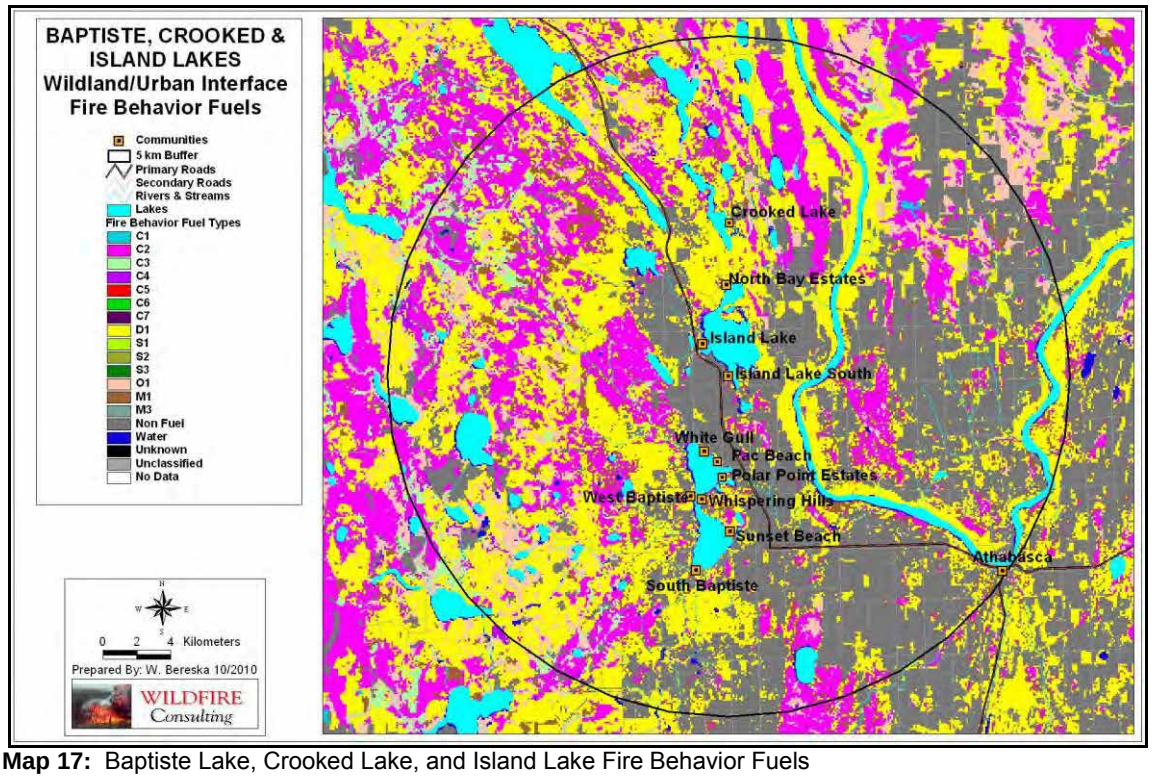
B Fire Behavior Potential Threat

Fire behavior is the manner in which fuel ignites, flame develops, fire spreads and exhibits other related phenomena. The key components of fire behavior are:

- Fuels
- Weather
- Topography

Fire growth and landscape interactions determine the fires capability to spread. The utilization of barriers to fire spread during a wildfire event is an appropriate FireSmart strategy that ensures the protection of communities within forested areas.

i Fire Behavior fuels within this study area are predominantly D1 (aspen) with agricultural lands providing good fuel breaks in most communities. Mature aspen stands have increased amounts of surface fuels provided by dead and down woody debris resulting from stand break down at maturity. These dead and down fuels combined with the cured grass can be highly flammable in the spring of each year and can be difficult to contain during periods of moderate to high winds. There are small stands of coniferous C2 (black & white spruce) fuels within some communities and bordering others. Larger agricultural lands can be found surrounding or bordering some hamlets, summer villages and subdivisions. Many linear disturbances and vacant lots or clearings within these communities have a heavy growth of grass.



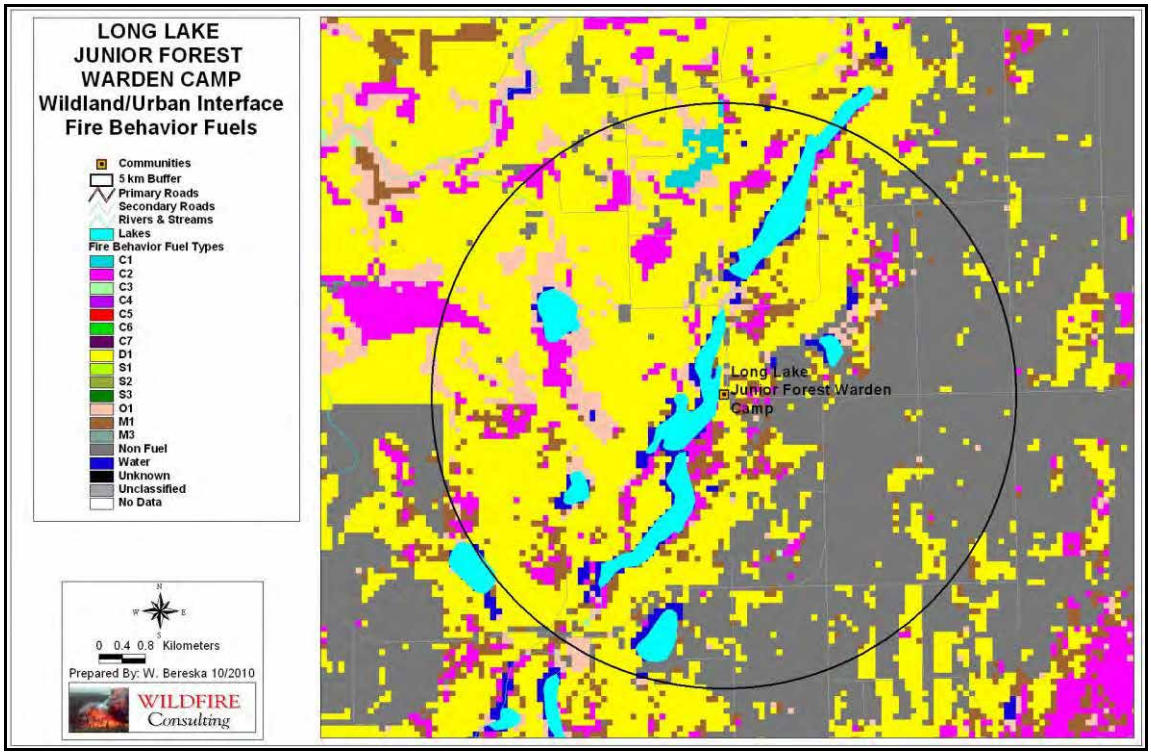
Map 17: Baptiste Lake, Crooked Lake, and Island Lake Fire Behavior Fuels

The majority of these summer villages or subdivisions are within a deciduous forest stand. The lake shore developments on Baptiste Lake are bordered by agricultural lands

on the south, east and north side. On the west side of the lake there is a patchwork of agricultural lands, aspen and some stands of coniferous on the northern portion and to the west of West Baptiste Lake. There is one stand of C2 (black spruce) in the Summer Village of Whispering Hills. Except for West and South Baptiste Lake most of the coniferous trees are planted by the residents

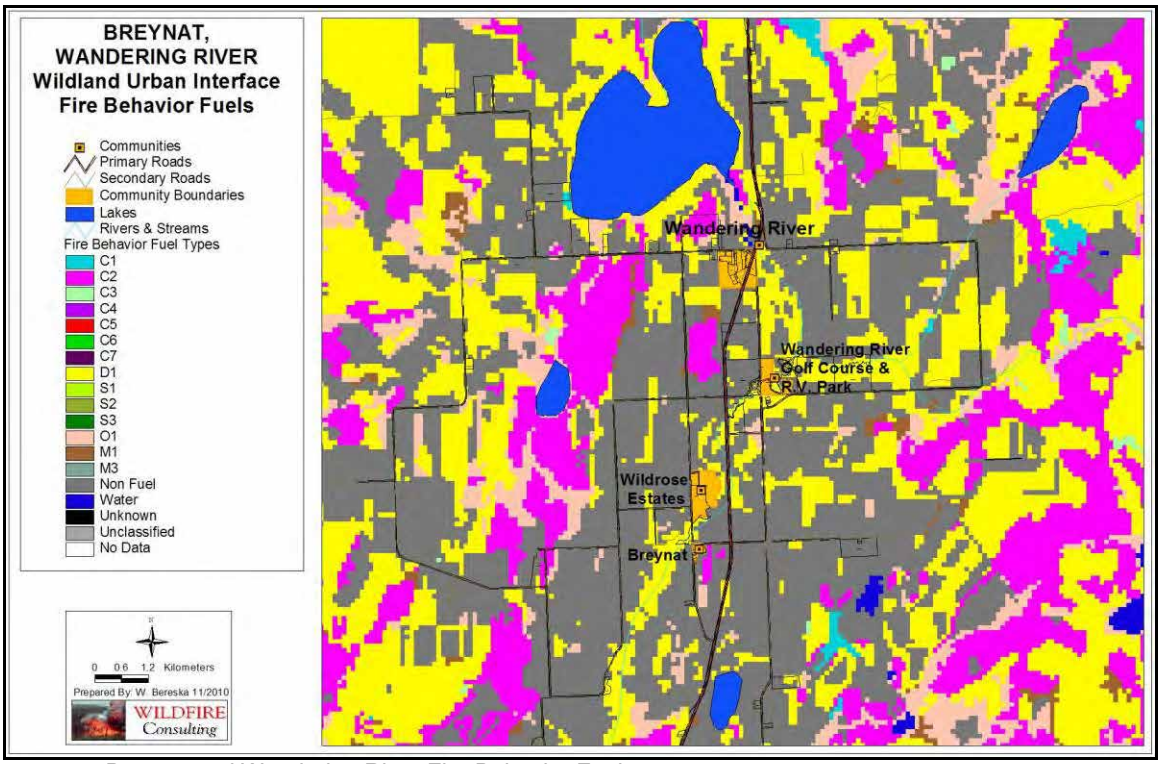
The summer villages and country residential subdivisions on Island Lake are within a deciduous (D1) forest. Except for North Bay Estates which is within an aspen stand, agricultural land borders Island Lake on the west, south and east side.

Crooked Lake Country residential subdivision is within an aspen stand (D1) with some agricultural clearings to the east and southeast. Some of these clearings have a moderate grass growth. There is a larger stand of C2 approximately 2 kilometres east of the subdivision.



Map 18: Long Lake JFW Camp Fire Behavior Fuels

The forest fuels at Long Lake are a mixed wood stand with approximately 70 % aspen and 30% Coniferous. The lake is to the west and agricultural lands to the east and southeast.
There is a light to moderate understory of balsam fir predominantly along the lake shore. This understory adds to the flammability of the forest fuels and provides ladder fuels for developing a crown fire in a coniferous canopy.



Map 19: Breynat and Wandering River Fire Behavior Fuels

The fuels in the Hamlet of Wandering River are predominantly aspen (D1) with a small stand of Spruce (C2) in the northeast corner of the hamlet. There is a mixed wood stand to the east along the river. The hamlet is bordered by agricultural land to the west and south and by highway 63 to the east and the river and agricultural land to the north.

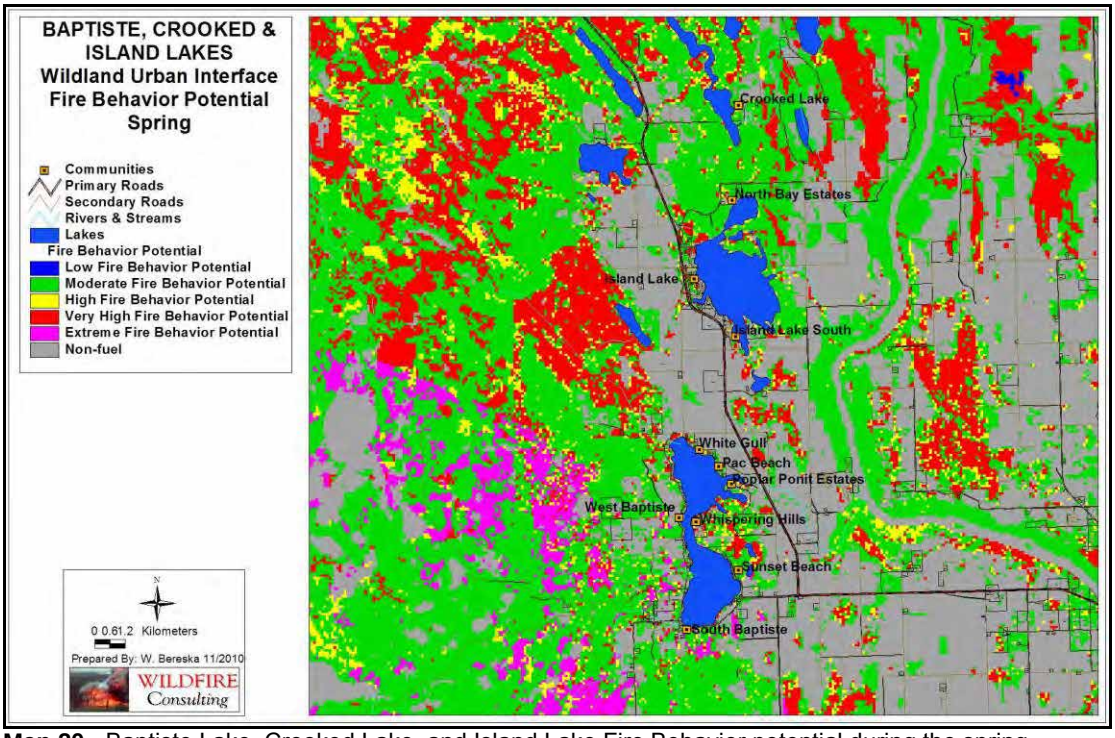
The Wandering River golf course residential subdivision is within a young aspen stand with a mixed wood (M1) stand to the south along the Wandering River. There are agricultural lands to the north, west and east.

The Wandering River R.V Park is located on the banks of The Wandering River within a mixed wood stand with predominantly a coniferous component. These fuels would be susceptible to sustaining a crown fire because of the coniferous understory surrounding the R.V. Park.

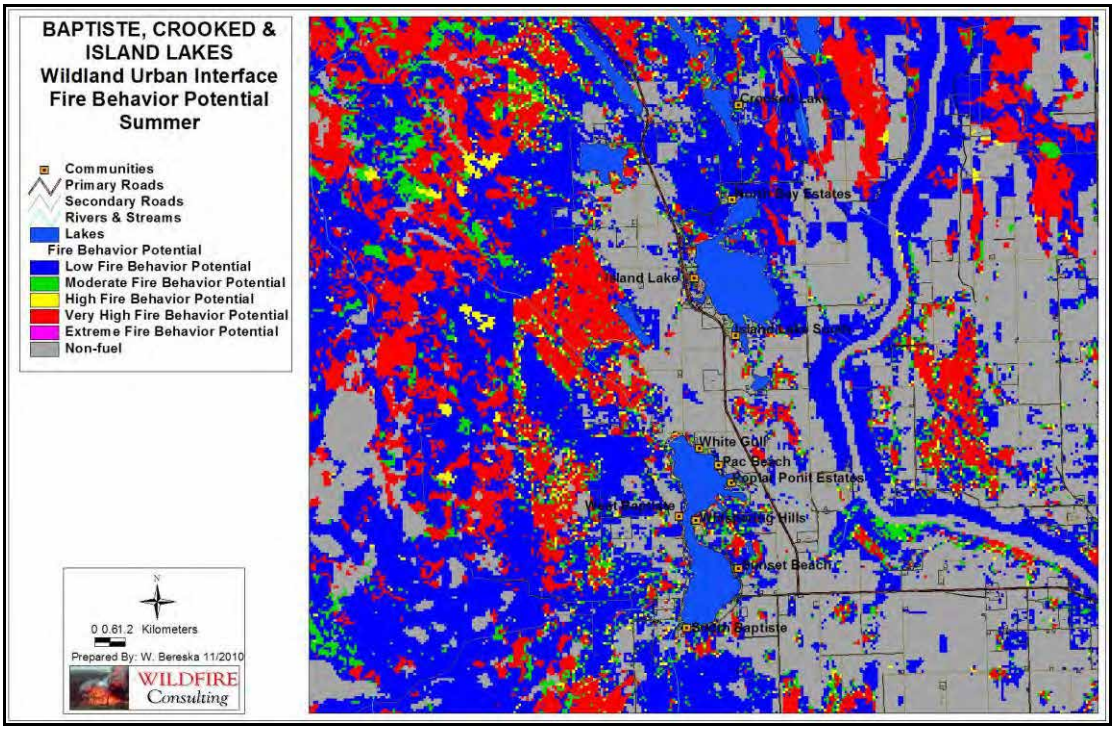
The hamlet of Breynat and the Wild Rose Estates country residential subdivision to the north is located in predominantly an open area. The hamlet is bordered by a mixed wood stand which is predominantly aspen to the west along the Wandering River. There are agricultural lands to the west beyond the river, south, east and north.

ii Fire Behavior Potential

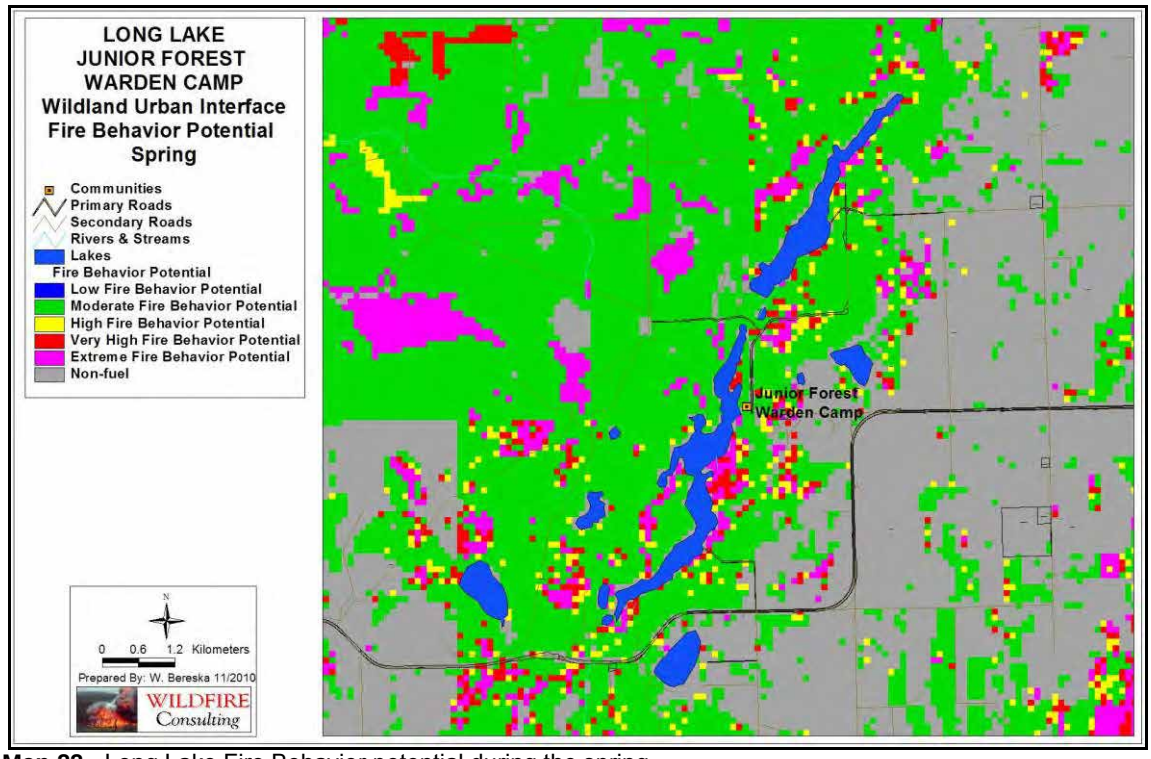
The fire behavior potential is indicated on the following maps for each community. This gives an indication of the resistance to contain a wildfire during the spring, summer and fall season in different fuels.



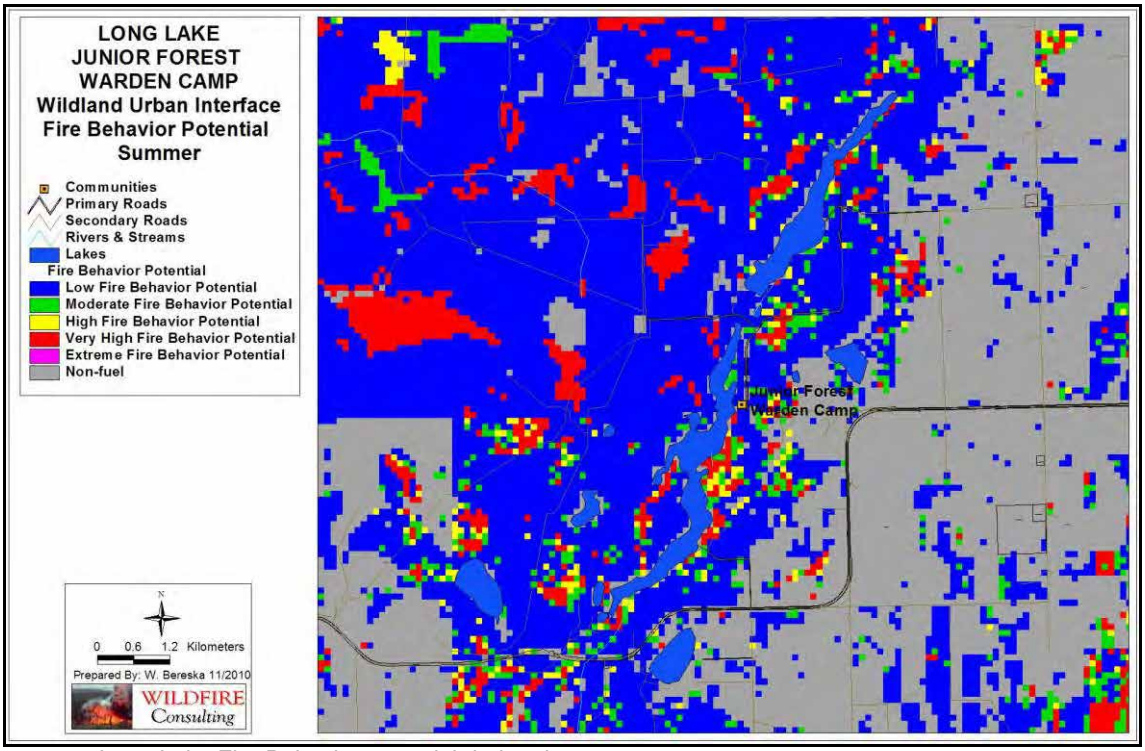
Map 20: Baptiste Lake, Crooked Lake, and Island Lake Fire Behavior potential during the spring**.**



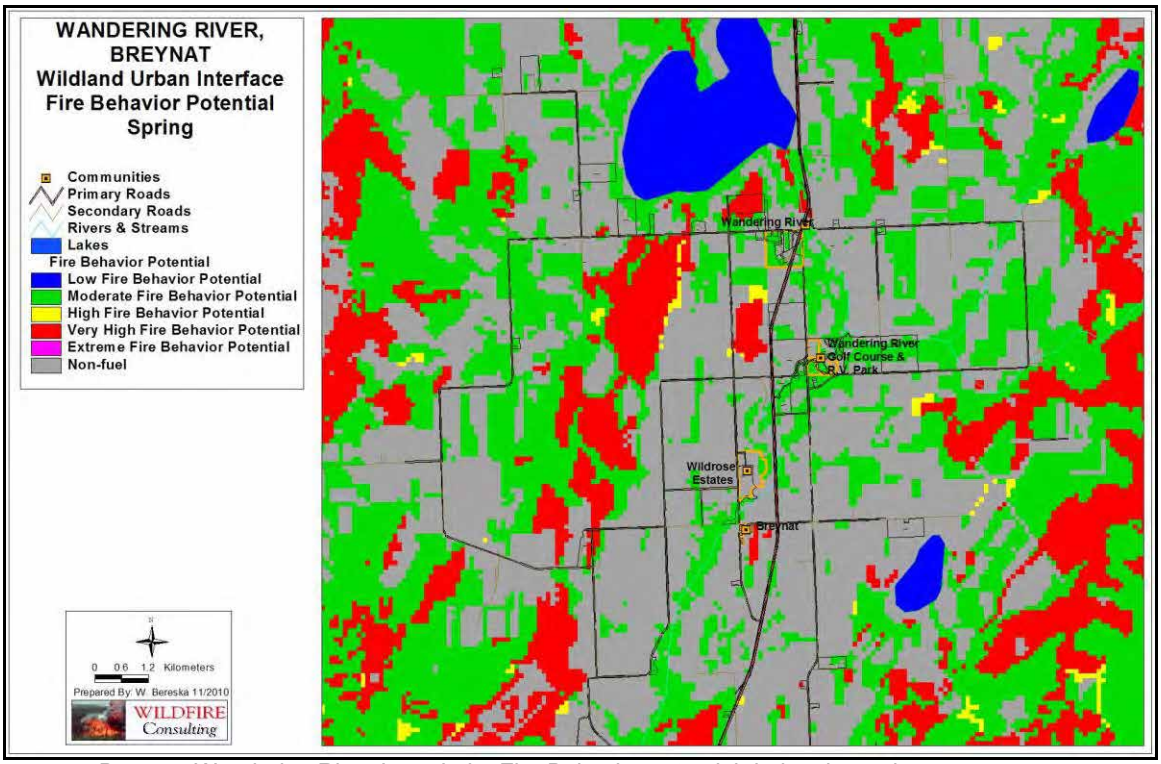
Map 21: Baptiste Lake, Crooked Lake, and Island Lake Fire Behavior potential during the summer



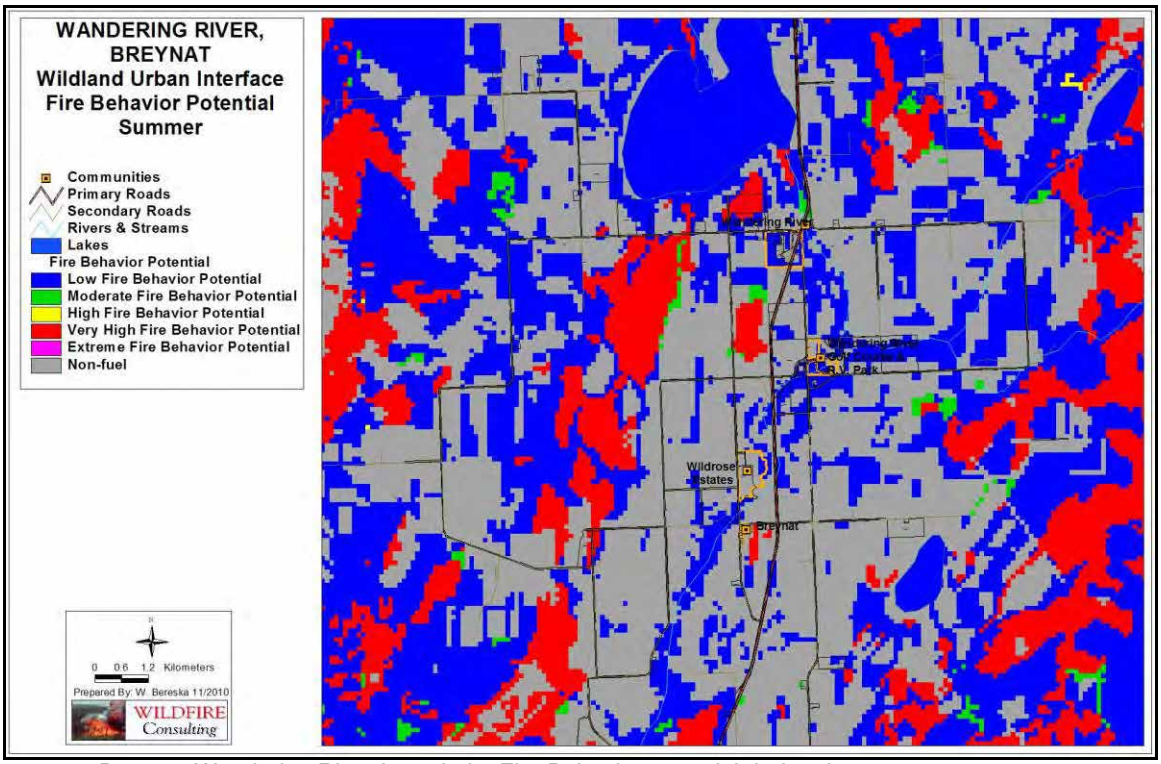
Map 22: Long Lake Fire Behavior potential during the spring



Map 23: Long Lake Fire Behavior potential during the summer



Map 24: Breynat, Wandering River Long Lake Fire Behavior potential during the spring

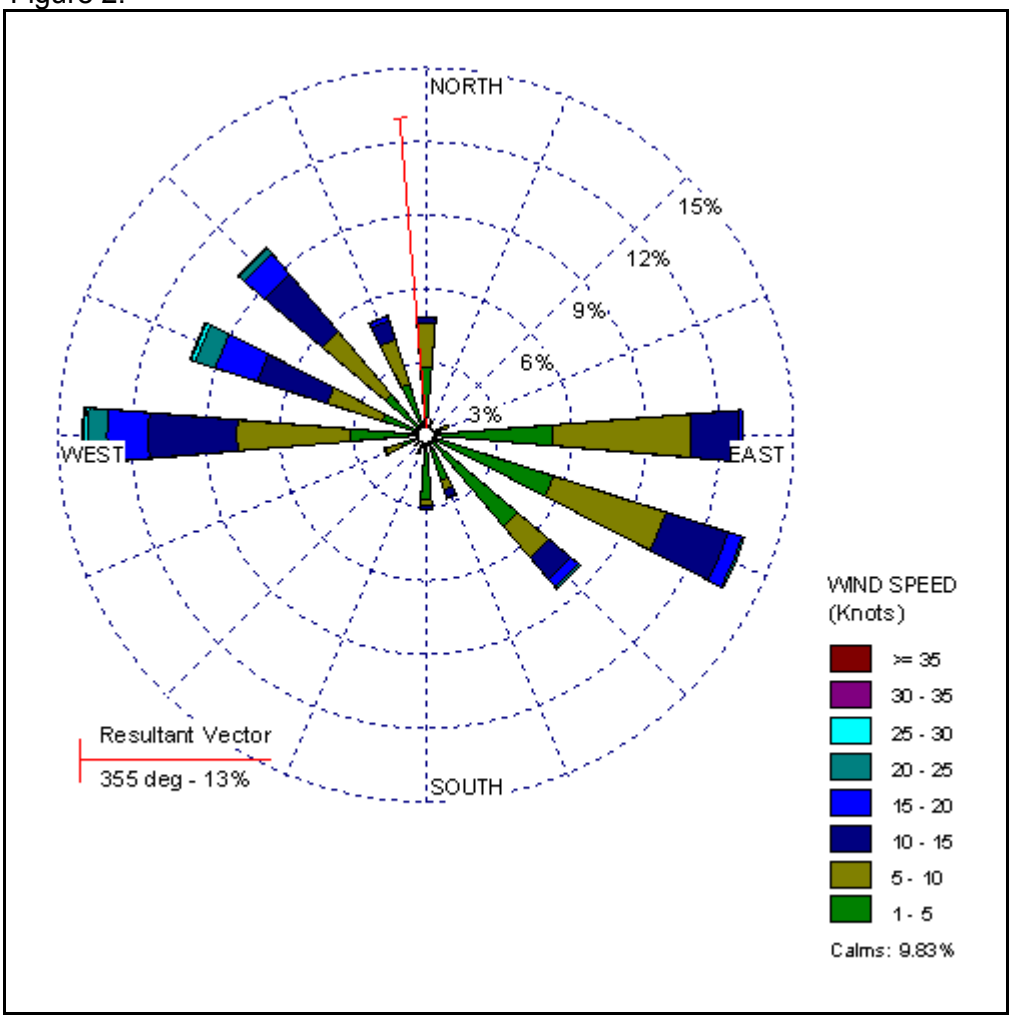


Map 25: Breynat, Wandering River Long Lake Fire Behavior potential during the summer

C Wildfire spread Direction

The wildfire spread direction for each season will be determined by the associated wind direction for the specific time period. The winds during the spring wildfire season have a higher probability of being from the southeast in the Athabasca County which indicates the fire spread will likely be from the southeast to the northwest. During the summer and fall season the winds in the Athabasca County have a higher probability of being from the west or northwest quadrant which means the fire spread can be from the west or northwest to the east or southeast during the summer or fall period. The following wind rose indicates the wind direction from the Slave Lake airport weather station.

Figure 2:



ZH Slave lake airport weather station

Figure 2: Graphically indicates the distribution of wind direction and speed. The bar's length indicates the proportion of the time the wind spent in that direction

D Fire Occurrence Risk

i Current fire data (past 14 years) indicates that the predominant wildfire cause within 20 km of the communities is residential and recreational accidental human caused wildfires.

ii To ensure that the fire occurrence risk is kept to a minimum, the fire permit program needs to be maintained in agricultural areas and within the communities during high and extreme fire danger periods. Spring scanning programs need to be conducted by industry and SRD – FPD on winter burning projects. The power transmission utility company needs to continue with its efforts in hazard tree removal along the power transmission distribution lines, to ensure trees do not come in contact with power lines and start fires.

E Values At Risk

Values-at-risk are a specific or collective set of natural resources and manmade improvements and/or developments that have measurable or intrinsic worth, and which could potentially be destroyed or otherwise altered by fire in any given area.

The Values at risk map includes the Provincial suppression and prevention priorities and associated data (Map 26 to 28).

1. Human life (For example: Occupied industrial plant sites, construction camps, commercial lodges, campgrounds including private and municipal).

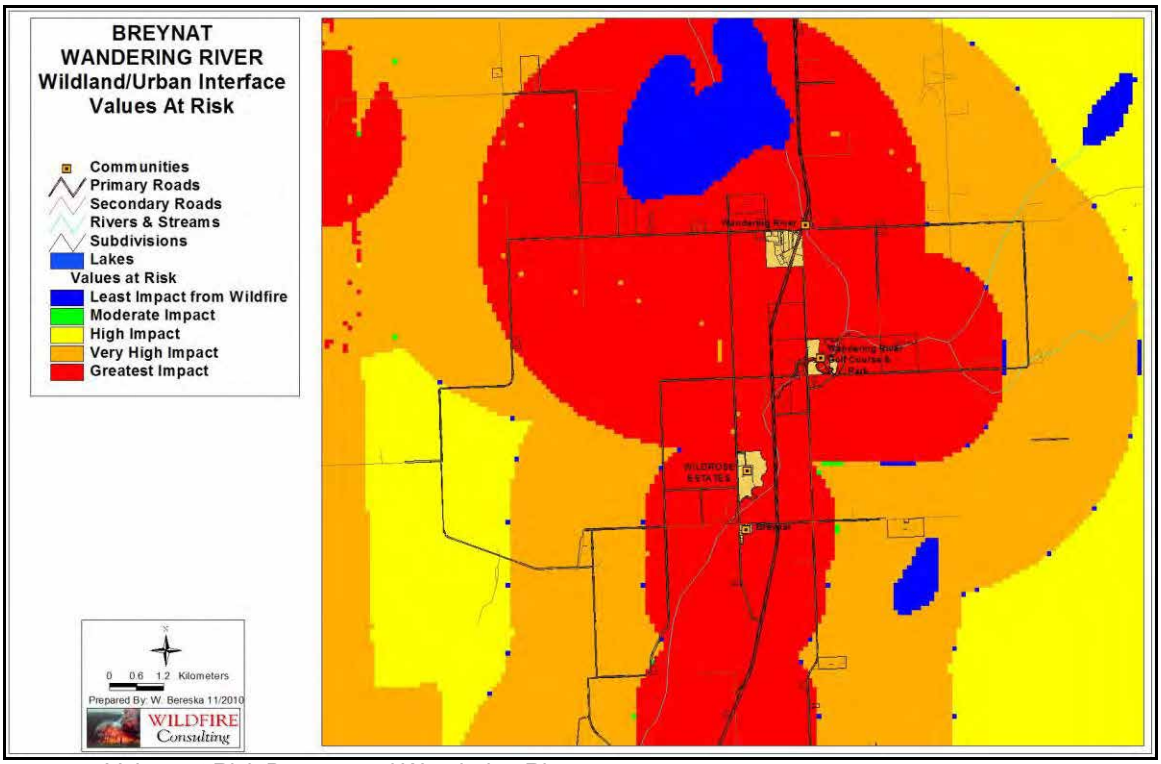
2. Communities (For example: cities, Hamlets, villages, hamlets, subdivisions within Indian Reserves (IR), subdivisions within Metis lands).

3. Watersheds/soils (For example: critical fish habitat, areas of possible erosion and siltation, sensitive soils, critical basins for water production).

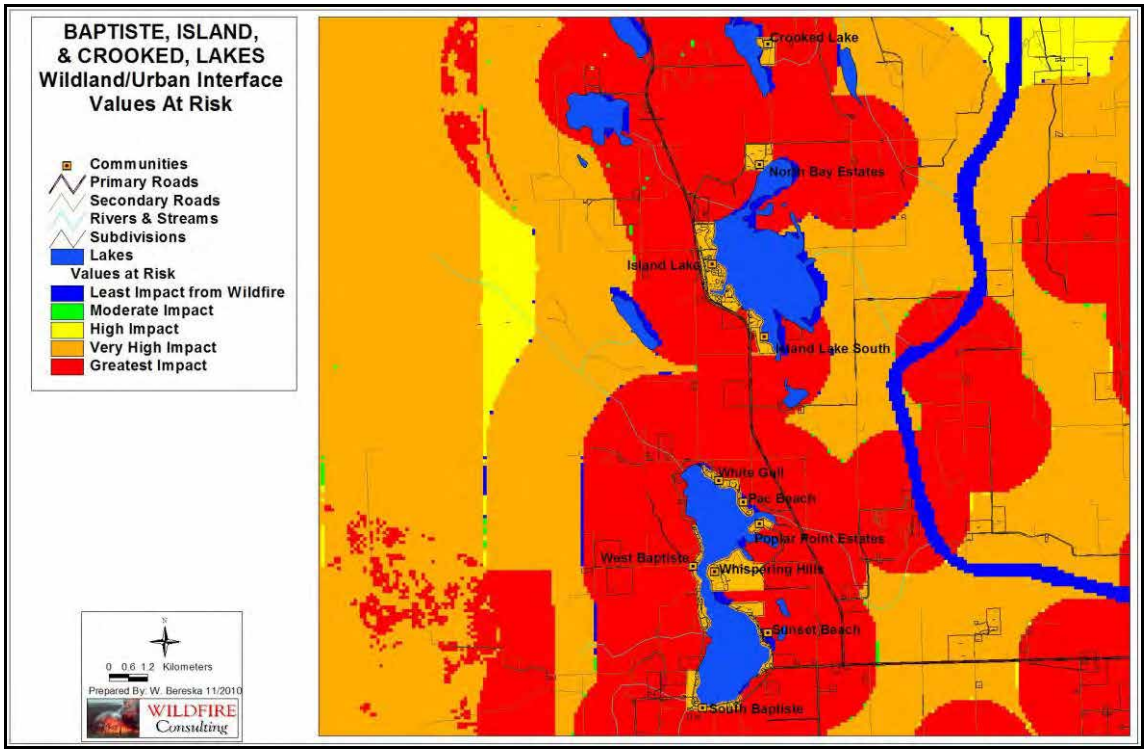
4. Natural resources (For example: wildlife habitat, fisheries, threatened/rare/endangered species, critical age classes, protected areas/significant features, timber).

5. Infrastructure (For example: major roads, major transmission lines, major railways, major telecom sites, major navigational sites, main public travel corridors, buildings).

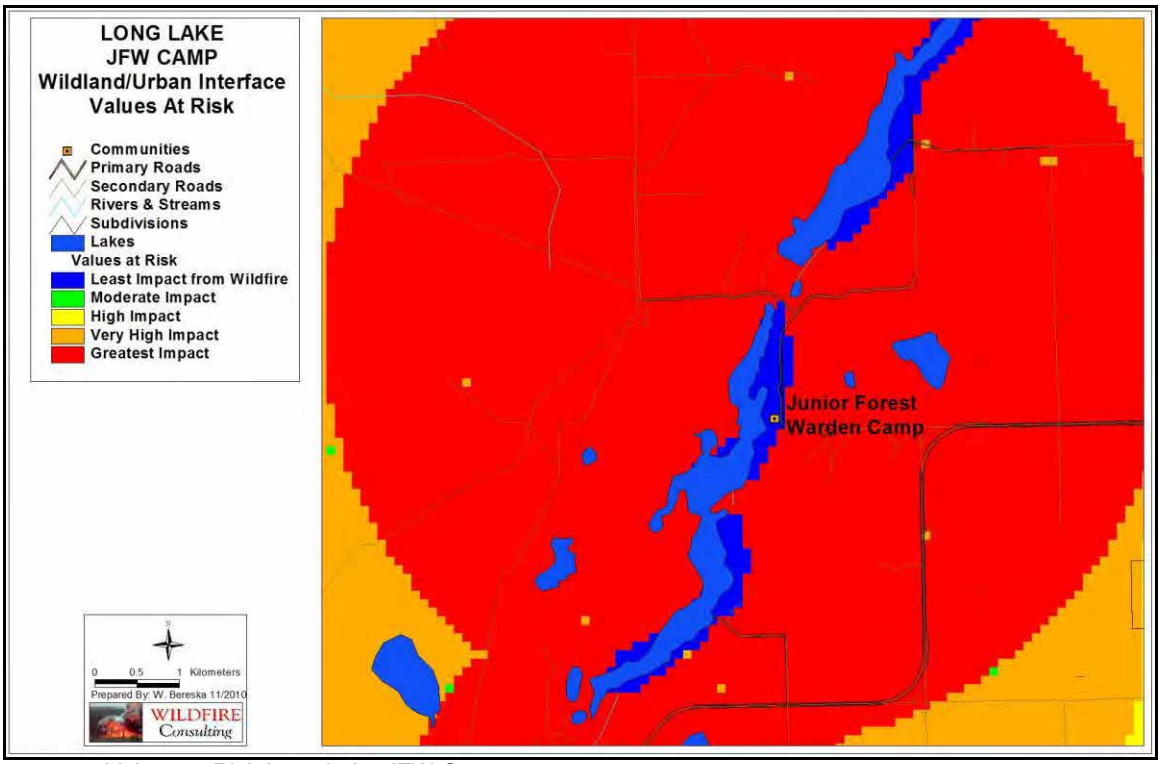
The red color indicates human life is involved with this value at risk and should receive the highest priority for wildfire suppression. The colors change with distance from the value and where the fuels are less flammable, such as a change from coniferous (C2) fuels to deciduous (D1) fuels or agricultural Non-fuels.



Map 26: Values at Risk Breynat and Wandering River



Map 27: Values at Risk Baptiste Lake, Island Lake, and Crooked Lake



Map 28: Values at Risk Long Lake JFW Camp

a. The greatest values at risk are the hamlets, summer villages, country residential subdivisions the infrastructure that services these communities and the industrial sites. within the Athabasca County,
b. Specific Values at Risk are described within the Wildfire Preparedness Guide for each community

F Suppression Capability

Suppression capability includes the factors and limitations that are related to the ability to contain a wildfire upon detection in order to protect values at risk.

a. There are a number of lakes that provide natural water sources for wildfire suppression that can be used by helicopter buckets and skimmer air tankers adjacent to the hamlets, summer villages, and country residential subdivisions. There are a number of water access points that are developed along the lake shores and rivers. Some need to be improved to provide easy access for water trucks to draw water for wildfire suppression.

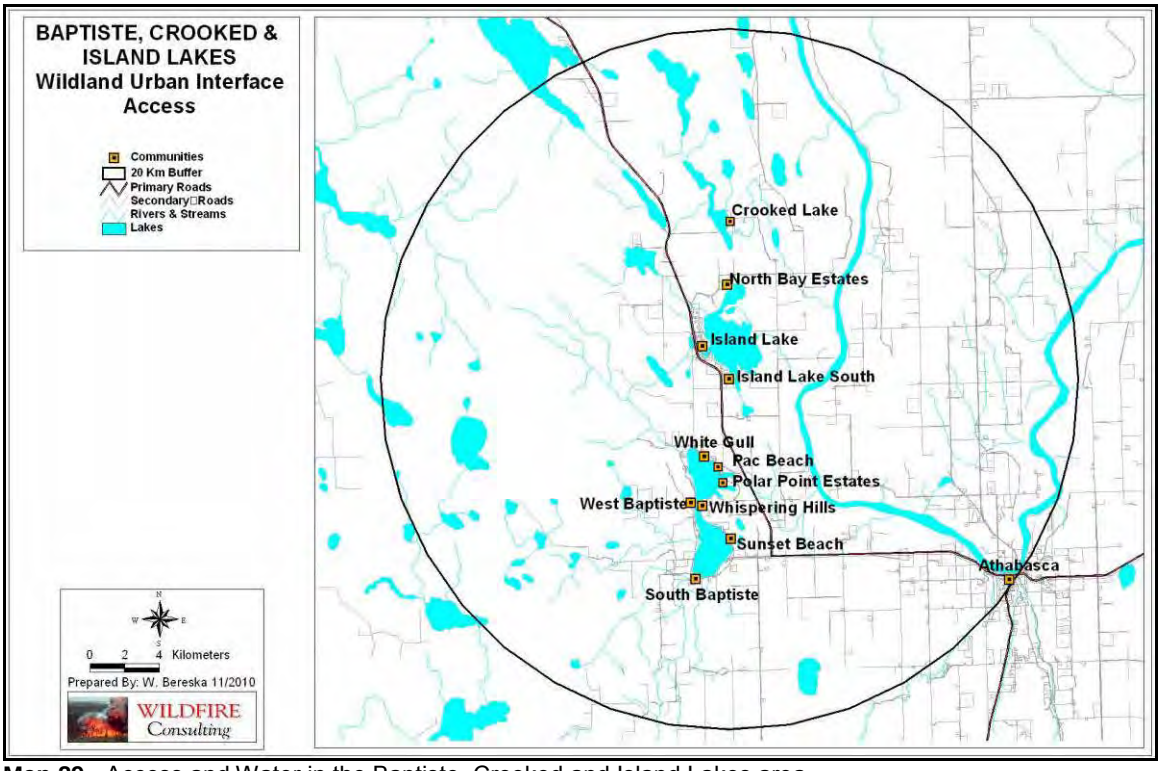
b. Access within the hamlets, summer villages, country residential subdivisions and peripheral areas is very good (Map 29 & 30). The main roads provide good access east, west and north, south through the hamlets, summer villages, and subdivisions

c. May Lookout situated 43 kilometres to the north and Round Hill Lookout situated 34 kilometres to the northeast of Wandering River and Breynat provide detection capability in these communities. Chisholm Lookout situated 32 to 40 kilometres northwest and Rock Island lookout situated 45 to 65 kilometres north of Baptiste

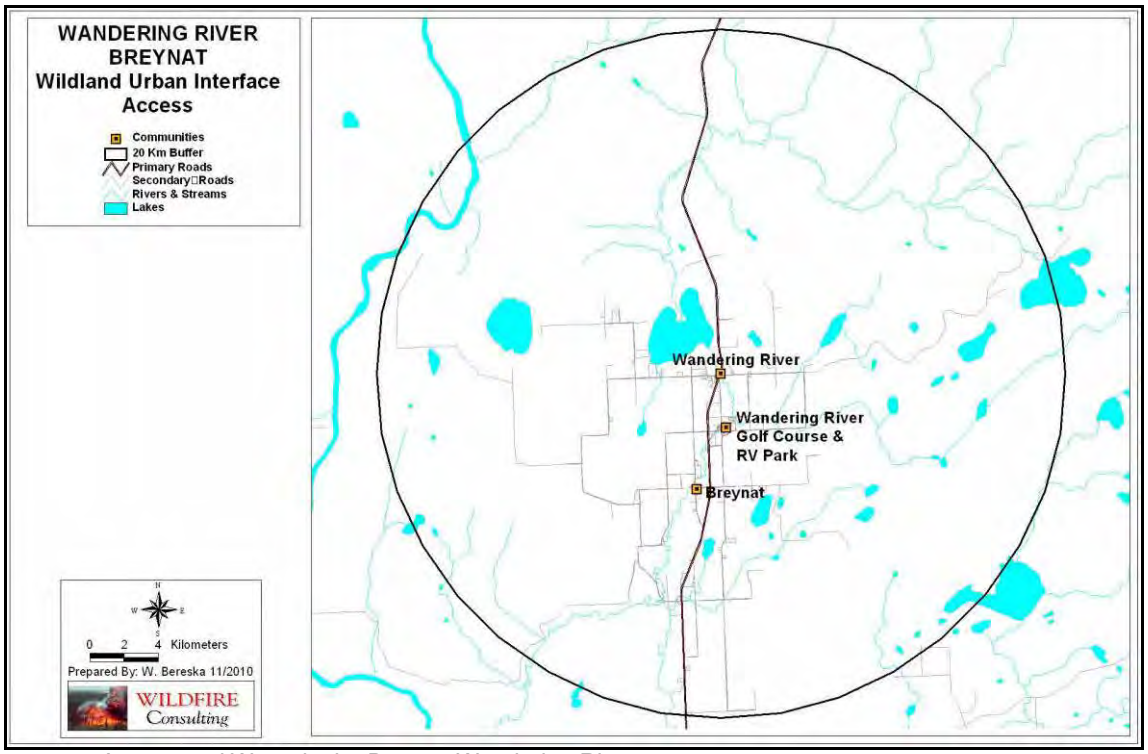
Lake, Island Lake and Crooked Lake provide detection capability to the communities on these lakes. The visibility is somewhat obstructed by elevation change which means that a wildfire smoke must rise at least 30 metres above the forest canopy in these communities before Chisholm or Rock Island Lookout will detect the smoke. Chisholm Lookout is opened at the first sign of a spring wildfire hazard and closed in fall when the hazards drops to low and snow accumulates on the ground.

d. Lac La Biche primary air tanker base is located at the Lac La Biche airport approximately 55 km to the southeast of Wandering River and Breynat communities and provides very good initial attack if required. Slave Lake air tanker base located 95 kilometres northwest of Baptiste, Island and Crooked Lakes provides very good initial attack if air tankers are required.

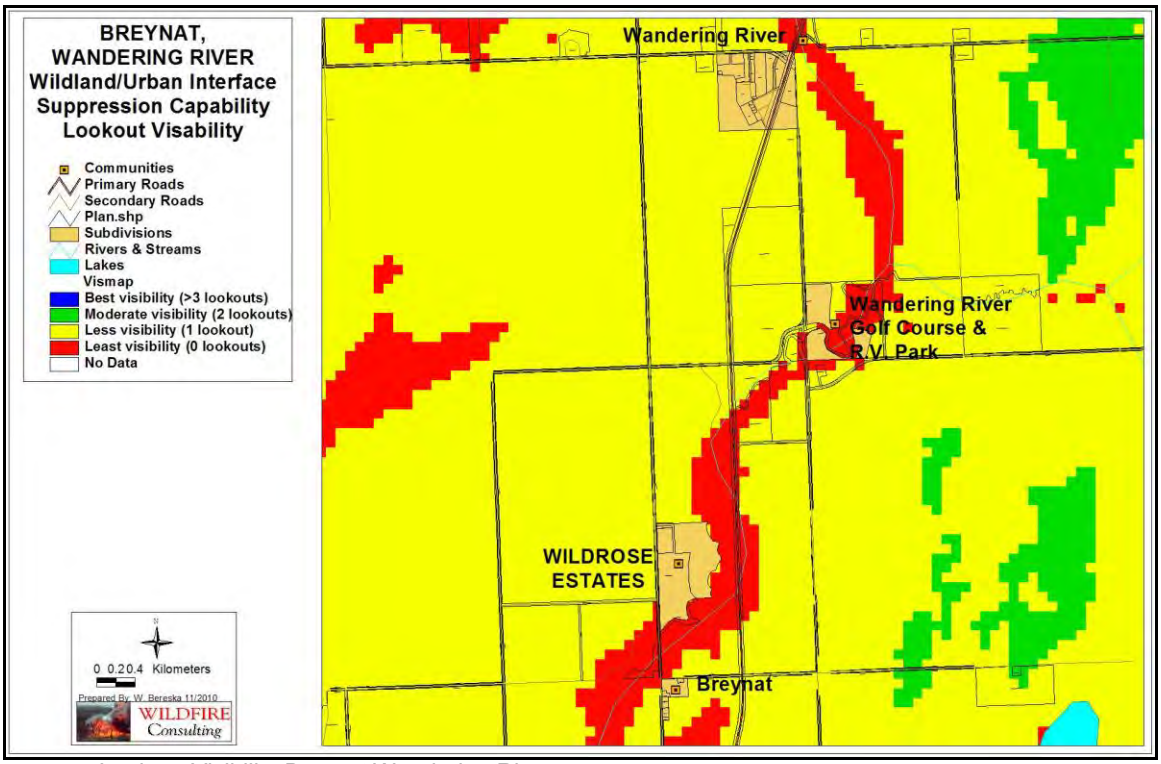
e. The Athabasca County provides volunteer fire departments and equipment in the Summer Village of West Baptiste Lake for all developments around Baptiste Lake and including Island Lake and Crooked Lake. There is a volunteer fire department within the hamlet of Wandering River which provides structural protection to Breynat and other developed subdivisions and the R.V Park. Colinton Fire Department provides structural fire protection to the Long Lake JFW facilities.



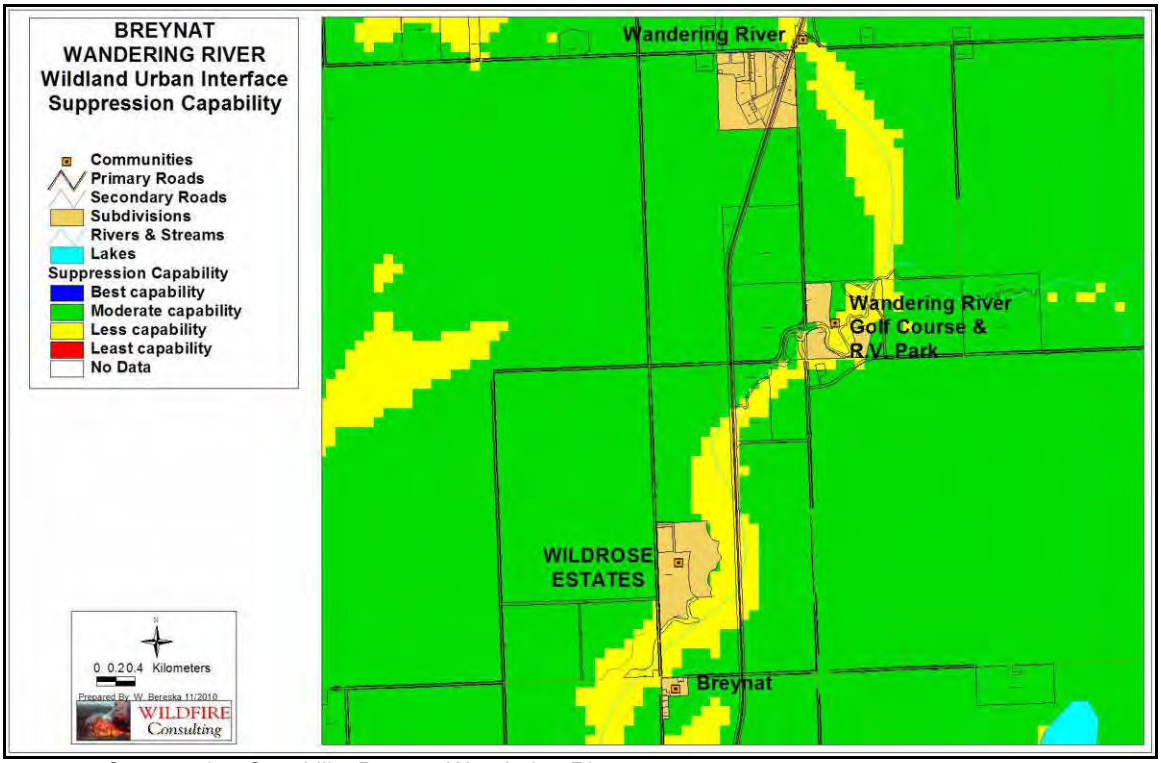
Map 29: Access and Water in the Baptiste, Crooked and Island Lakes area



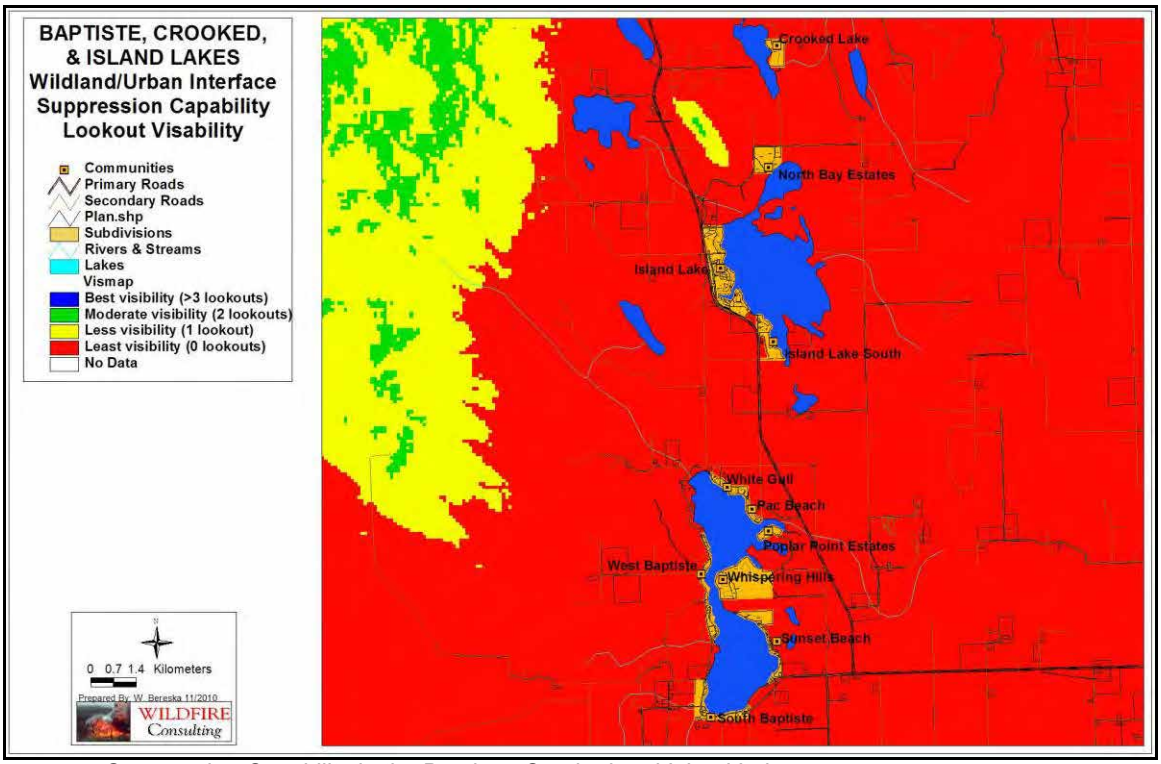
Map 30: Access and Water in the Breynat Wandering River area



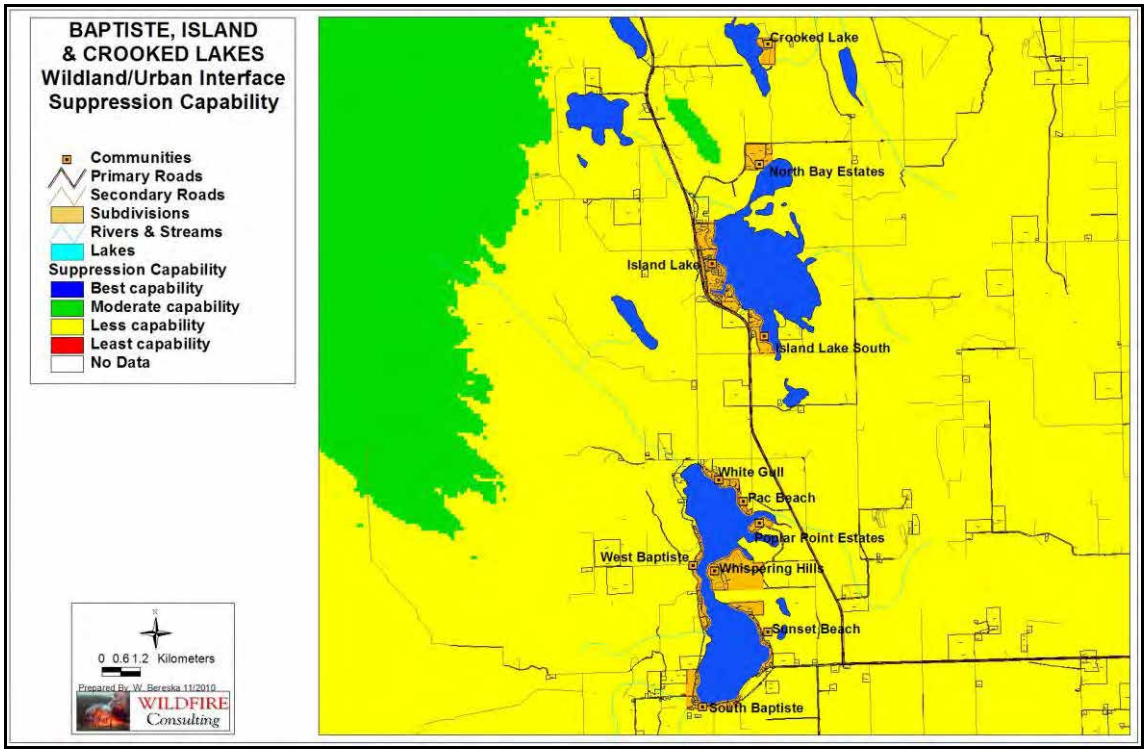
Map 31: Lookout Visibility Breynat Wandering River



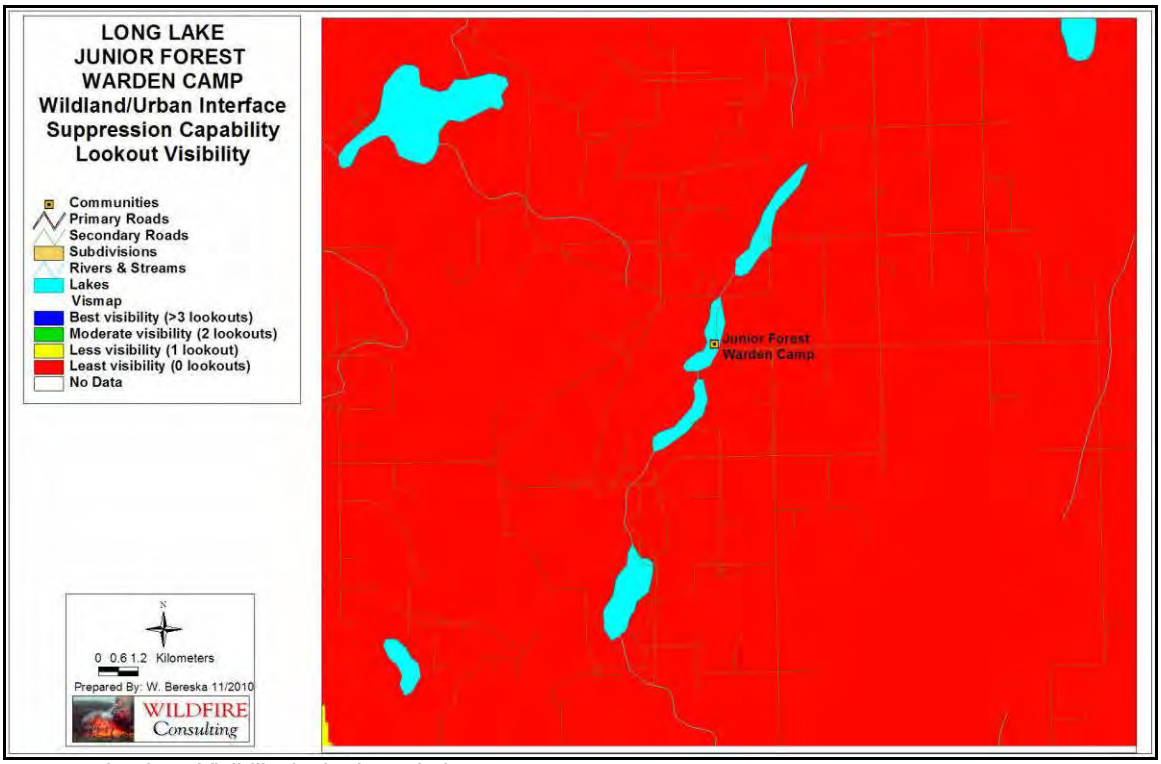
Map 32: Suppression Capability Breynat Wandering River



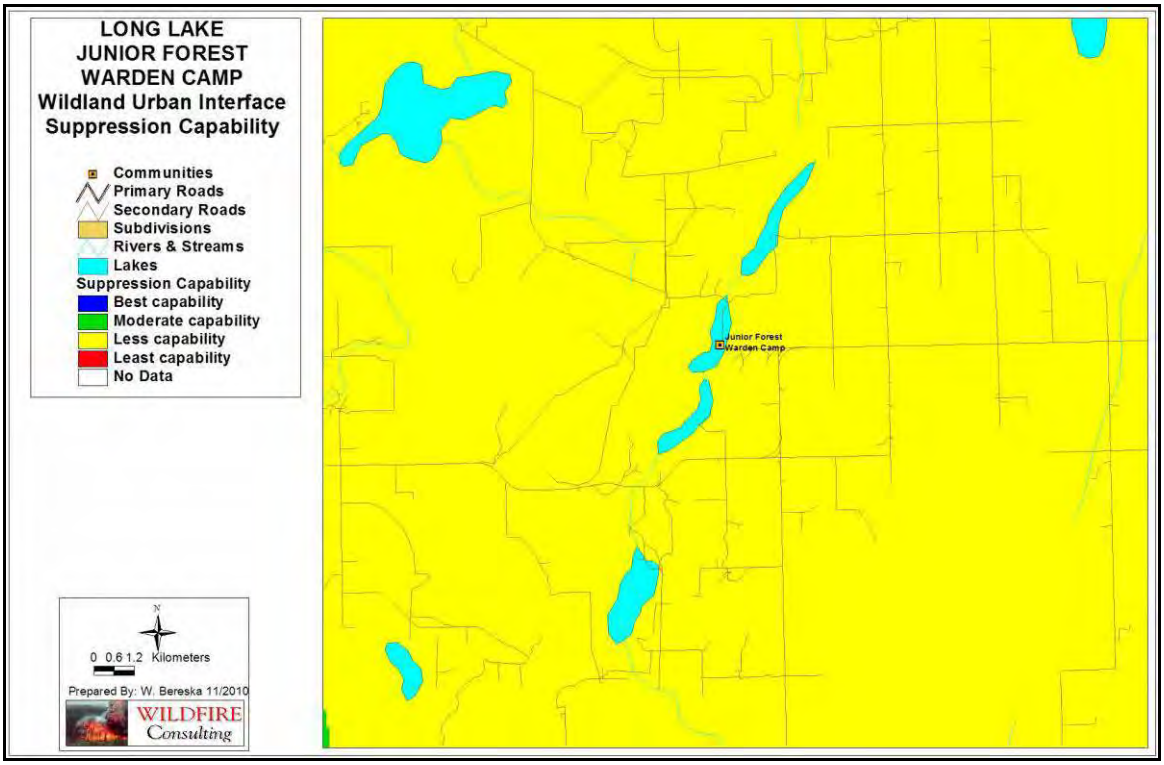
Map 33: Suppression Capability in the Baptiste, Crooked and Island Lakes area



Map 34: Suppression Capability in the Baptiste, Crooked and Island Lakes area



Map 35: Lookout Visibility in the Long Lake area



Map 36: Suppression Capability in the Long Lake area

6 Vegetation Management Mitigation Strategy

The goal of vegetation management is to create a fuel-reduced buffer between structures and flammable wildland vegetation immediately adjacent to structures and at strategic locations on the community perimeter. It is important to recognize that while fuel modification projects reduce the risk of wildfire to structures, it does not ensure structure survival under all hazard conditions.

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

- Fuel removal
- Fuel reduction
- Species conversion

Complete descriptions of the methods included in each of the above options are included in *"Fire-Smart Protecting Your Community from Wildfire"* (2003). Vegetation

Priority Zone 1: This area is immediately adjacent to a given structure and extends outward in all directions for a recommended minimum of 10 metres on flat terrain. The main objective of vegetation management within Zone 1 is to create an environment that will not support fire of any kind. In some situations, this may be the only zone that residents and development owners/operators need to manage.

Priority Zone 2: This area begins 10 metres from the structure and extends to 30 metres beyond the structure. The main objective of vegetation management within Zone 2 is to create an environment that will only support wildfires of lower intensity and rate of spread. Fuel reduction and/or fuel removal are the recommended vegetation management options for Zone 2.

Priority Zone 3: This area begins 30 metres from the structure and extends to 100 metres or more beyond the structure. Vegetation management in Zone 3 may only be necessary in cases where dense coniferous vegetation or steep topography warrant action in this zone. Fuel reduction and/or fuel removal are the recommended vegetation management options for Zone 3.

The 2003 FireSmart plan identified that certain areas within and surrounding the communities required fuel modification to reduce the wildfire threat to the communities identified within this study area.

Vegetation management within all the communities in this study area falls almost entirely on the residential property owners. There is limited or no crown or municipal reserve lands within the boundaries or surrounding the hamlets, summer villages or country residential subdivisions. The majority of municipal reserve land is a lakeshore buffer. The Athabasca County and the summer villages have completed some FireSmart projects removing dead and down woody debris and thinning and pruning areas that are municipal reserve lands.

The challenge into the future will be to convince residential landowners to complete and maintain the require fuel modification to FireSmart standards. To date the residents have done an excellent job in managing the grass growth in their communities by mowing the grass on a regular basis.

Pac Beach

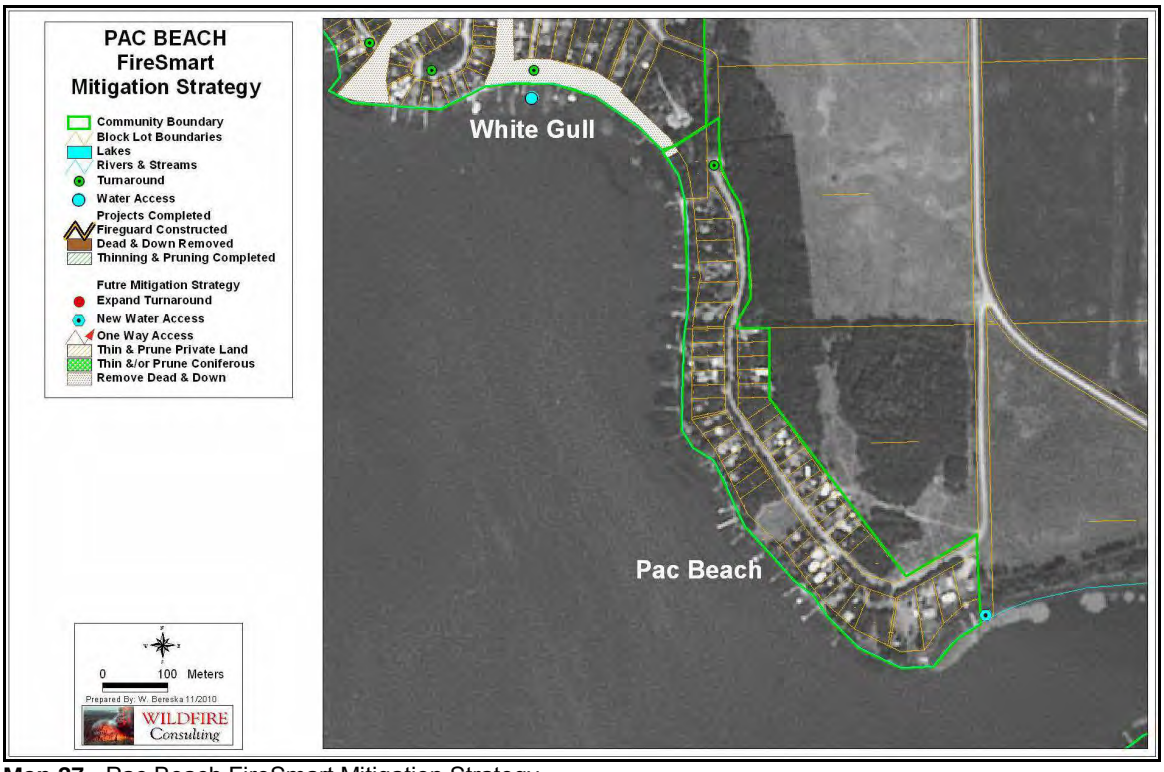
This subdivision is located on the northeast shore of Baptiste lake in a narrow strip of deciduous aspen vegetation (D1 fuels) with planted conifers on individual property. Pac Beach is surrounded by a grassy field on the north and east side. There is a small grassy open area at the entrance to the subdivision that should be mowed at least once a year to reduce the accumulation of dry grass. Zone 1 is well maintained by most residents.

Photo 1: Fuels east and north of development

Photo 2: Young aspen east of residential area

Photo 3: Grass area at entrance to Pac Beach

Photo 4: Large lot well maintained



Map 37: Pac Beach FireSmart Mitigation Strategy

Projects Completed: FireSmart projects are limited to the individual residential lots. The owners have removed some dead and down woody debris and are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate.

Poplar Point Estates

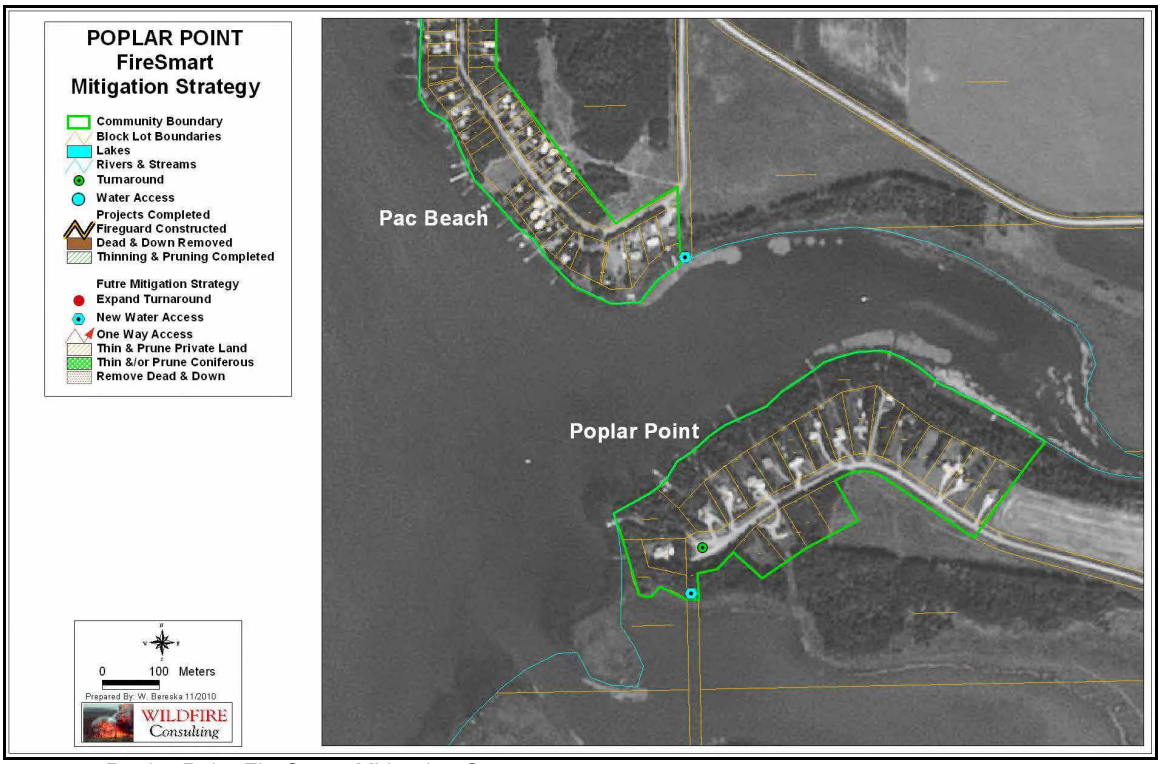
This subdivision is located on the east side of Baptiste Lake on a peninsula within aspen (D1) forest vegetation and open grass fields to the east and southeast. The aspen along the lake shore is maturing and will add dead and down surface fuels as the stand breaks up. The grass on the properties in Zone 1 and along the roads is very well maintained.

Photo 5: Poplar Point fuels looking west

Photo 6: Poplar Point Lake shore grass

Photo 7: Grass in open area along Lake

Photo 8: Grass maintained on roads & Lots



Map 38: Poplar Point FireSmart Mitigation Strategy

Projects Completed: FireSmart projects are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate from the breakup of the aspen stand.

White Gull

This subdivision is located on the north shore of Baptiste Lake within a strip of aspen forest vegetation along the lakeshore. There is a stand of coniferous (C2) vegetation on the northwest side of the developed area. There are open fields on the north side that serves as pasture currently. The residents maintain the grass growth almost to the waters edge by mowing.

Photo 9: White Gull vegetation

Photo 10: Close up view of vegetation

Photo 11: Grass in open area along roads

Photo 12: Grass along lake mowed

Map 39: White Gull FireSmart Mitigation Strategy

Projects Completed: FireSmart projects are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate especially on the municipal reserves.

Summer Village of South Baptiste

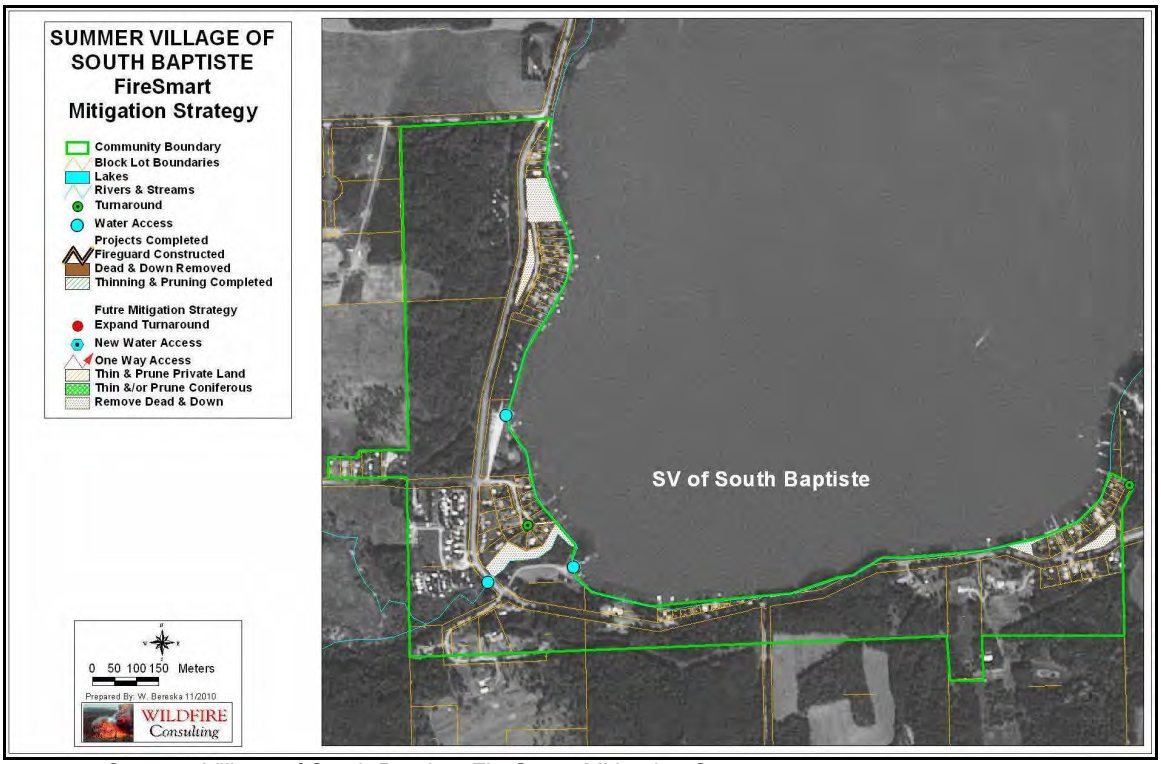
This summer village is located on the southwest and south shore of Baptiste Lake. The primary forest vegetation is deciduous with some scattered spruce next to lakeshore. This is an older high density development which in some cases may impede a residential evacuation due to narrow road ways and vehicles parked along them. The high density of structures may readily spread a structure fire from structure to structure on a windy day.

Photo 13: Grass in open area along lake

Photo 14: Grass maintained on roads & Lots

Photo 15: Development density

Photo 16: Fuels to the west of South Baptiste



Map 40: Summer Village of South Baptiste FireSmart Mitigation Strategy

Projects Completed: FireSmart projects are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate especially in the municipal reserves

Summer Village of Sunset Beach

This summer village is located on the southern portion of the east shore of Baptiste Lake. The forest vegetation is primary aspen (D1) with willows in wet areas and in some spots along the lake shore. There is a stand of coniferous C2 in the northern part of the village running northeast towards a small water body. This stand of C2 is not currently within 30 metres of any structures. There is some dead and down woody debris mainly on the east side of road. The aspen is reaching maturity and will produce more dead and down in the future. There are open fields bordering the south portion of this summer village on the east side. The northern portion of this summer village is border to the east by D1 and a few stands of C2 near the two water bodies east of the summer village. There are large open fields east of the two water bodies which are 1.5 kilometers east of the northern portion of the summer village

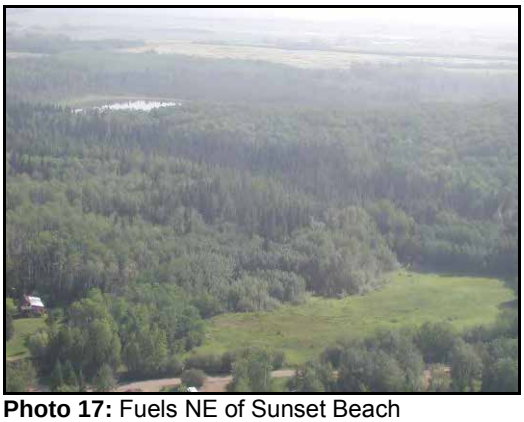


Photo 17: Fuels NE of Sunset Beach

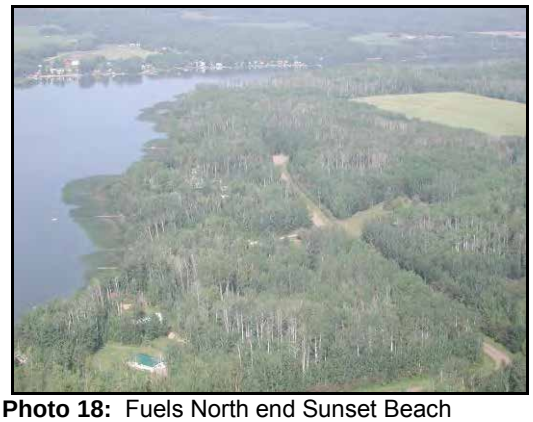
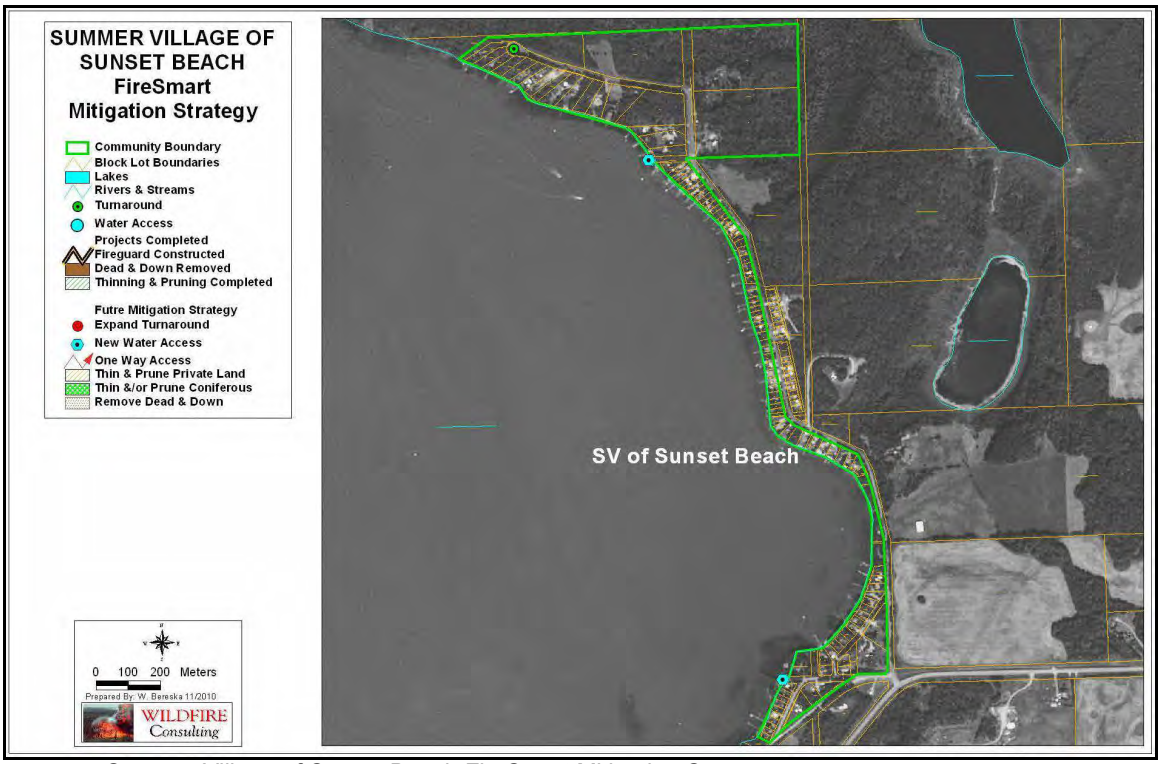


Photo 18: Fuels North end Sunset Beach

Photo 19: Fuels south end Sunset Beach

Photo 20: Fuels along road



Map 41: Summer Village of Sunset Beach FireSmart Mitigation Strategy

Projects Completed: FireSmart projects are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate especially in the municipal reserves

Summer Village of West Baptiste

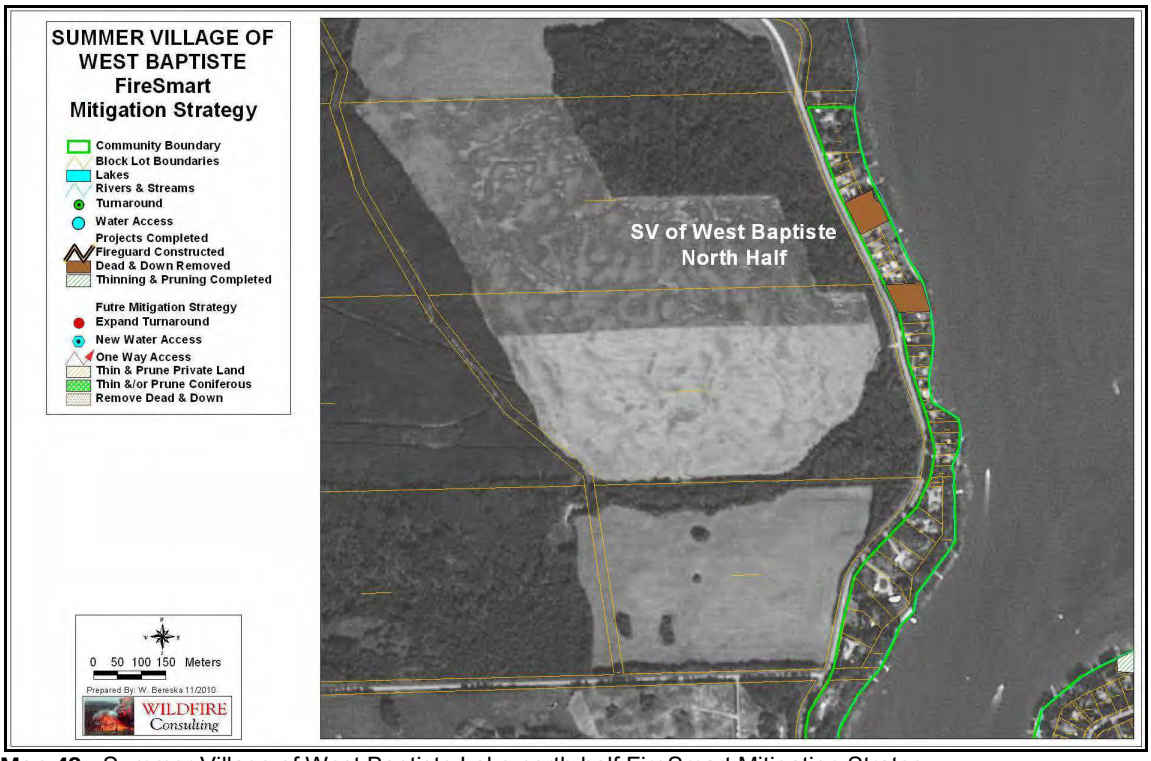
This summer village is located along the west shore of Baptiste Lake. The forest vegetation is mainly deciduous (D1) with scattered white spruce. The coniferous on private lots is pruned and the grass under the trees mowed. No fuel modification required at this time. There are agricultural fields to the west. The development area near the south end is more open

Photo 21: Fuels in West Baptiste

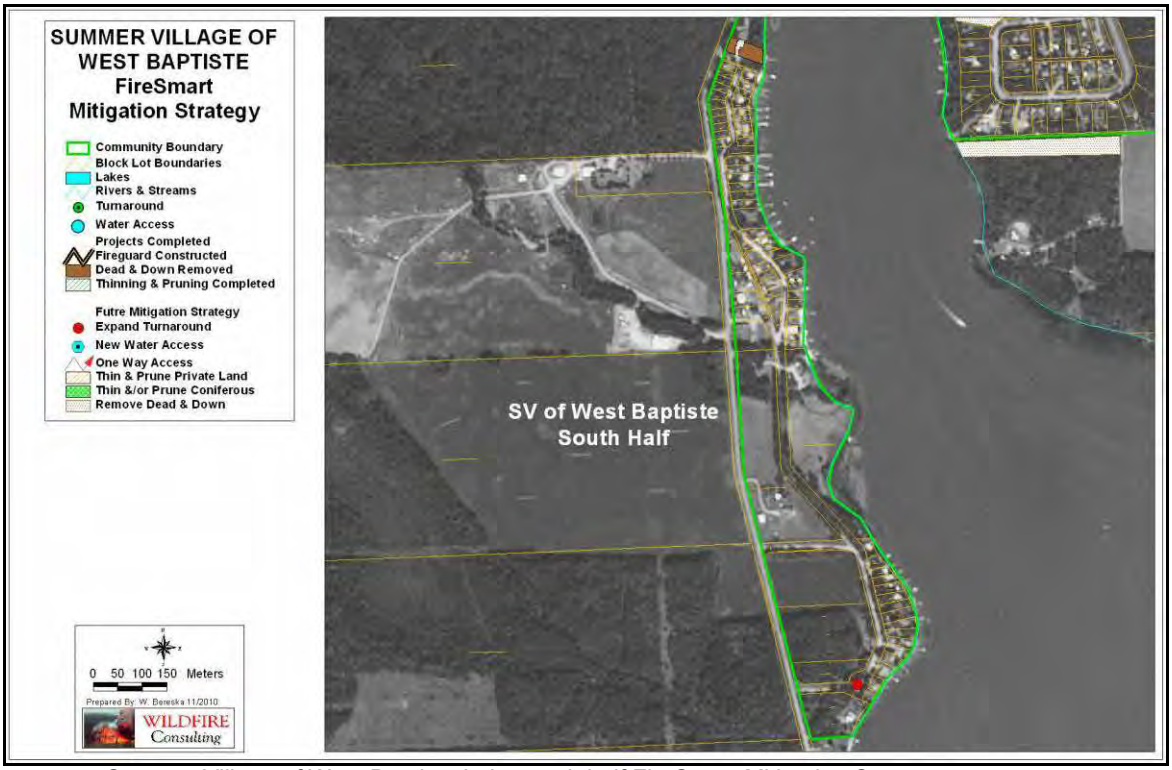
Photo 22: Fuels well managed on properties

Photo 23: Fuels north end West Baptiste

Photo 24: Fuels north end West Baptiste



Map 42: Summer Village of West Baptiste Lake north half FireSmart Mitigation Strategy



Map 43: Summer Village of West Baptiste Lake south half FireSmart Mitigation Strategy

Projects Completed: Dead and down surface fuel removal was completed in three separate areas on municipal reserves within the Summer Village of West Baptiste. The property owners are maintaining the grass accumulation by mowing on a regular basis (photo 22).

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate especially in the municipal reserves

Summer Village of Whispering Hills

This summer village is located on the east shore at the narrows of Baptiste Lake. The forest vegetation is primarily an aspen stand (D1) which is mature to over mature. The over mature stand is mainly along the lake shore, along the south border and at the northeast end of this development (photo 25 and 28). In the southern portion of the developed area most of the over mature tall aspen has been removed leaving a young aspen stand (photo 27). There is a coniferous stand of C2 on east side at the corner of the road (photo 26).

On the municipal reserve in the southwest corner of the summer village the old over mature aspen (Photo 29 and 30) is falling down creating dead and down on the surface. Where dead and down debris has been removed young aspen is replacing the over mature stand. Along the lake shore there is a very dense shrub understorey (Photo 30).

Photo 25: OM Fuels south end plus young stand

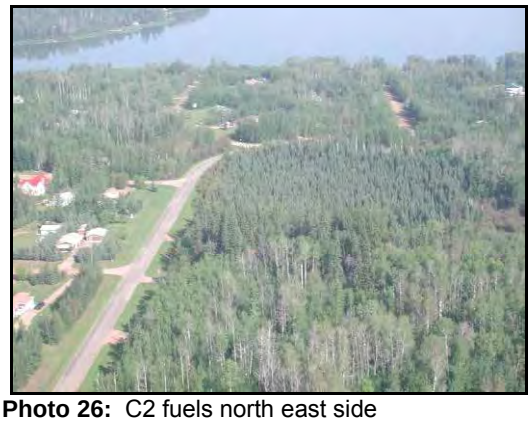


Photo 26: C2 fuels north east side

Photo 27: Fuels within residential area

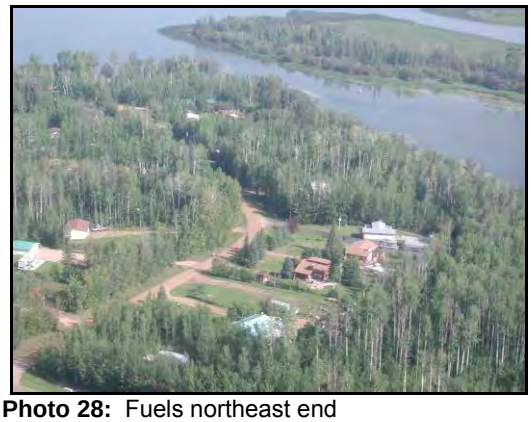
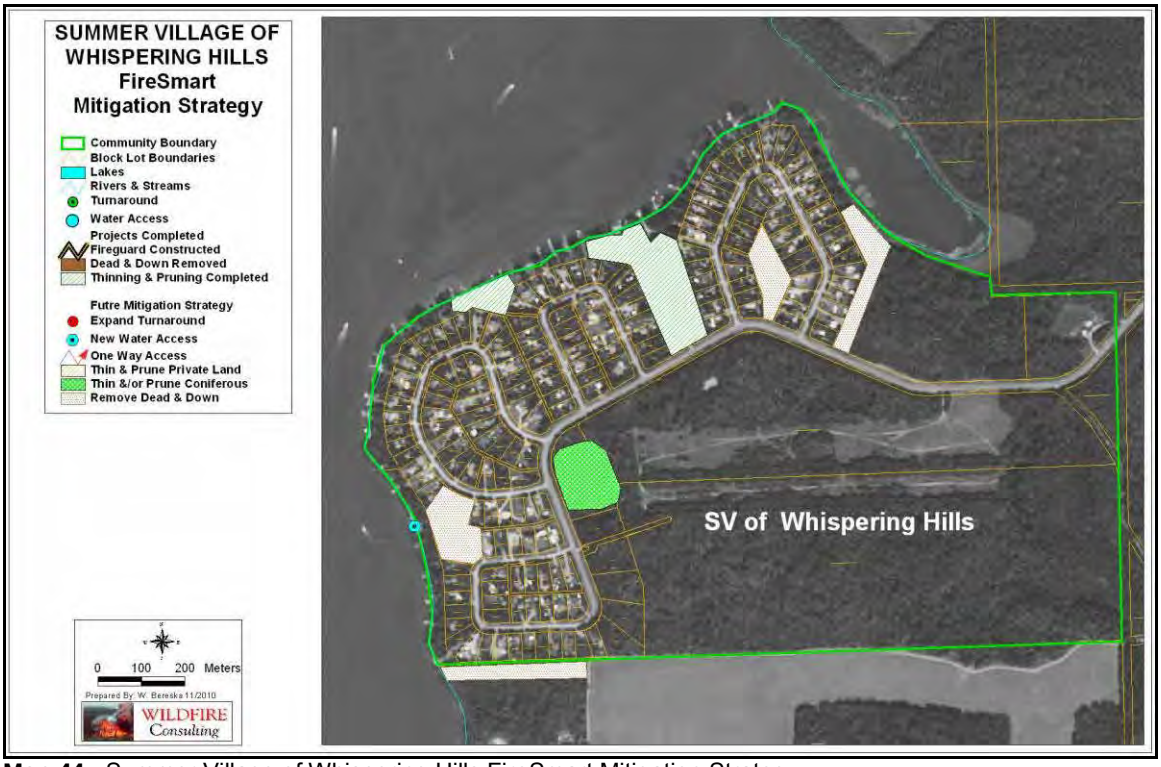


Photo 28: Fuels northeast end

Photo 29: OM aspen dying in MR

Photo 30: Dense growth of shrubs along Lake



Map 44: Summer Village of Whispering Hills FireSmart Mitigation Strategy

Projects Completed: Thinning Pruning and removal of dead and down surface fuel was completed on two separate areas in municipal reserves within the Summer Village of Whispering Hills. Except for the northeast subdivisions most of the mature aspen has been removed from within the residential areas. The property owners are maintaining the grass accumulation by mowing on a regular basis (Photo 28).

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate especially in municipal reserves and along the south and eastern borders of the summer village. If the land containing the black spruce will not be develop then consider thinning and pruning that coniferous stand.

Crooked Lake subdivision

This subdivision is developed within a deciduous aspen (D1) stand. With some scattered spruce understory and light dead & down woody material. Northwest along the lake is D1 with some spruce overstory and understory. North of this subdivision there are open fields and 2 km to the east there is a larger stand of C2.

The aspen is immature to mature and will continue to be FireSmart until it reaches the overmature stage. When an aspen stand reaches the overmature stage the stand tends to break down with dead trees fall down on the surface. This increases the amount of sunlight that reaches the forest floor and increase grass growth, which in turn will increase the spring grass fire hazard.

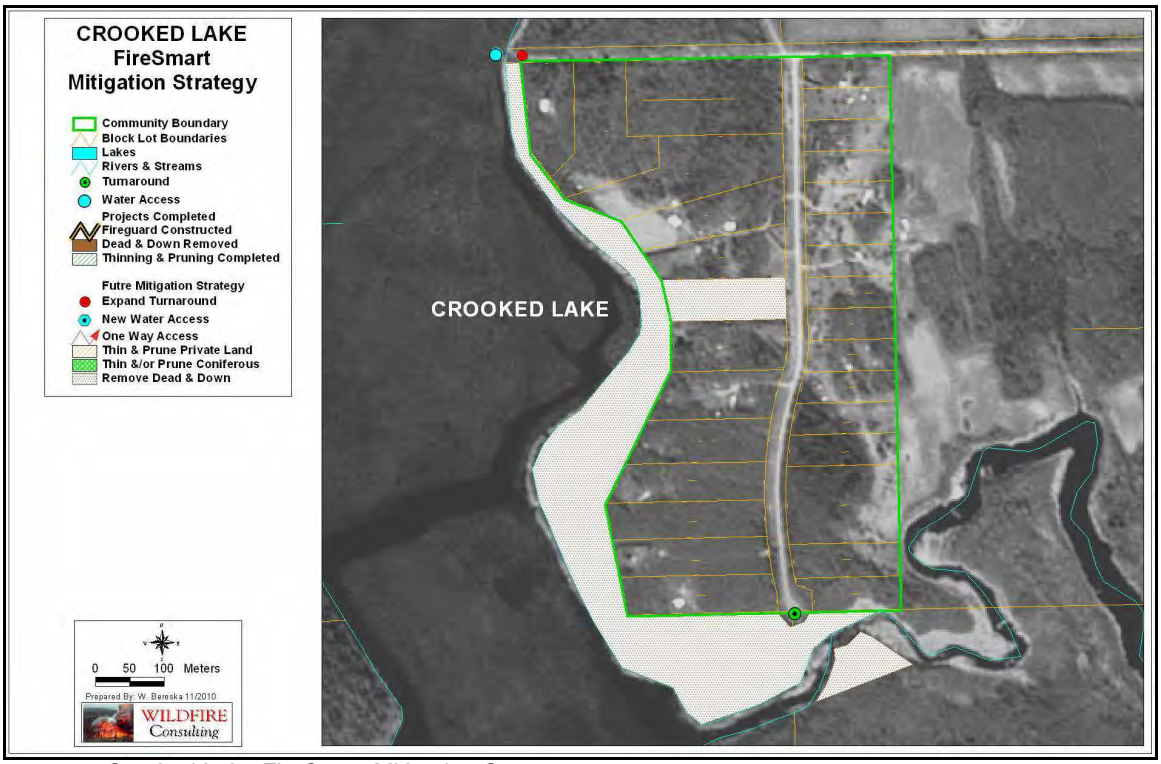
The grass on most lots is well maintained and residents should be encouraged to continue this practice into the future. Roadside grass is mowed

Photo 31: Crooked Lake fuels Looking north

Photo 30: Fuels in developed areas

Photo 32: Grass along roads is mowed

Photo 33: Young Aspen vegetation on west side



Map 45: Crooked Lake FireSmart Mitigation Strategy

Projects Completed: FireSmart projects in this subdivision are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate especially in the municipal reserves on the southern border of the subdivision.

North Bay Estates Subdivision

The majority of this subdivision is developed within an immature to mature aspen stand along Myer Drive. Along the lake shore there is grass, willow that transitions into mature aspen and polar. To the northwest is an over mature stand that may have been logged. The over mature trees are falling down and young aspen is well established in most areas. Forest cover to the southwest is an over mature stand of aspen and polar that is breaking down. This process will increase the amount of dead and down on the surface. The good thing is that young aspen growth is replacing the dying trees.

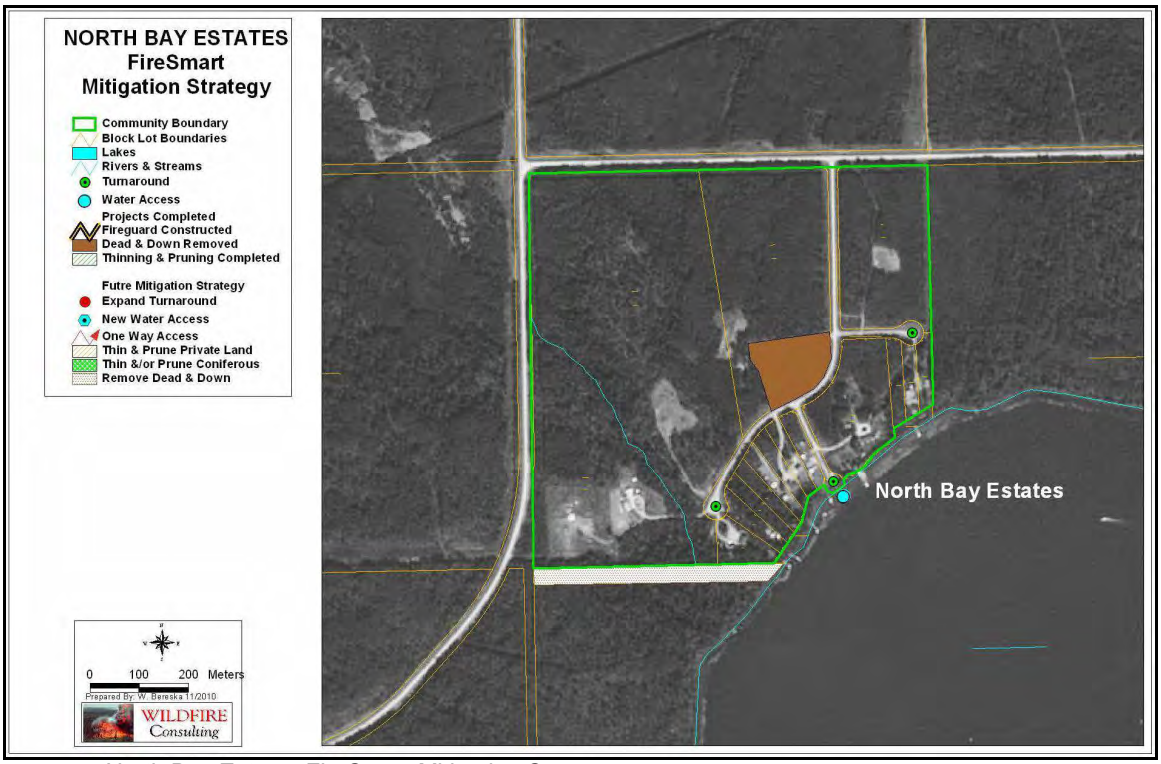
The residents on south end of lot 18 (002 1055) have done an excellent job of removing dead and down material. Other lot owners should be encouraged to do the same.

Photo 34: Fuels in North Bay Estates view N

Photo 35: Fuels North Bay looking west

Photo 36: Vegetation on private lots

Photo 37: Well maintained property



Map 46: North Bay Estates FireSmart Mitigation Strategy

Projects Completed: FireSmart projects in this subdivision are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis and some have done an excellent job of removing dead and down aspen.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate especially on the southwestern border of this subdivision.

Summer Village of Island Lake

The Summer Village of Island Lake is located along the west Shore of Island Lake towards the north end. There is some mature conifers along the lake shore in the north end and between Highway Street and the highway on the west side in Lot A (782-866). The residents with conifers on their property have done a good job in removing dead and down woody material and most coniferous trees are pruned. The primary forest vegetation is deciduous aspen, poplar or willow along the lake shore in wet areas.

There are some conifers that were planted on private lots. Currently they do not pose any added fire hazard but in the future may need some pruning to reduce the potential for trees to candle in case a surface fire gets started. There is heavy grass along the lake shore in the north end. At the south end of the summer village the forest vegetation is more open (Photo 40). The open field currently being developed and the grass is managed by mowing the area and using the vegetation as hay (Photo 43). This area is protected by open fields to the west and south with the lake to the east. The Municipal reserve near the west bay is a mixed wood stand this has been treated by thinning, pruning and removal of dead and down. There is some willow and grass in the bottom of the draw (Photo 42).

Photo 38: Fuels north end Island Lake`

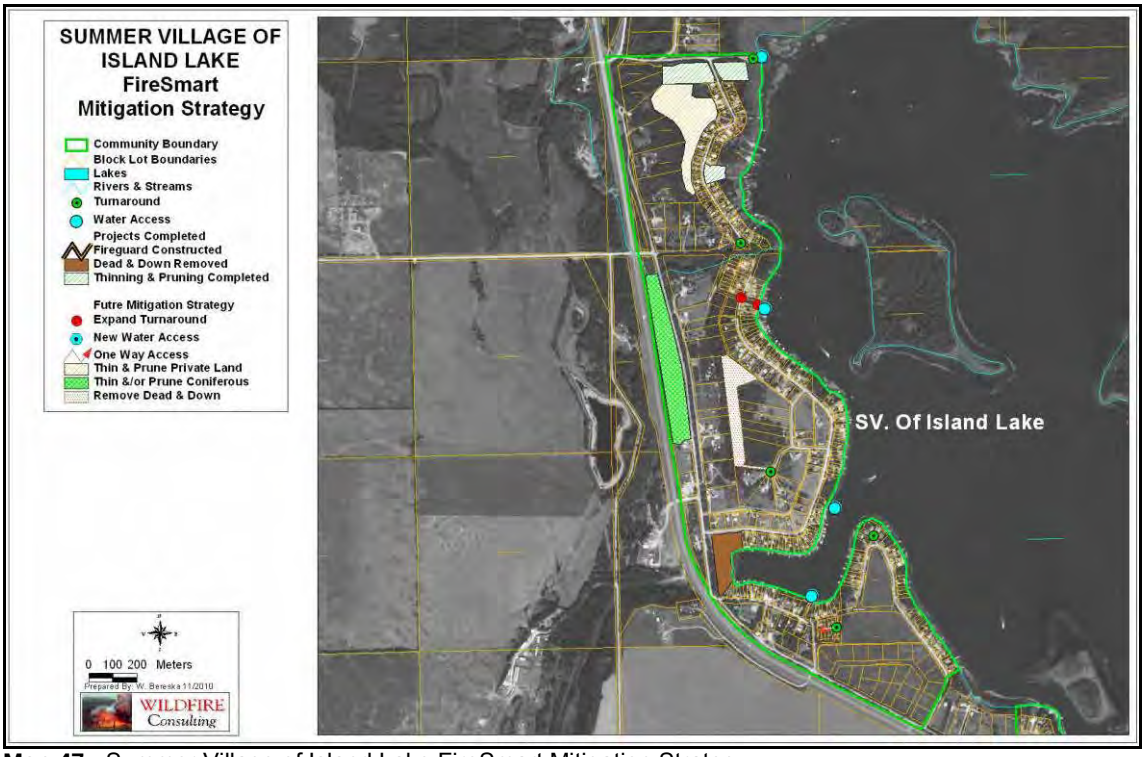
Photo 39: Coniferous fuels north end

Photo 40: Fuels South portion of Island Lake

Photo 41: Fuels along Lake shore north end

Photo 42: Fuels around bay of Island Lake

Photo 43: Fuels in new development open field



Map 47: Summer Village of Island Lake FireSmart Mitigation Strategy

Projects Completed: Thinning Pruning and removal of dead and down surface fuel removal was completed in two separate coniferous areas within the municipal reserves in the Summer Village of Island Lake (see Map 47). The owners are maintaining the grass accumulation by mowing on a regular basis. (photo 22).

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate especially in the municipal reserves at the north end of this summer village. There is a coniferous stand on private land that should be thinned and pruned to reduce the wildfire threat in the north end of this summer village. Prune the coniferous stand between Highway Street and the highway in Lot A (782-866)

Summer Village of Island Lake South

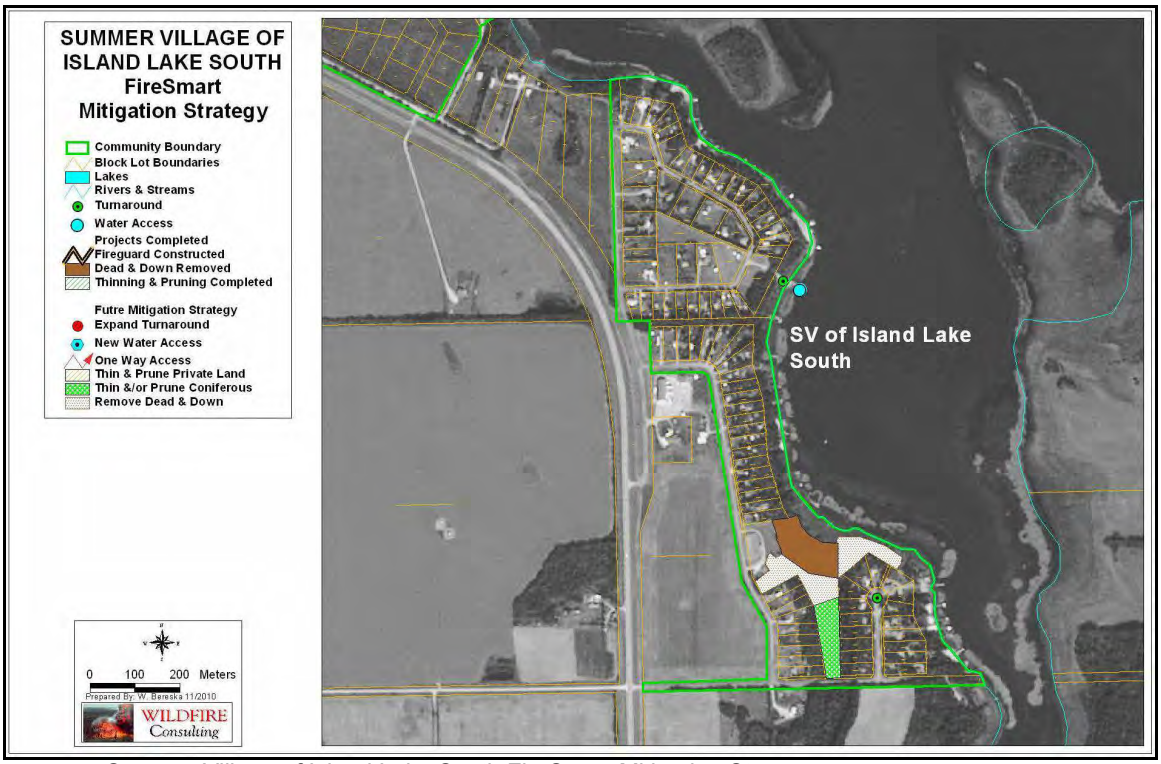
The Summer Village of Island Lake South is located on the southwest shore of Island Lake. Except for the coniferous vegetation in the ravine between Kirby PL and Nelson Dr (Photo 45) the predominant forest vegetation is deciduous with planted coniferous spruce between lots. The majority of the developed area has numerous open spaces of grass which is very well maintained along the roadside and on individual lots (Photo 44, & 46).

Photo 44: Open areas SV Island Lake South

Photo 45: Fuels in ravine Kirby PL

Photo 46: Fuels South portion of Island Lake

Photo 47: Fuels along Lake shore north end



Map 48: Summer Village of Island Lake South FireSmart Mitigation Strategy

Projects Completed: Thinning Pruning and removal of dead and down surface fuel removal was completed on two separate municipal reserves within the Summer Village of Island Lake South (see Map 48). The owners are maintaining the grass accumulation by mowing on a regular basis (Photo 44).

Recommendations: Continue with mowing the grass on a regular basis. Thin, prune and remove dead and down woody debris in the ravine west of Kirby PL. Monitor the municipal reserves and remove dead and down as the debris accumulates.

Long Lake Junior Forest Warden Camp

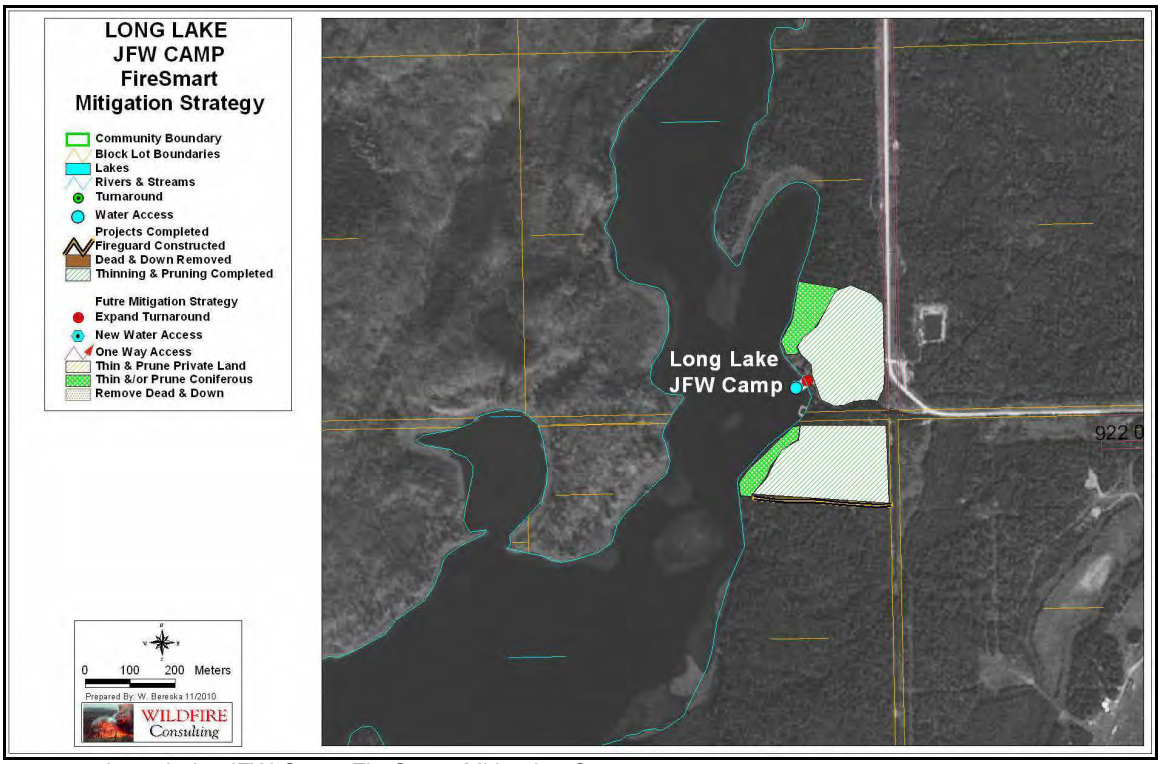
The Long Lake JFW camp is located on the east shore of Long Lake in a mixed wood stand that is predominantly aspen (70%) with 30% coniferous spruce. There is a light to moderate understory of balsam fir which provides ladder fuels and adds to lofting of airborne embers. The camp is bordered by lake on the west and by fields 1 to 2 Km east and southeast. This area will support a wildfire during the spring cured grass stages.
Still some thinning and pruning required in dense balsam fir along the lake.
Thinning and pruning around buildings has been completed.
South fireguard was constructed.
More thinning & removal of dead & down is required on the west side of facilities.

Photo 48: Fuels around Long Lake JFW Camp

Photo 49: Fuels at Long Lake JFW Camp

Photo 50: Fuels Thinned and pruned

Photo 51: Fuels require thinning & pruning



Map 49: Long Lake JFW Camp FireSmart Mitigation Strategy

Projects Completed: Thinning Pruning and removal of dead and down surface fuels was completed around the structures in the north and south portions. A fuel break was constructed on the southern perimeter. Sprinkler systems were added to the structures and all structures were skirted with metal material and a metal roof was added to the dining hall.

Recommendations: Complete the thinning and pruning on the south portion along the lake. Maintain the areas treated by removing dead and down woody debris as they accumulate.

Hamlet of Breynat

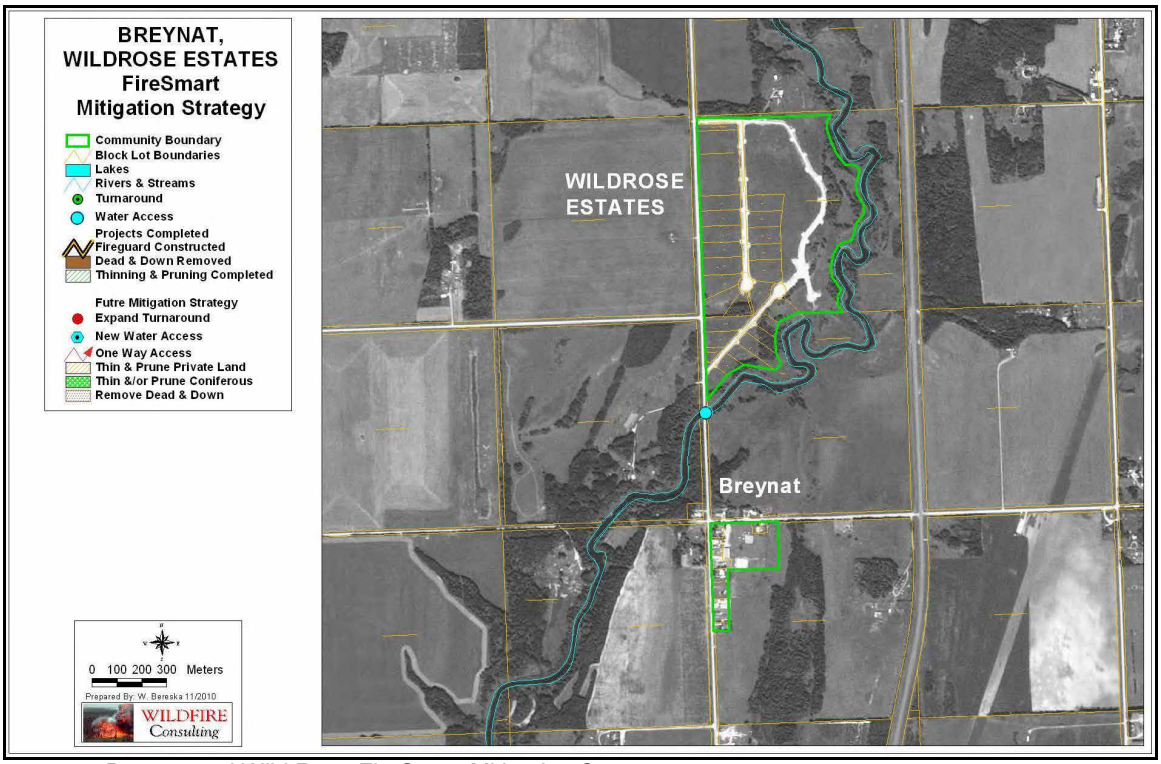
This hamlet is primarily located in an open field southeast of the Wandering River. The Wild Rose Estates is a new country residential subdivision development in an open field north of the main hamlet on the northwest side of the Wandering River. The forest vegetation consists of a mixed wood stand along the river on the west side of the Hamlet of Breynat (photo 53). The forest floor is relatively free of dead and down woody debris. The Wild Rose subdivision vegetation consists of a grass pasture, and some trees along the river (photo 52 & 55). The surrounding area is a patch work of aspen forest vegetation and open agricultural fields. The coniferous vegetation on private property is well pruned and grass surface is mowed (photo 54).

Photo 52: Fuels at Breynat looking north

Photo 53: Fuels NW of Breynat

Photo 54: Private land fuel management

Photo 55: Fuels in north subdivision



Map 50: Breynat and Wild Rose FireSmart Mitigation Strategy

Projects Completed: All the land within Breynat and the north subdivision is private land and the FireSmart projects are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate in the forest stands along the river.

Hamlet of Wandering River

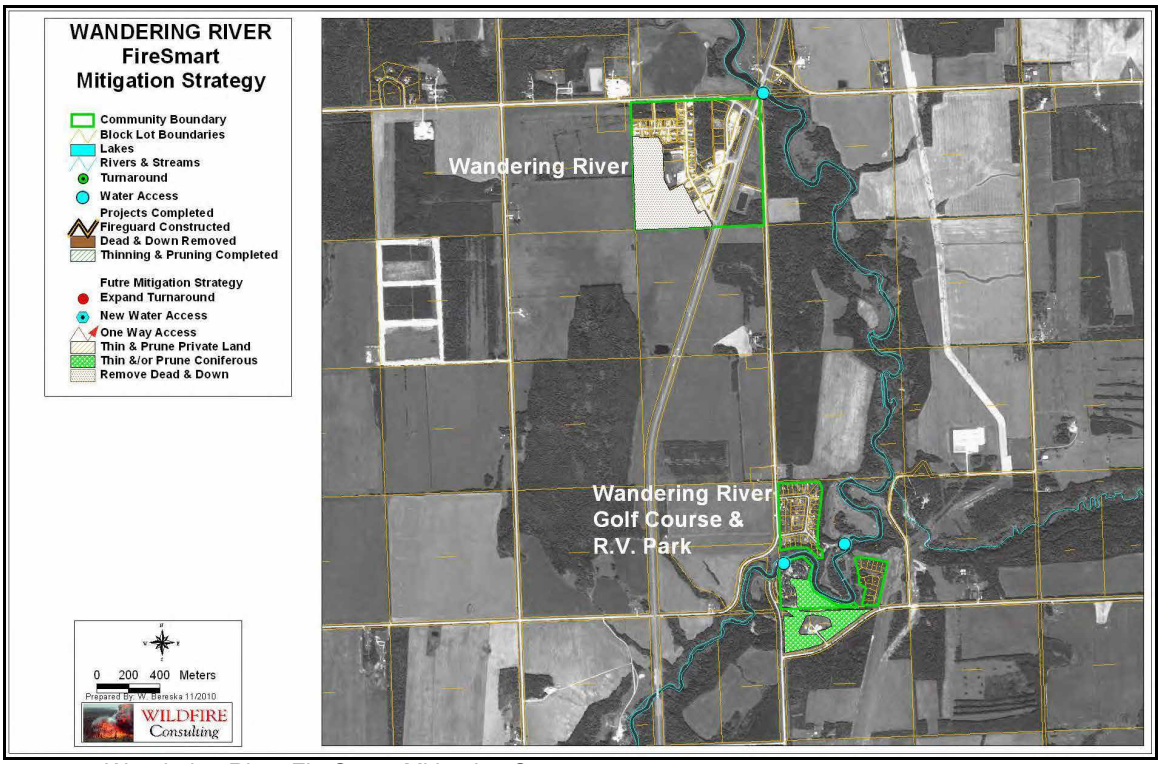
The hamlet is located on the west side of highway 63 south and east of the Wandering River in a primarily deciduous aspen stand that is reaching the over mature stage. There is a small stand of spruce on the northeast corner that is relatively free of dead and down debris (photo 57). The aspen trees are mature reaching overmature status and the stand will start to break down adding more dead and down debris to the surface fuels. On the west side of the hamlet is a small parcel of land with unmanaged grass otherwise there are agricultural fields surrounding this hamlet.

Photo 56: Fuels within hamlet looking west

Photo 57: Fuels in hamlet looking NW

Photo 58: Private lots grass is mowed

Photo 59: Fuels south of residential area



Map 51: Wandering River FireSmart Mitigation Strategy

Projects Completed: All the land within the Hamlet of Wandering River is private land and the FireSmart projects are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate in the forest stands on undeveloped sites.

Wandering River Golf Course Subdivision

This country residential subdivision is located on the west and southeast side of the Wandering River with the Golf Course on the east side and an R.V Park on the south banks of the Wandering River. The vegetation in this subdivision is young aspen and spruce. There are open fields to west and golf course to the east. The grass on individual lots is very well maintained (photo 62).

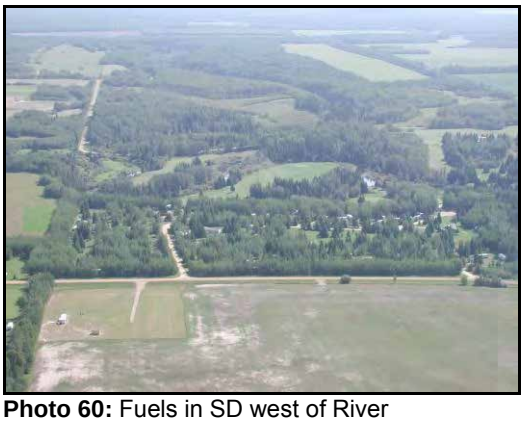


Photo 60: Fuels in SD west of River

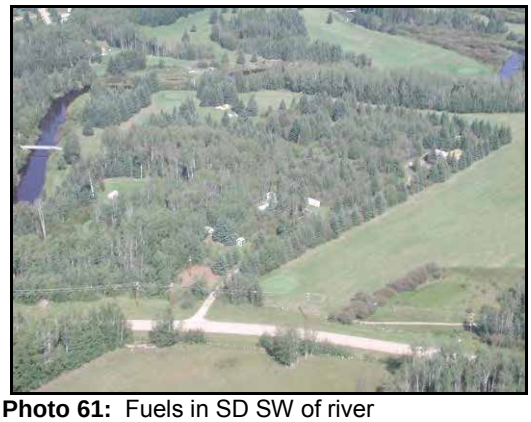


Photo 61: Fuels in SD SW of river

Photo 62: Private lots grass is mowed

Photo 63: Fuels in SE portion of the SD

Projects Completed: All the land within this subdivision is private land and the FireSmart projects are limited to the individual residential lots. The owners are maintaining the grass accumulation by mowing on a regular basis.

Recommendations: Continue with mowing the grass on a regular basis and remove dead and down woody debris as they accumulate in the forest stands on undeveloped sites especially to the south and east of the developments.

Wandering River RV Park

This R.V Park is located on the southern banks of the Wandering River in a mixed wood stand with dense coniferous underbrush surrounding the campground (photo 64). The vegetation to the southeast is mixed wood and there are brush piles along power line on the north side of the road south of trailer park. (Photo 67 & 68) There is a Municipal refuse transfer station immediately south of trailer park. Trailer parking sites are relatively clean meaning an absence of dead and down fuels and the conifers are pruned to an adequate height. This site is at a high risk for a wildfire threat during the spring cured grass stage. There is a high usage of ATV's in the area thus increasing the risk of ignition in spring. The site is very close to the water course.

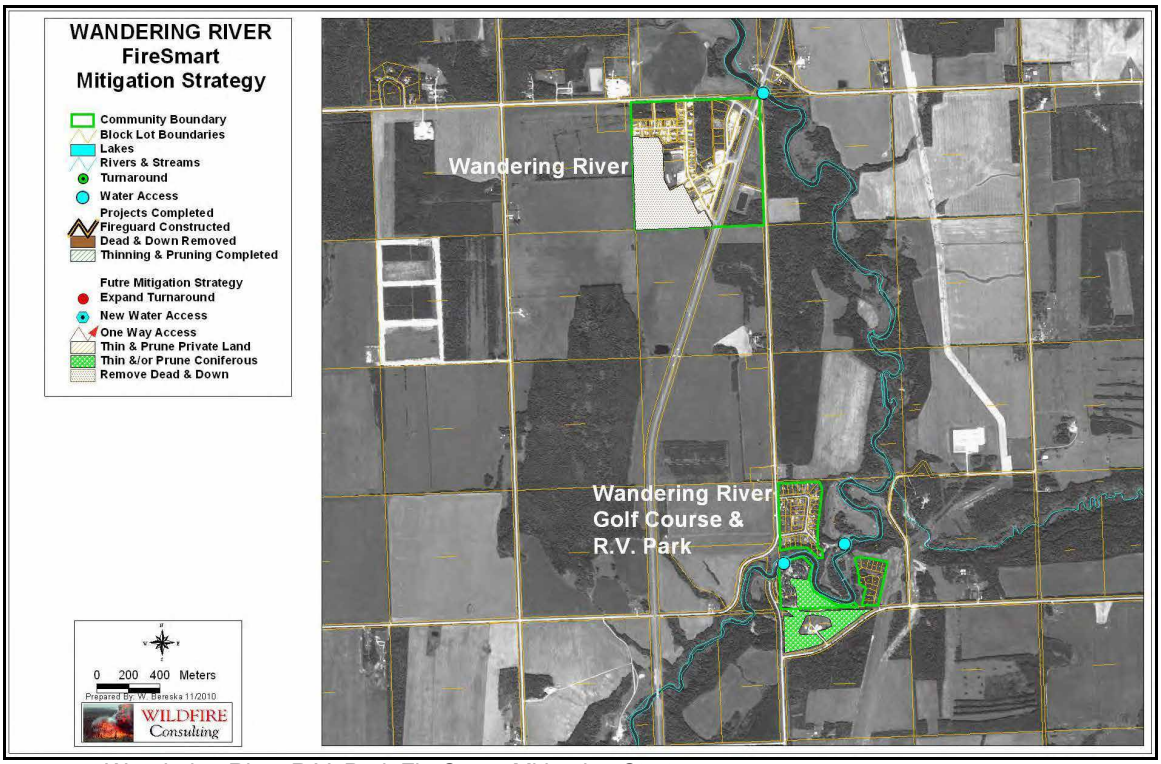
Photo 64: RV Park foreground Golf course north

Photo 65 Fuels within RV park

Photo 66: SE portion of RV Park fuels

Photo 67: Brush piles on north side of ROW

Photo 68: Brush piles on north side of ROW



Map 52: Wandering River R.V. Park FireSmart Mitigation Strategy

Projects Completed: All the land within and surrounding this R.V. Park is private land and the FireSmart projects are the responsibility of the individual land owners.

Recommendations: Educate the R.V. Park users and land owners of the dangers of living in forested areas during high and extreme fire danger periods. The landowners need to maintain the individual sites in a fire safe condition and reduce the coniferous fuels surrounding the R.V Park by thinning, pruning and removing dead and down woody debris. Remove brush piles from transmission line right of way.

A Vegetation Management Recommendations

i In all the communities encourage the residents to continue with mowing the grass on their property and encourage the removal of accumulations of dead and down fuels.
ii Remove dead and down accumulations on municipal reserve lands in areas outlined on the adjoining maps.
iii Consider thinning and pruning the stand of black spruce in Whispering Hills
iv Summer Village of Island Lake prune the coniferous trees on private land and on municipal reserves as outline in the mitigation strategy maps.
v County # 12 continue to mow grass to full extent of the highway right of way
vi To reduce the spring wildfire threat to the R.V. Park and Golf course subdivision encourage the landowner to thin and prune the coniferous understory to the south and east of the RV Park.

7 Development Options

As the wildland urban interface issue becomes recognized as a safety issue in the Athabasca County, the design and construction of structures, country residential subdivisions, roadways, water supply, and utilities within new developments will reflect these concerns. Some of these issues may be legislated by Provincial Statute or Municipal Bylaws, while others may be adopted by elected officials, developers and municipal land use planners as they begin to embrace wildfire considerations in their planning and development process. Developments within the Athabasca County have a combination of FireSmart and non-FireSmart structural and infrastructure components. It is important that FireSmart development practices are considered and implemented from the planning stage through to the completion stage of the development.

Development options include structural considerations such as siting, construction materials, and additions such as balconies, porches and decks. Infrastructure options include access road design, water supply, utility installation, and location of parks and open spaces.

A Structural Options

The Alberta Building Code does not address building standards for areas at high risk from interface fires, however, the National Fire Protection Association (NFPA) Standard 299 and Partners in Protection FireSmart Community Planner both provide standards that can be used for design of new developments or to retrofit existing structures.

Characteristics that contribute to a structure's ability to withstand wildfire ignition include type of roofing and siding material, structure sitting with respect to steep forested slopes, proper construction and maintenance of eaves, vents, and openings that can accumulate flammable debris and allow wildfire to gain entry to the structure. Although many factors contribute to the ability of a structure to withstand wildfire ignition, flammable roofing materials are the main cause of structure loss in the Wildland/Urban Interface.

B Infrastructure Options

When planning development in an area that has potential for interface fires, it is important that consideration is given to infrastructure options that will provide for the protection of lives and property. Roads not only provide access for fire fighters and their equipment but also allow for the safe evacuation of the residents. The suppression of fires requires considerable amounts of water from reliable sources. Utility right of ways often contain a buildup of grass and other fine fuels that can contribute to wildfire ignition and rapid spread during spring and fall. Overhead power lines can also be a source of ignition when trees come in contact with the conductors.

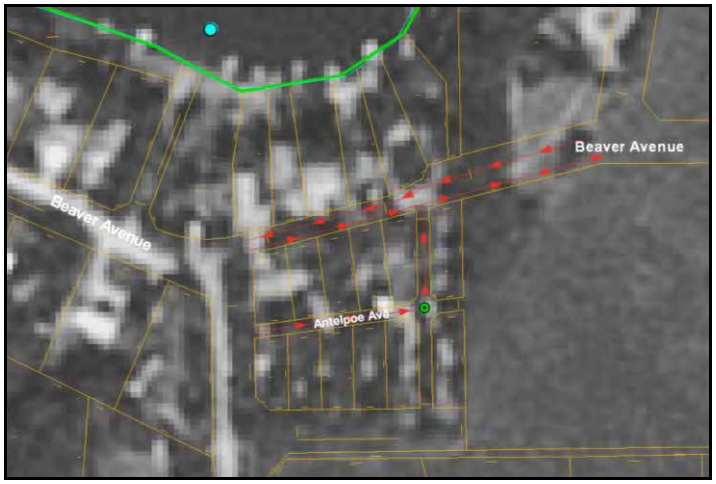
Parks and open spaces can serve as safety zones and anchor points from which emergency crews can safely suppress the fire. All of these factors must be considered during the planning stage of the development by elected officials, developers, Municipal planners, and fire department officials.

i Access Roads

Access route standards specified in *"Partners In Protection FireSmart – Protecting Your Community from Wildfire Second Edition, 2003"* are the recommended minimum guidelines for interface developments. Access roads within the hamlets, summer villages and country residential subdivisions are generally satisfactory and are addressed within each community assessment. Traveled-surface width, gradient, and turn-around radius are adequate for ingress and egress in most areas. Access road design is a combination of loop-road and cul-de-sac design. Loop-road design is strongly recommended in areas with high or extreme site hazard. It is important that all developments at risk to wildfire have an alternate access route in the event that the primary route is blocked during a wildfire. Communities that do not have alternate access routes for ingress and egress should identify safety zones in these areas should firefighter's escape routes get cut off by a wildfire.

With the exception of a few most dead end turn turnaround meet minimum FireSmart recommended standards. The following fall short of the standards:

- Summer Village of Island Lake
  - Inadequate turnaround for emergency vehicles at Buffalo Ave however there may be insufficient right of way to expand.
  - Inadequate turnaround for emergency vehicles on Birch Street
  - Narrow road only one way traffic on Antelope Ave should make this a one way and extend it to Beaver Ave. that goes into the subdivision to the east.



Map 53: Antelope Ave zoomed in.

- Summer Village of Island Lake South
  - Turnaround on the end of Kirby PL is barely adequate no parking signs should be placed in the turnaround area.
- Summer Village of Sunset Beach
  - The access road is a one way that barely meets minimum standards in width and is the only access road in and out of the summer village. In the future consideration should be given to developing a second access road to the north to join with access to Whispering Hills.
- White Gull
  - The access roads in each subdivision barely meet FireSmart standards. The main access is adequate.
- Summer Village of West Baptiste
  - The turnaround at the south end should be improved to meet minimum FireSmart standards.
- Wandering River R.V. Park
  - The Access is a one way undeveloped loop road system in the trailer park. The road should be improved to meet minimum surface standards and width.

The grass along the roads is well managed by mowing in all communities.

Photo 68: White Gull excellent loop turnaround

Photo 69: Sunset Beach turnaround below min.

Photo 70: Antelope Ave very narrow

Photo 71: South Baptiste access good width

ii Water Supply

Water supply is one of the most effective fire suppression tools available to firefighters. Fire suppression requires large volumes of water, sufficient pressure, and the ability to continue pumping water after electrical power has been lost. Only the hamlet of Wandering River in this study area is serviced with hydrant water supply for fire suppression. The remaining communities rely on the lakes and rivers to provide a natural water source from which water can be drafted or pumped. If hydrants are pressured by an electrical powered supply system, electricity maybe interrupted during a wildfire.

With the exception of a few most hamlets, summer villages and country residential subdivisions have access to water on a lake or river.

The following is a summary of the few that should develop a good water access point to support wildfire suppression within and around there communities.

- Crooked Lake
  - North lake access for fire suppression water supply needs expansion of a turn turnaround to 18 metre radius to accommodate water trucks.
- Summer Village of Island Lake
  - Inadequate access for water trucks from Buffalo Ave at site 200. There are other good access points in this summer village.
- Long Lake
  - The water access point could be improved to accommodate large water trucks. Current turnaround is very small.
- Summer Village of Sunset Beach
  - There is no public water access point at Sunset that can be used by water trucks to draft water. Access points should be developed using the municipal reserves.
- Summer Village of Whispering Hills
  - The only access to the lake is by walking or ATV trails. There is no access for water trucks. One could be developed through the municipal reserve at the southwest end of this summer village.
- Poplar Point Estates
  - There is no access to the lake for a water truck to draft water. One should be developed south of the west turnaround.
- Pac Beach
  - There is no public access to the lake for a water truck to draft water. One should be developed on the east end on the road right of way.
- Wandering River Golf Course SD and R.V. Park
  - There is no formal access to the river for water trucks. In an emergency access to the river could be attained through the R.V. Park and on the golf course. Water is available at the Hamlet of Wandering River.

Photo 72: Crooked Lake inadequate turnaround

Photo 73: Island Lake good turnaround

iii Franchised Utilities

Franchised utilities that can be affected by an interface fire include electrical and gas services. Proper planning and installation of these services can minimize the risk to residents and emergency services personnel.

Overhead power lines can be a source of ignition of interface fires or they can be destroyed during a fire resulting in the loss of power in the area. There are a number of overhead power lines in these communities. It is recommended that the local power utility company initiate a hazard tree identification and removal program in the mature and overmature forest stands along all overhead power line right-of-ways within the hamlets, summer villages and country residential subdivisions and in close proximity to the communities. Power line right-of-ways can also provide a source of fire ignition when grass and other fine fuels are in the cured stage. Proper maintenance of vegetation along the power lines is important to reduce this risk.

Natural gas and propane gas are commonly used in Alberta communities for residential heating. The majority of the communities within the Athabasca County are serviced with natural gas for heating however there are a number of residences in the study area that are using propane gas. A number of these sites have vegetation to the edge and under the propane tanks. Propane tanks should be free from vegetation for a minimum of 3 metres around the tank.

72: North Bay vegetation on ROW

Photo 73: Whispering Hills residential ROW

As the forest stands age they become more susceptible to having over mature trees fall down during wind events. The communities with mature and overmature trees should plan for a hazard reduction program to reduce the potential for a power line ignition especially during the spring and fall fire season. The communities with the highest risk currently are;

- Sunset Beach only in the north and northwest part of the subdivision where the power lines are next to mature aspen trees.
- Whispering Hills on the north and east subdivisions where overmature aspen is close to the power lines.
- White Gull only in areas where the power lines are next to mature and overmature aspen trees.

Communities like the Summer Village of Island Lake with more open areas will need to focus on sites where the trees are growing under the power lines.
Residents using propane tanks should ensure that there is a minimum of 3 metres vegetation free under and around each tank.

iv Signage

Signage in a community is valuable to residents when requesting emergency services and equally as valuable to those providing emergency services to find the exact property requesting the service. FireSmart sign standards include non-combustible and reflective materials for signs and posts.

74: Whispering Hills standard signage

Photo 75: Crooked Lake non standard signage

`Since the first FireSmart plan was completed in 2003 the following summer villages have upgraded their signage.

- Summer Village of Island Lake
- Summer Village of Whispering Hills
- White Gull Subdivision
- Summer Village of West Baptiste Lake
- Summer Village of South Baptiste Lake

Crooked Lake and North Bay Estates have nonstandard signage displayed on most properties.
Pac Beach, Wandering River Hamlet and Golf Course subdivision, R.V. Park and Breynat do not have a standard signage system that is displayed on the individual properties.

C Development Recommendations

i Improve the turnarounds at the following water access points by increasing the radius at;
- Crooked Lake
- Summer Village of Island Lake on Buffalo Ave near site 200.
- Long Lake

ii Develop water access points for water trucks in the following communities;
- Summer Village of Sunset Beach within one of the municipal reserves
- Summer Village of Whispering Hills within one of the municipal reserves.
- Poplar Point Estates south of the west turnaround to the lake.
- Pac Beach develop a water access point on the east side on a designated road right of way.

iii Improve the dead end turnarounds at the following locations;
- Summer Village of Island Lake
  - Inadequate turnaround for emergency vehicles at Buffalo Ave however there may be insufficient right of way to expand.
  - Inadequate turn around for emergency vehicles on Birch Street
  - Narrow road only one way traffic on Antelope Ave should make this a one way and extend it to Beaver Ave. into the subdivision to the east.
- Summer Village of Island Lake South
  - Turnaround on the end of Kirby PL is barely adequate no parking signs should be placed in the turnaround area.
- Summer Village of Sunset Beach
  - In the future consider developing a second access road to the north to join with access into Whispering Hills.
- Summer Village of West Baptiste
  - The turnaround at the south end should be improved to meet minimum FireSmart standards.
- Wandering River R.V. Park
  - Improve the road to meet minimum surface standards and width.

iv Communities like Sunset Beach, Whispering Hills and White Gull with mature and overmature aspen trees bordering the power transmission lines should work with the utility companies to develop a hazard tree assessment and removal program.

v Encourage residents with propane tanks to maintain a 3 metre vegetation free zone under and around each propane tank.

vi Encourage the adoption of the counties standard signage system in the communities of Crooked Lake, North Bay Estates, Pac Beach, Wandering River Hamlet, Golf Course subdivision, Breynat and the Wandering River R.V. Park.

vii Future country residential developments should consider using Class “A” ULC rated roofing material.

viii For new country residential development areas/subdivisions County # 12 and the Summer Villages should insist on a Wildfire Threat Assessment as part of the development application.

ix In present and new developments continue to stress the importance of maintaining a minimum of 10 metres vegetation free zone between structure and forest vegetation.

8 Public Education

Activities to improve wildfire preparedness are part of a larger process of taking responsibility for choosing to live and work in an area that is at risk from wildland fire. The process does not end with creating vegetation free space, improving access, or utilizing fire resistant building materials but includes a variety of ongoing networking activities that create and enhance partnerships. Effective public education is the key to building those partnerships and providing awareness in the wildland/urban interface. Over the past years the Athabasca County and SRD officials have introduced the summer villages, country residential subdivisions and hamlet residents with in the study area to be aware of the issues related to FireSmart development and the solutions to minimizing the risk and the need to become a partner in implementation of the solutions in their communities.

Spring wildfire conditions may occur that are beyond the capabilities of emergency responders. The public needs to understand that these types of wildfires would impact them despite the best efforts of fire agencies. This illustrates the need to provide public education aimed at reducing their risk to wildfire and ensuring that their activities do not start a fire.

Resident education should focus on the following items in order of priority:

- Structure and site maintenance.
- Zone 1 and 2 fuels management options.
- Structural options including decks/open spaces
- Proper storage of fire wood and other combustibles materials
- Proper construction of outdoor fire pits and burn barrels.
- Evacuation planning.

A Present Initiatives

The Athabasca County, Summer Villages and SRD have held public education forums and town hall community meets to inform and educate the residents about the FireSmart objectives and principles, and include them in planning FireSmart fuels reduction projects. The following is a summary of initiatives that have been introduced to further FireSmart education in this study area;

- The Athabasca Regional Community Protection Program (ARCPP) committee was formed in 2003.
    - This committee has members from the Summer Villages, County and SRD
    - Their goal is to implement FireSmart recommendations.
    - The committee meets bi-annually in spring and fall
    - The committee was responsible for securing $250,000.00 in FireSmart grant funding for the Summer Villages that funded fuel modification, infrastructure upgrades and education initiatives.
- Other initiatives supported by the committee include;
    - An Annual Public Newsletter is produced focusing on the beginning of the spring and fall fire season, emphasizing the requirement of fire permits and the prevention of accidental wildfires.
    - A review of the Summer Villages Bylaws was supported to incorporate FireSmart principles.
- Some of the Summer Villages are posting FireSmart educational information on their websites.

- The long weekend in May is treated as FireSmart Weekend. The Athabasca County waives the landfill fees for dumping woody debris, grass and leaves to encourage residents to FireSmart their property every spring and reduce the potential of a wildfire threat.
- Community FireSmart events are held in the communities and this allows County, Summer Village and SRD officials the opportunity to promote FireSmart projects proposed and review those completed, and further FireSmart education
- SRD has completed an update of Pre-Suppression Plans for all communities in the FPA within the Athabasca County.

Public education should continue on an annual basis focusing on maintenance of the forest vegetation on private property and on municipal lands. The focus should be on managing the grass accumulation and removal of dead and down woody debris in the deciduous and coniferous stands.

B Public Education Recommendations

i The ARCPP FireSmart committee to continue with their FireSmart goals and Education Plan within the summer villages and the Athabasca County

ii Continue public education and awareness initiatives with the hamlets, summer villages and country residential subdivisions with the focus on;

- Zone 1 and Zone 2 fuel management.
- Structural options including roofing materials, decks/skirting openings under buildings and proper combustibles storage
- Propane tank clearance.
- Evacuation planning
- Continue to work with each community to provide expertise and guidance in achieving a FireSmart community that will minimize a wildfire threat in the spring of each year.
- Continue to promote May Long weekend as a FireSmart weekend when the county allows free dumping of woody debris, grass, and leaves at landfill sites as an incentive to FireSmart private properties.
- Encourage the county, summer villages, and hamlets to post FireSmart and wildfire prevention information and links on their websites and keep them current.

iii Continue to provide FireSmart information in the form of a newsletter to all residents in the spring and fall of each year with a focus on what each individual can do to reduce the wildfire threat.

- Do not use open fires during very dry windy spring days.
- Do not use ATV's in areas with dry grass during the spring periods when the fire danger is high and extreme.
- Monitor information for your area to determine the current fire danger and when fire bans are imposed.
- In cooperation with the county and summer villages continue with the annual spring newsletter.

9 Legislation and Planning

The Athabasca County and the summer villages use the Municipal Development Plan and Land Use Bylaws to control development within the country residential communities. A review of the Development Plan and Land Use Bylaws were completed during the 2003 FIRESMART plan to identify sections that promote or inhibit FireSmart development. This update plan will determine what changes may have been made to support FireSmart communities.

A Municipal Development Plan

The Municipal Development Plan is a statutory document developed under the authority of the Municipal Government Act that establishes the planning vision and direction for the future development of the communities. The development plan adequately addresses all aspects of future development including emergency services however in most cases the development plans fall short within respect to FireSmart community development.

B Land Use Bylaws

Minimizing fire risk is a land use planning issue in the wildland/urban interface. Land use planning helps municipalities foresee land use issues so that potential land use conflicts or incompatibilities may be resolved or minimized. The Land Use Bylaw provides preventive measures that can be applied by local government to reduce the risk of damage to property and persons from wildland fires. There are a number of broad topics that should be considered relative to community protection: It is within the Land Use Bylaw that FireSmart development practices should be implemented. After review of present county and summer village bylaws it appears FireSmart principals have not been adopted into bylaws however the county and summer village administration (S.V. West Baptiste) is proposing changes to reference FireSmart and does advocate the use of class “A” ULC rated roofing material and maintaining a minimum of 10 metres vegetation free zone between structures and the forest vegetation.

C Legislation Recommendations

i In lieu of rewriting all the Bylaws at least reference the FireSmart manual in the development of Area Structure Plans and during the approval of individual Development Plans for hamlet, country residential and summer village subdivisions.

ii County and summer village administration should reconsider and include the key recommended bylaws that would aid in developing and reducing the wildfire threat within current communities.

(a) Wildfire hazard and risk assessment during the development application stages.

(b) Vegetation management strategies as part of the building permit conditions to ensure adequate vegetation free zone of 10 metres or more between structures and forest vegetation.

(c) Structural Options use of non-combustible building materials for roofs and siding in the Wildland/Urban Interface.

(d) Infrastructure options for;

- Network of roadways

        - Adequate two-way roadway widths to ensure safe egress and ingress,
        - Adequate turn radius at dead end turnarounds,
        - Develop loop roads that would provide a fuel break to the community.
    - Open spaces to accommodate safe zones for firefighters and the public in case of evacuation
    - Use of standard visible signage for subdivisions and individual property
    - Provide for an adequate water supply for wildfire suppression
    - Utility corridors and propane tanks to have adequate vegetation free zone as per minimum FireSmart standards

iii County and summer village administration should adopt FireSmart principals during the development planning stages and require potential developers to do a wildfire threat assessment and to incorporate the FireSmart standards in the development of residential areas within the Wildland Urban Interface.

10 Interagency Cooperation and Cross Training

Due to the complex nature of wildfires in the wildland/urban interface, a multi-agency response is required for both prevention and wildfire suppression. The roles of the various agencies involved in the planning, engineering, legislation, education and the suppression of interface fires crosses municipal and provincial government boundaries. Since fires do not recognize boundaries, cooperative and coordinated efforts are required.

Interagency cooperation and cross-training between all stakeholders is necessary to ensure cooperative and effective implementation of wildland/urban interface mitigation options.

Interagency stakeholders within the project area include:

- The Athabasca County.
- The Athabasca County Emergency Services.
- AB. SRD, Forest Protection Division
- Summer Village of Baptiste Lake South
- Summer Village of Baptiste Lake West
- Summer Village of Island Lake
- Summer Village of Island Lake South Lake
- Summer Village of Sunset Beach Lake
- Summer Village of Whispering Hills.
- The Hamlet of Breynat
- The Hamlet of Wandering River Emergency Services.

A Communication

Good communications are essential for any Interagency Cooperation to work effectively during times of any emergency response. In the analysis of many wildland/urban interface incidents, one common denominator is often the lack of effective radio communications between agencies. Currently the Forestry Division and the Fire Department exchange radio frequencies to establish radio communication on a wildfire incident. These radios are utilized to link the agencies in the event of a joint response. They provide each agency with real time fire intelligence and immediate access to the Incident Commander. SRD has access to the Fire Department radio frequency for mutual aid incidents.

During the Fire Season, the communication between the county and SRD includes the transfer of fire intelligence information. During periods with a head fire intensity rating above Rank 4, SRD through their Public Information Officer provides daily wildfire information including weather and fire weather/fire behavior advisories.

During the consideration of issuing fire bans SRD will contact the county and get feedback on areas considered in the fire ban.

B Cross Training

In order to respond effectively and safely, both SRD and Fire Department staff must receive an appropriate level of training in the others discipline. The intent of cross training is not to make structural firefighters into wildland firefighters or vice versa. The purpose of cross training is to be able to utilize each other's resources and expertise in non-traditional roles in a cooperative manner.

Cross-training has occurred on a formal and informal basis for many years. Municipal staff are being trained in Wildfire Orientation and Fire Operations in the Wildland/Urban

Interface. Members of the municipal fire departments have attended the S-215, the sprinkler deployment training course and some senior staff members have also attended the Incident Command Training to assist them with incident management. The Lac La Biche SRD staff holds an annual spring Wildland/Urban Interface refresher training with all Athabasca County Fire Departments. This training refresher includes a table top session on an interface fire and some mock exercises.

C Interagency Cooperation

The Athabasca County Fire Departments and AB. SRD, Forest Protection Division staff have been working cooperatively with each other for several years in structural and wildland fire suppression within forested areas.
The Athabasca County has jurisdiction for wildfire suppression outside the Forest Protection Area (FPA) which includes crown lands. The county may request cost recovery for suppression costs on provincial crown lands. The county and summer villages in the study area have responsibility for structure and non-structure fire suppression.

Both the county and summer villages have entered into a Wildfire Mutual-Aid Agreements with each other and with SRD to assist with administrative and operational issues related to a mutual-aid response on a wildfire within the Athabasca County

The Baptiste Lake Volunteer Fire Departments provides structural fire suppression in the country residential communities of Pac Beach, White Gull, Poplar Point, Crooked Lake, North Bay Estates, and the Summer Village of Whispering Hills, Summer Villages of Island Lake, Island Lake South, and South Baptiste Lake.

The Wandering River Fire Department provides structural and non-structural fire suppression within the hamlet of Wandering River, Breynat and surrounding area.

The Colinton Fire Department provides structural and non-structural fire suppression to the JFW camp ant Long Lake.

D Interagency Cooperation and Cross Training Recommendations

i Continue with wildfire cross training of new members in the municipal fire departments which includes;
   - The S215 training course
   - Sprinkler deployment training.
   - Table top exercises in spring.
   - Mock fire scenarios.

ii Continue with the high degree of communications between SRD and the Athabasca County

iii Enhance the availability of radio communications by having SRD provide the Fire Departments with radio frequencies during the fire season.

iv Consider fire bans during the spring and fall of the year during the cured grass stage and when the fire danger levels are high to extreme.

v Continue with local ARCPP FireSmart Committee to review and implement this FireSmart Plan.

11 Emergency Response Plan

A Municipal Emergency Response Plan

The Athabasca County has a Municipal Emergency Plan which provides a guide to responding to emergencies that affect all the communities within this study area. The plan outlines a clear chain of command and an understanding of job responsibilities during emergencies such as an interface fire.

B Wildfire Pressuppression Plan

The purpose of the plan is to identify the values-at-risk, the fire behavior conditions, available resources and strategies to assist emergency response agencies to minimize losses in the wildland/urban interface from a wildfire threat. Wildfire Suppression in the Athabasca County outside the FPA is provided by the county. AB SRD. Forestry Division from Lac La Biche is responsible for wildfire suppression within the FPA and on all crown lands in the Wildfire Management Area (WFMA). SRD has recently completed an update of Pre-Suppression Plans for all communities in the WFMA which includes the ones in this study area.

C Mutual Aid Agreements

Emergency planning needs to include the development of effective mutual aid agreements to deal with incidents beyond the resources of the Athabasca County and the summer villages. Mutual aid agreements need to consider neighboring municipalities and government agencies. The essential components of an agreement, who can request resources, who and what can respond, who will pay and how much, who is in charge? The agreement must include protocols and procedures to deal with emergencies in an expedient manner. SRD has active mutual aid agreements with the Athabasca County and all the Summer Villages. The summer villages need to develop mutual aid agreements with the Athabasca County.

D Emergency Planning Recommendations

i Ensure the mutual aid agreements and the Pressuppression Plans are updated annually.
ii Continue with mutual aid agreements between all agencies into the future.
iii Consider adopting the Incident Command System for all emergency operations in the wildland Urban/Interface within the communities in the Athabasca County.
iv Ensure Emergency Response Plans are in place for all communities within this study area.

12 Implementation Plan

The implementation of a wildland/urban interface plan is a long-term process. Some of the recommendations offered in this plan should be implemented immediately, while others may not occur for several years. The goal of the implementation plan is to set short-term and long-term objectives for each of the recommendations. Short-term objectives are those that should occur within two years while long-term objectives are those that should occur within the next five years. Completion of objectives is dependent on available resources and budget funds for the project.

Alberta SRD, the Athabasca County and the Summer Villages have the responsibility for the implementation of this plan. The plan should be reviewed annually to set the priorities for the following year.

It should be recognized that public support is necessary for the implementation of the Wildland Urban Interface priorities. Public education is necessary prior to vegetation management projects being implemented.

Implementation Plan

FireSmart Discipline	Mitigation Options	Responsible Agency
Vegetation Management	1. Zone 1 & 2 Encourage Residents to maintain FireSmart standards: • Complement and encourage residents to continue mowing the grass on and around their property on a regular basis. • Remove dead and down surface fuels on their property. • Store combustible woody materials more than 10 metres from main structures • Continue to waive the landfill fees for dumping woody debris, grass and leaves every spring and reduce the potential of a wildfire threat. •	Residents/Landowners County #12, SRD, SV
	2. Zone 3 Municipal Reserves, Crown land, and private land • Thin & Prune coniferous stand in Whispering Hills, and prune coniferous in the S.V. of Island Lake between Highway Street and the highway in lot A (782-866) • Remove dead and down surface fuels • Continue to mow grass to full extent of the highway right of way • Thin and prune private land north end of Island Lake and south and east of the WR RV Park.	SRD, County of # 12, SV and residents County # 12 Landowners.

Implementation Plan

FireSmart Discipline	Mitigation Options	Responsible Agency
Development Options	1. Future country residential developments should consider using Class "A" ULC rated roofing material.	County # 12, SV., residents or developers.
	2. For new county residential development areas/subdivisions the county and the summer villages should insist on a Wildfire Threat Assessment as part of the development application.	County # 12, SV. & Developers
	3. Improve the turnarounds at the following water access points by increasing the radius at;	
	• Crooked Lake	County # 12
	• Summer Village of Island Lake on Buffalo Ave near site 200.	SV of Island Lake
	• Long Lake	SRD,
	4. Develop water access points for water trucks in the following communities;	
	• Summer Village of Sunset Beach	SV Sunset Beach
	• Summer Village of Whispering Hills	SV Whispering Hills
	• Poplar Point Estates on the south side	County # 12
	• Pac Beach on east end.	County # 12
	5. Improve the dead end turnarounds and roads at the following locations;	
	• Summer Village of Island Lake at Buffalo Ave, Birch Street. Antelope Ave should make this a one way and extend it to Beaver Ave. into the subdivision to the east.	SV Island Lake
	• Summer Village of Island Lake South install no parking signs on Kirby PL turnaround area.	SV Island Lake South
	• Summer Village of Sunset Beach In the future consider developing a second access road to the north to join with access into Whispering Hills.	SV Sunset Beach County # 12
	• Summer Village of West Baptiste improve the turnaround at the south end to FireSmart standards.	SV West Baptiste
	• Wandering River R.V. Park improve the loop road to meet minimum surface standards and width.	Private landowner/Developer
	6. Communities like Sunset Beach, Whispering Hills and White Gull with mature and overmature trees next to transmission lines should work with the utility companies to develop a hazard tree assessment and removal program.	Landowners & Fortis
	7. Encourage residents with propane tanks to maintain a 3 metre vegetation free zone under and around each propane tank.	Property Owner
	8. Encourage the adoption of the counties standard signage system in the communities of Crooked Lake, North Bay Estates, Pac Beach, Wandering River Hamlet, Golf Course subdivision, Breynat and the Wandering River R.V. Park.	County # 12
	9. In current and new developments continue to stress the importance of maintaining a minimum of 10 metres vegetation free zone between structure and forest vegetation.	County # 12, SV & SRD

Implementation Plan

FireSmart Discipline	Mitigation Options	Responsible Agency
Public Education	1. Continue with ARCPP initiatives to promote FireSmart Education and vegetation management. 2. Organize Community FireSmart days to involve residents in minimizing the hazards on their property and within the municipal reserves 3. Continue public education and awareness initiatives with the hamlets, summer villages and the subdivisions with the focus on; .	SRD, County #12 & SV's SRD, County #12 & SV's SRD, County #12 & SV's
Legislation	1. In lieu of rewriting all the Bylaws at least reference the FireSmart manual in the development of Area Structure Plans and during the approval of individual Development Plans for hamlet, country residential and summer village subdivisions. 2. County and summer village administration should reconsider and include the key recommended bylaws that would aid in developing and reducing the wildfire threat within current communities. a. Wildfire hazard and risk assessment during the development application stages. b. Vegetation management strategies as part of the building permit conditions. c. Structural Options use of non-combustible building materials for roofs and siding in the WUI. d. Infrastructure options for; o Network of roadways - Adequate two-way roadway widths to ensure safe egress and ingress, - Adequate turn radius at dead end turnarounds, - Use a loop road system that will provide fire breaks. o Open spaces to accommodate safe zones for firefighters and the public in case of evacuation o Use of standard visible signage for subdivisions and individual property o Provide for an adequate water supply for wildfire suppression o Utility corridors and propane tanks to have adequate vegetation free zone as per minimum FireSmart standards	County #12 & SV's County #12 & SV's
Interagency Cooperation and Cross Training	1. Continue with the high degree of communications between SRD, the summer villages and the Athabasca County 2. SRD to continue to provide the Fire Departments with fireline radio frequencies during the fire season 3. Continue with wildfire cross training of new members in the municipal fire departments and SRD. - The S215 training course - Sprinkler deployment training. - WUI Table top exercises in spring. - WUI Mock fire scenarios. 4. Consider fire bans during the spring and fall cured grass stage when fire danger is high to extreme. 5. Use the expertise of the ARCPP to assist in implementing this Wildland Urban Interface Plan.	SRD, County #12 & SV's SRD, County #12 & SV's SRD, County #12 & SV's SRD, County #12 & SV's SRD, County #12 & SV's

Implementation Plan

FireSmart Discipline	Mitigation Options	Responsible Agency
Emergency Response Planning	1. Ensure the mutual aid agreements and the Presuppression Plan is updated annually. 2. Continue with mutual aid agreements between all agencies into the future. 3. Use the Incident Command System for all emergency operations in the wildland Urban/Interface within the communities in the Athabasca County. 4. Ensure Emergency Response Plans are in place for all communities within this study area.	SRD, County #12 & SV's SRD, County #12 & SV's SRD, County #12 & SV's County #12 & SV's

13 FireSmart Maintenance Plan

An essential component of a FireSmart community is a maintenance plan that will ensure the fuel modification benefits a community well into the future. Monitoring vegetation growth on sites with fuel modification will be necessary to determine the frequency and strategy for the maintenance program. To support the maintenance program SRD, the Athabasca County and the Summer Villages will need to allocate funds from time to time to ensure long term community protection from a wildfire threat.

A FireSmart Maintenance Plan Recommendations

i Encourage the property owners in each community to manage the grass growth as they have in the past by mowing regularly or annually at least once every year preferably in late summer or early fall.

ii Encourage the utility owners of power lines to maintain the hazard tree program and reduce the potential for conductor arching with falling trees.

iii Encourage the County and summer villages to mow the grass to the full extent of the road right of way in each community.

iv Encourage the local residents to maintain their zone 1 and 2 to FireSmart standards.

v Monitor treated sites on municipal reserves for dead and down woody debris annually and remove accumulation as required.

14 Appendices

APPENDIX I

GLOSSARY OF WILDFIRE TERMS

CLOSSARY OF WILDFIRE TERMS

Backfiring (Backfired)

A form of indirect attack where extensive fire is set along the inner edge of a control line or natural barrier, usually some distance from the wildfire and taking advantage of indrafts, to consume fuels in the path of the fire, and thereby halt or retard the progress of the fire front.

Burning Conditions

The state of the combined components of the fire environment that influence fire Behavior and fire impact in a given fuel type. Usually specified in terms of such factors as fire weather elements, fire danger indexes, fuel load and slope.

Canopy

The stratum containing the crowns of the tallest vegetation present (living or dead).

Control Line

A comprehensive term for all constructed or natural fire barriers and treated fire perimeter used to control a fire.

Crown Fuels

The standing and supported forest combustibles, not in direct contact with the ground, that are generally only consumed in crown fires (e.g., foliage, twigs, branches, cones). (Synonym: Aerial Fuels.

Crown Fire

A fire that advances through the crown fuel layer, usually in conjunction with the surface fire. Crown fires can be classified according to the degree of dependence on the surface fire phase:

(i) **Intermittent crown fire -** a fire in which trees this discontinuously torch, but rate of spread is controlled by the surface fire phase.

(ii) **Active ground fire –** a fire that advances with a well defined wall of flame extending from the ground surface to above the crown fuel layer. Probably most crown fires are of this class. Development of an active crown fire requires a substantial surface fire, and therefore the surface and ground phases spread as a linked unit.

(iii) **Independent crown fire** – a fired at advances in the crown feel they're only.

Fire Behavior

The manner in which fuel ignites, flame develops and fire spreads and exhibits other related phenomena as determined by the interaction of fuels, weather and topography.

Firebrand

A piece of flaming or smoldering material capable of acting as an ignition source.

Fire Cycle

The number of years required to burn over an area equal to the entire area of interest.

Fire Danger

A general term used to express an assessment of both fixed and variable factors of the fire environment that determine the ease of ignition, rate or spread, difficulty of control and fire impact.

Fire Frequency

The average number of fires that occur per unit time at a given point.

Fireguard

A strategically planned barrier, either manually or mechanically constructed, intended to stop or retard the rate of spread of a fire, and from which suppression action is carried out to control a fire. The constructed portion of a control line.

Fire Hazard

A general term to describe the potential fire behavior, without regard to the state of weather influenced fuel moisture content, and/or resistance to fireguard construction for a given fuel type. This may be expressed in either the absolute (e.g., "cured grass is a fire hazard") or comparative (e.g., "clear-cut" logging slash is a greater fire hazard than a deciduous cover type) sense. Such an assessment is based on physical fuel characteristics (e.g., fuel arrangement, fuel load, condition of herbaceous vegetation, presence of ladder fuels).

Fire Interval

The average number of years between the occurrence of fires at a given point.

Fire Occurrence

The number of fires started in a given area over a given period of time.

Fire Regime

The kind of fire activity or pattern of fires that generally characterizes a given area. Some important elements of the characteristic pattern include fire cycle or fire interval, fire season and the number, type, and intensity of fires.

Fire Weather Index (FWI)

A numerical rating of fire intensity that combines ISI and BUI. It is suitable as a general index of fire danger throughout the forested areas of Canada.

Fire Suppression

All activities concerned with controlling and extinguishing a fire following its detection. Methods of suppression are:

Direct Attack - A method whereby the fire is attacked immediately adjacent to the burning fuel.

Parallel Attack - A method whereby a fireguard is constructed as close to the fire as heat and flame permit, and burning out the fuel between the fire and the fireguard.

Indirect Attack - A method whereby the control line is strategically located to take advantage of favorable terrain and natural breaks in advance of the fire perimeter, and the intervening strip is usually burned out or backfired.

Hot Spotting - A method to check the spread and intensity of a fire at those points that exhibit the most rapid spread or that otherwise pose some special threat to control of the situation. This is in contrast to systematically working all parts of the fire at the same time, or progressively in a step-by step manner.

Cold Trailing - A method of determining whether or not a fire is still burning, involving careful inspection and feeling with the hand, or by use of a hand-held infrared scanner, to detect any heat source.

Mop-up - The act of extinguishing a fire after it has been brought under control.

Flammability

The relative ease with which a substance ignites and sustains combustion.

Frontal Fire Intensity

The rate of heat energy release per unit time per unit length of fire front. Flame size is its main visual manifestation. Frontal fire intensity is a major determinant of certain fire effects and difficulty of control. Numerically, it is equal to the product of the net heat of combustion, quantity of fuel consumed in the flaming front, and linear rate of spread. Recommended SI unit is kilowatts per metre (kW/m).

Synonyms:

- Byram's Fireline Intensity (used mainly in the United States)
- Head Fire Intensity
- Line-fire Intensity

Fuelbreak

An existing barrier or change in fuel type (to one that is less flammable than that surrounding it), or a wide strip of land on which the native vegetation has been modified or cleared, that acts as a buffer to fire spread so that fires burning into them can be more readily controlled. Often selected or constructed to protect a high value area from fire. In the event of fire, may serve as a control line from which to carry out suppression operations.

Fuel Appraisal

The process of first describing the fuel type characteristics and secondly interpreting the fuel description in terms of potential fire behavior on the basis of past experience, comparative methods and mathematical models (e.g., Canadian Forest Fire Behavior Prediction System).

Fuel Type

An identifiable association of fuel elements of distinctive species, form, size, arrangement and continuity that will exhibit characteristic fire behavior under defined burning conditions.

Synonym:

- Fuel Complex.

Ground Fire

A fire that burns in the ground fuel layer, usually muskeg type-high fibrous soils.

Heat Transfer

The process by which heat is imparted from one body or object to another. In forest fires, heat energy is transmitted from burning to unburned fuels by:

Convection – transfer of heat by the movement of masses of hot air; the natural direction is upwards in the absence of any appreciable wind speed and/or slope.

Radiation – transfer of heat in straight lines from warm surfaces to cooler surroundings.

Conduction – transfer of heat through solid matter.

Ladder Fuels

Fuels that provide vertical continuity between the surface fuels and crown fuels in a forest stand, thus contributing to the ease of torching and crowning (e.g., tall shrubs, small-sized trees, bark flakes, tree lichens).

Synonym:

- Bridge Fuels (See Ground Fuels.)

Prescribed Burning

The knowledgeable application of fire to a specific land area to accomplish predetermined forest management or other land use objectives

Spot Fire

A fire ignited by firebrands that are carried out side the main fire perimeter by air currents, gravity, and or fire whirls.in forest fires, the transmission of heat may also take place by solid mass or ember transport. This is the transfer of heat resulting from firebrands being transported head of the fire by the wind, by gravity (i.e. rolling downhill), or being carried aloft in the convection column or by fire whirl (i.e. spotting).

Surface Fire

A fire that burns in the surface fuel layer, usually leaf and liter, excluding the crowns of the trees, as either a head fire, flank fire, or backfire.

Surface Fuels

All combustible materials lying above the duff layer between the ground and ladder fuels that are responsible for propagating surface fires (e.g., litter, herbaceous vegetation, low and medium shrubs, tree seedlings, stumps, downed-dead roundwood).

Values-at-Risk

The specific or collective set of natural resources and man-made improvements/developments that have measurable or intrinsic worth and that could or may be destroyed or otherwise altered by fire in any given area.

Wildland Urban Interface

A popular term used to describe an area where various structures (most notably private homes) and other human developments meet, or are intermingled with, forest and other vegetative fuel types.

APPENDIX II

FIRE BEHAVIOR CHARACTERISTIC
AND
FIRE SUPPRESSION

Fire Behavior Characteristic and Fire Suppression Interpretations Associated with the Fire Intensity Ranks

Chart Rank	Frontal Fire Intensity (kW/m)	Surface Head Fire[1] Flame Length (m)	Surface Head Fire[1] Flame Height (m)	Type of Fire and Fire Suppression Difficulty	Fire Weather Index[2] (FWI)
1	<10	<0.2	<0.1	Firebrands that cause an ignition to occur are self-extinguishing (i.e., fire fails to spread. Going fires remain of the shouldering ground or surface variety, provided there is a forest floor layer of significant depth and a general level of dryness[3]. Extensive mop-up is generally required.	0-3
2	10-500	0.2-1.4	0.1-1.0	Creeping or gentle surface fire. Direct manual attack at fire's head or flanks by firefighters with hand tools and water is possible. Constructed fireguards should hold	4-13
3	500-2000	1.4-2.6	1.0-1.9	Low vigor to moderately or highly vigorous surface fire. Hand constructed fire-guards likely to be challenged. Heavy equipment (Bulldozers, pumpers, retardant aircraft, skimmers, helicopters with bucket) generally successful in controlling fire.	14-23
4	2000-4000	2.6-3.5	1.9-2.5	Very vigorous to extremely intense surface fire(torching common). Control efforts at fire's head may fail.	24-28
5	4000-10,000	3.5-5.4	2.5-4.6	Intermittent crown fire[4] to active crown fire development (at > 10,000 kW/). Very difficult to control. Suppression action is generally restricted to fire's flanks. Indirect attack with aerial ignition (i.e., helitorch and/or A.I.D. dispenser) may be effective.	29-30
6	>10,000	>5.4	>4.6	"Blow-up" or "conflagration"[5] type fire run: violent physical behavior probable. Suppression actions should not be attempted until burning conditions ameliorate.	>36

[1] Flame length based on relationship with fire intensity according to Byram (1959). Flame height based on flame length and a 45^0 flame angle (Alexander 1982).

[2] Applicable to mature jack pine stands on level ground. Based on the equation given in Alexander and De Groot (1988). Except the upper and lower FWI values for Fire Intensity Ranks 1 and 2 were determined from Van Wagner (1987) since none of the experimental fires on which the equation is based were conducted at the very low end of the intensity scale.

[3] Drought Code (DC) > 300 and/or Buildup Index (BUI) >40

[4] Synonymous with passive crown fire as described by Van Wagner (1977) (Merrill and Alexander 1987).

[5] Violent physical behavior probable at frontal fire intensities greater then 30,000 kW/m

APPENDIX III

SEVEN DISCIPLINES
OF
COMMUNITY PLANNING

SEVEN DISCIPLINES OF COMMUNITY PLANNING

1. **Wildfire Hazard and Risk Assessment**
   This process provides individuals and agency personnel with a structured and practical approach for accessing the hazard posed by wildfires to interface homes, facilities, or communities. The Wildfire Hazard Assessment has two components:
   a. Structure and Site Hazard Assessment which evaluates building and adjacent site characteristics, and
   b. Area Hazard assessment which access site characteristics greater than 30 metres from the building itself.

2. **Vegetation Management Options**
   Provides users with solutions or mitigative approaches to reduce the hazard posed by interface fire to communities, homes or industrial sites. The principal aspects and recommended guidelines for interface fire hazard mitigation are evaluated in three sections:
   a. Vegetation Management Strategies; break down into three approaches and these are:
      i. Fuel removal
      ii. Fuel reduction
      iii. Fuel conversion
   b. Structural Options; evaluating how fire resistant the building materials are and their ability to withstand an interface fire event.
   c. Infrastructure assesses the following that makes up the infrastructure of an interface community:
      i. Network of roadways,
      ii. Open spaces,
      iii. Signage
      iv. Water supply, and
      v. Utilities

3. **Development Options**
   Effective planning can help communities anticipate and prevent interface fire dangers. There are real challenges facing planners as they attempt to balance the interests of all the authorities and residents who share responsibility for safety in the wildland/urban interface.

4. **Legislative Options**
   Being familiar with what legislation is in place to aid in the development of FireSmart communities and to reduce the threat of a wildland/urban interface fire.

5. **Public Education Options**
   Develop a communication plan to effectively communicate about wildland/urban interface fire prevention and control. An effective program of education and awareness will help motivate people to create FireSmart communities.

6. **Interagency Cooperation and Cross Training**
   Presents a cross-disciplinary training system to develop specialized interface firefighting skills within existing fire organizations. It is based on existing and proposed training courses and simulation exercises for structural and wildland firefighters. Getting the right training is essential for firefighters' safety and their effectiveness in suppressing fire in the interface.

7. **Emergency Planning**
   Provides an overview of agency emergency response protocols, specifically Incident Command and Emergency Site Management systems, and an outline of municipal emergency structures and plans that have interface fire components.

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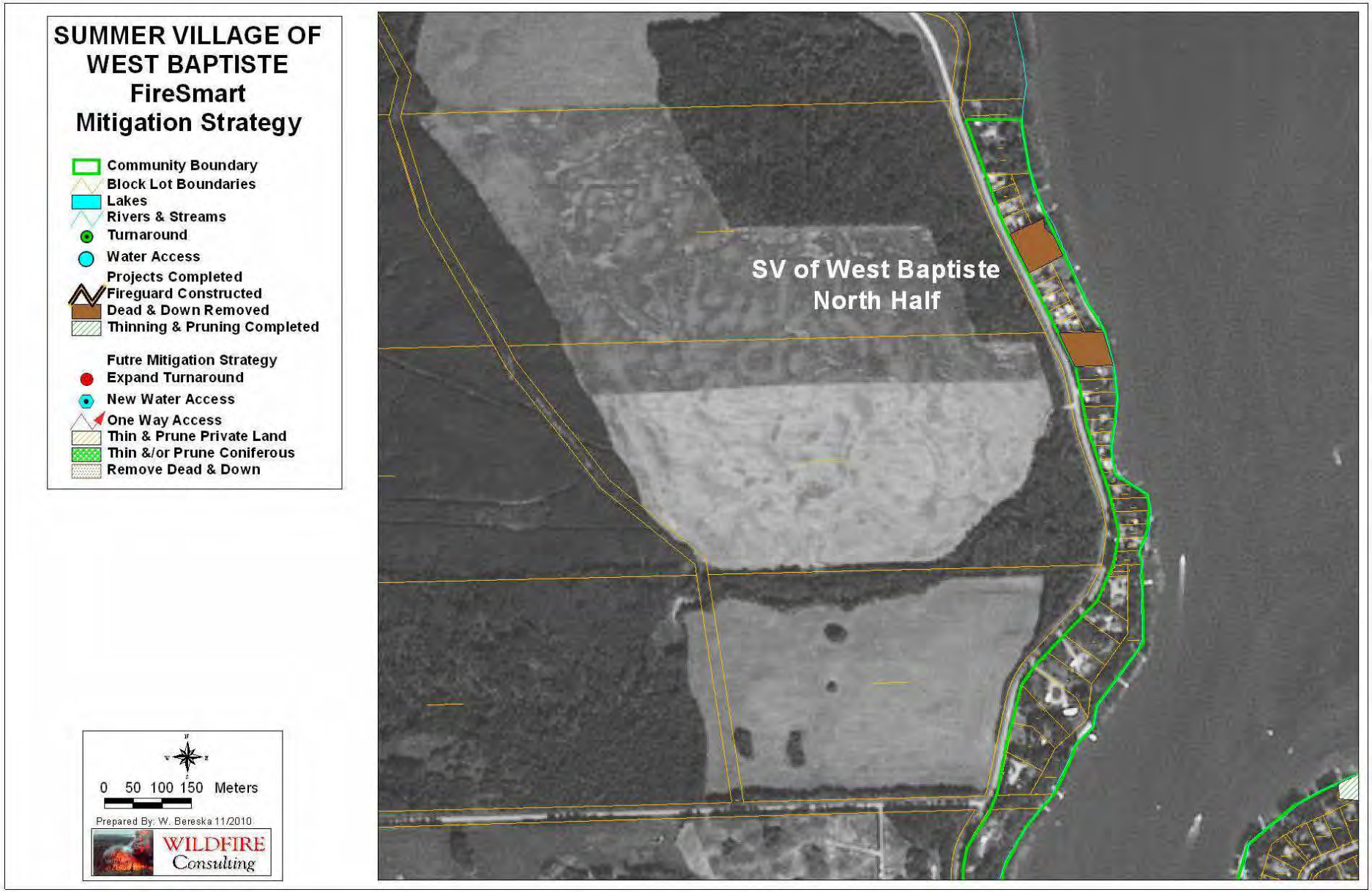
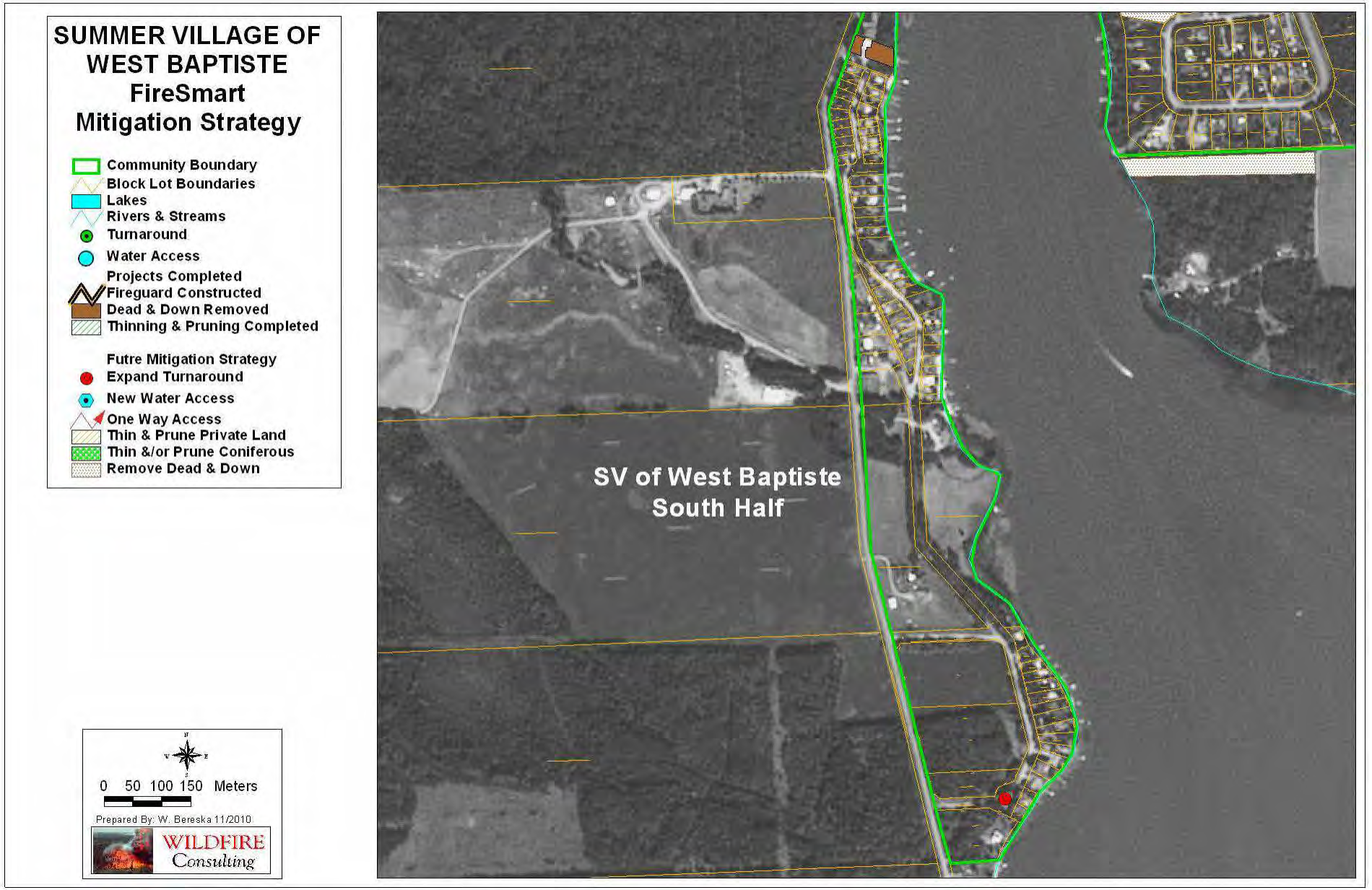
APPENDIX IV

MAPS

VEGETATION MANAGEMENT STRATEGY MAPS




SUMMER VILLAGE OF
WEST BAPTISTE
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
SV of West Baptiste
South Half
0 50 100 150 Meters
Prepared By: W. Bereska 11/2010
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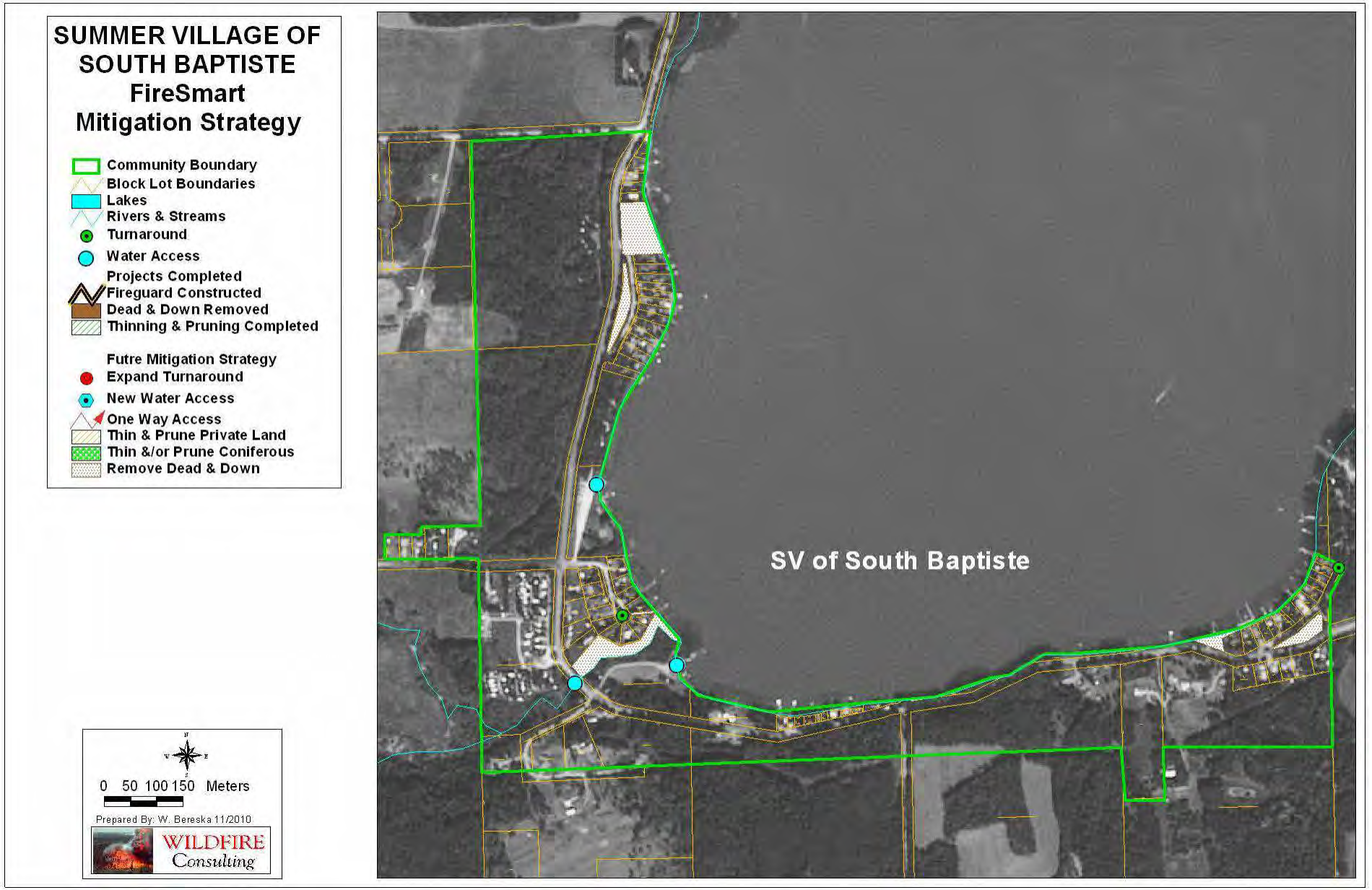
SUMMER VILLAGE OF
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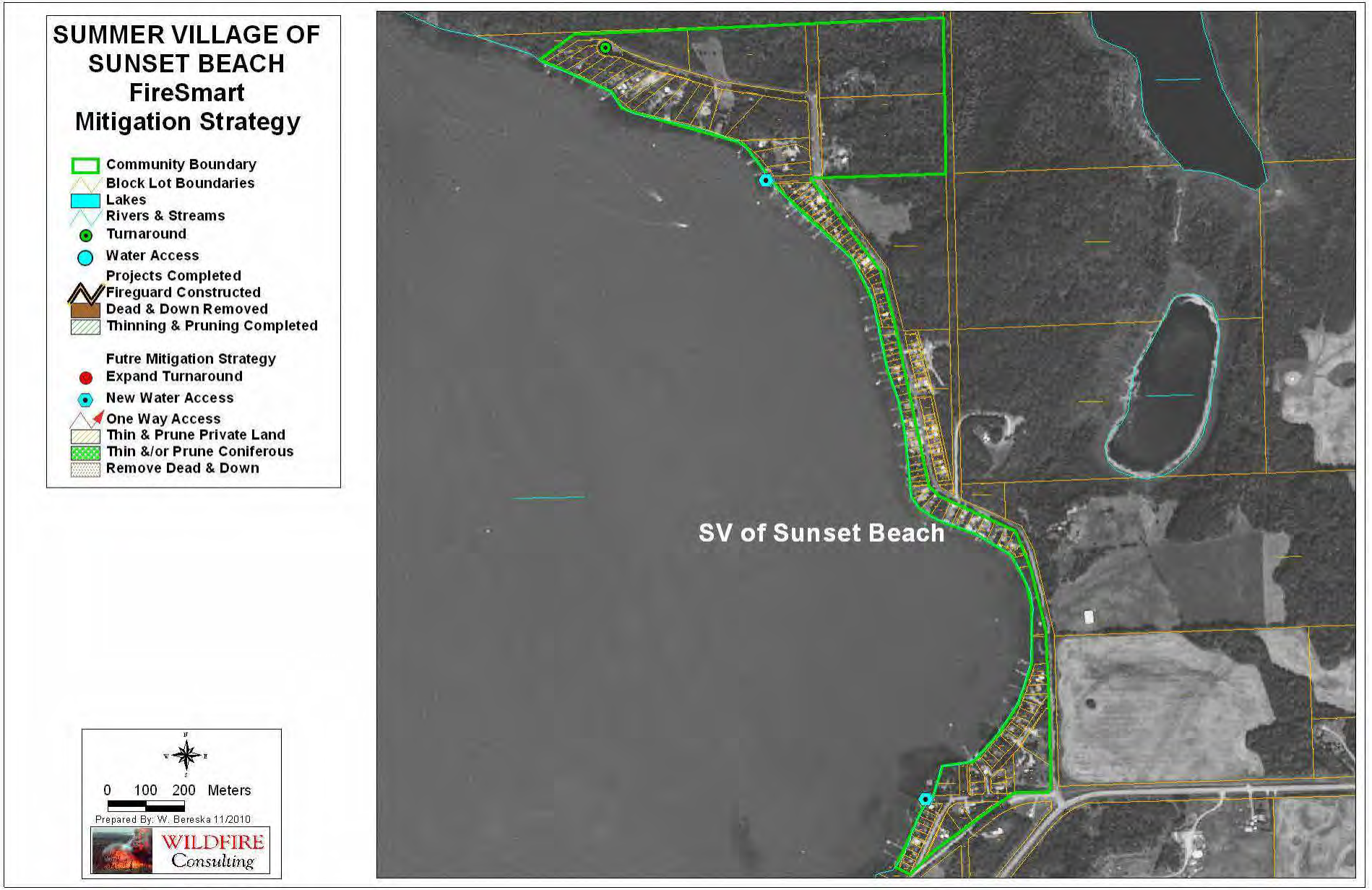
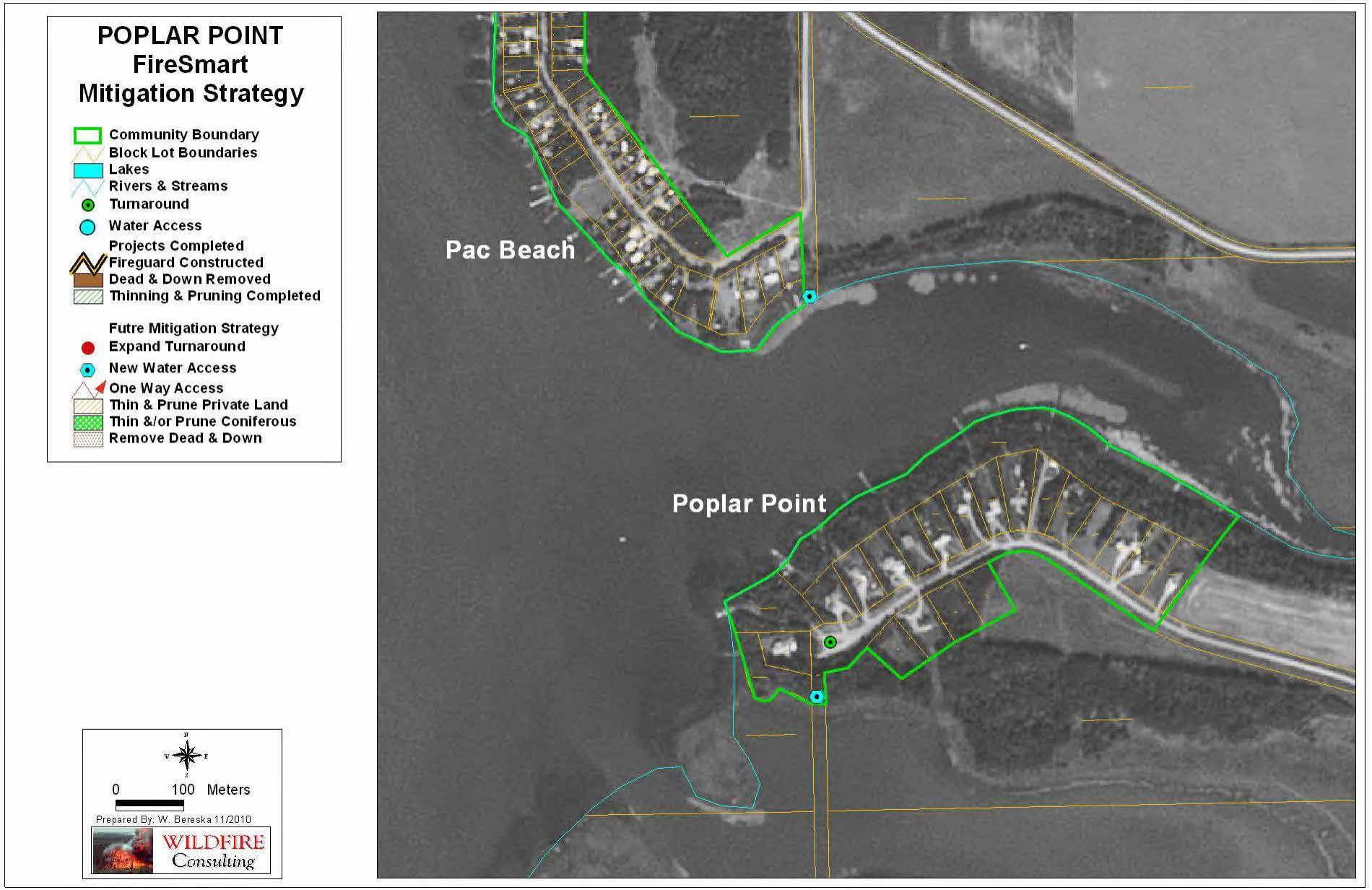
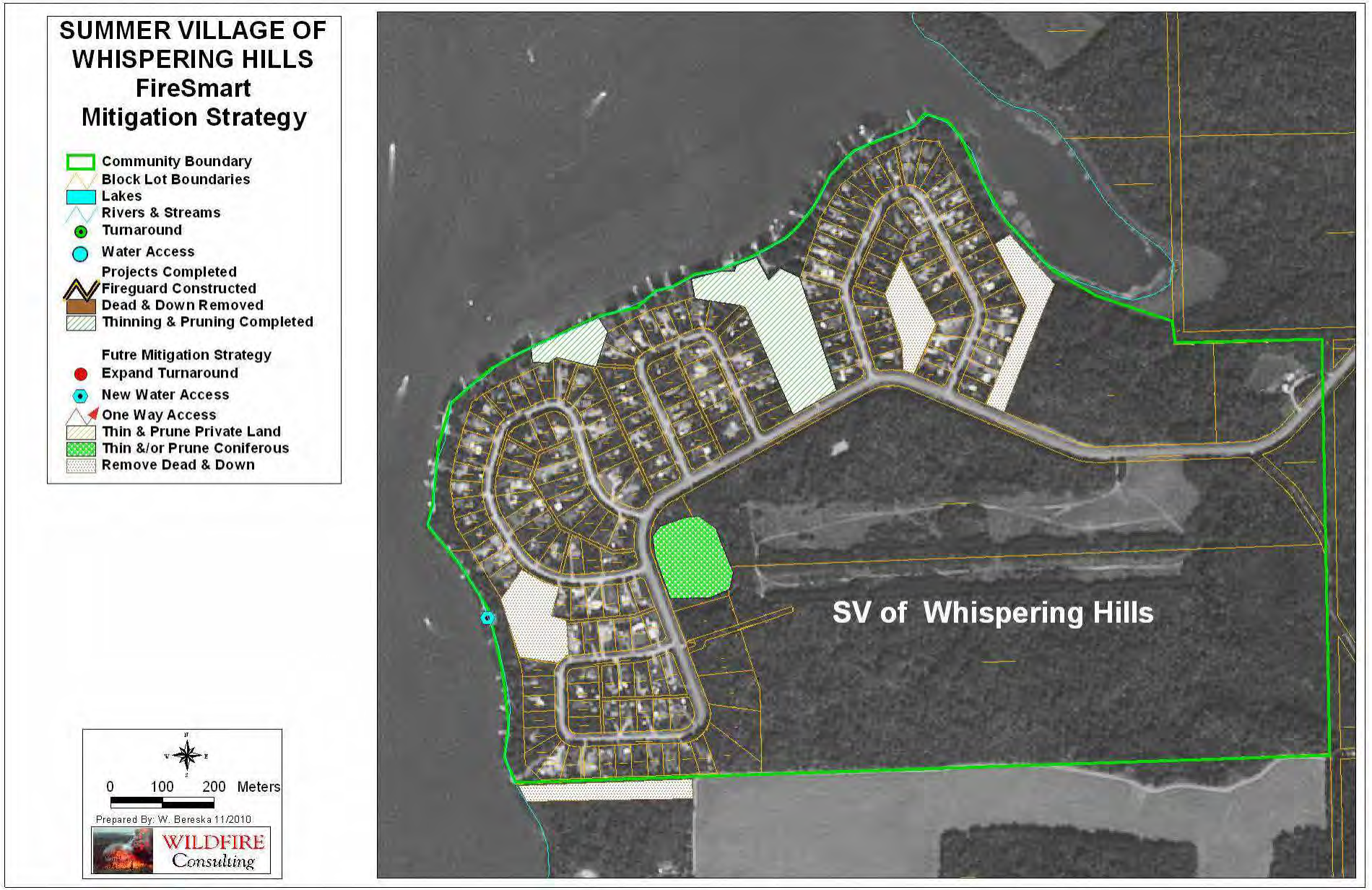
WILDFIRE
Consulting

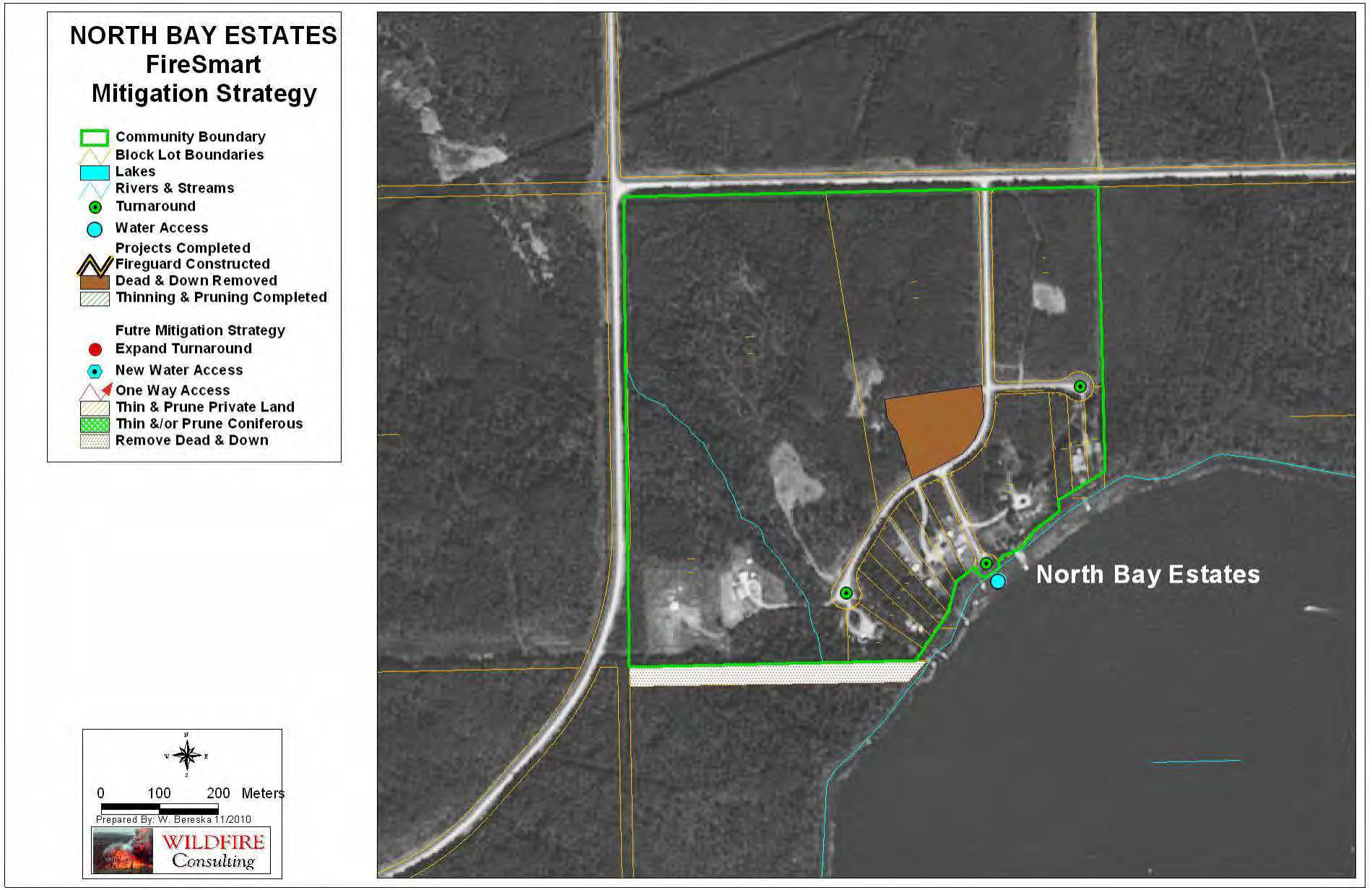

SUMMER VILLAGE OF
SUNSET BEACH
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
SV of Sunset Beach
0 100 200 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE
Consulting

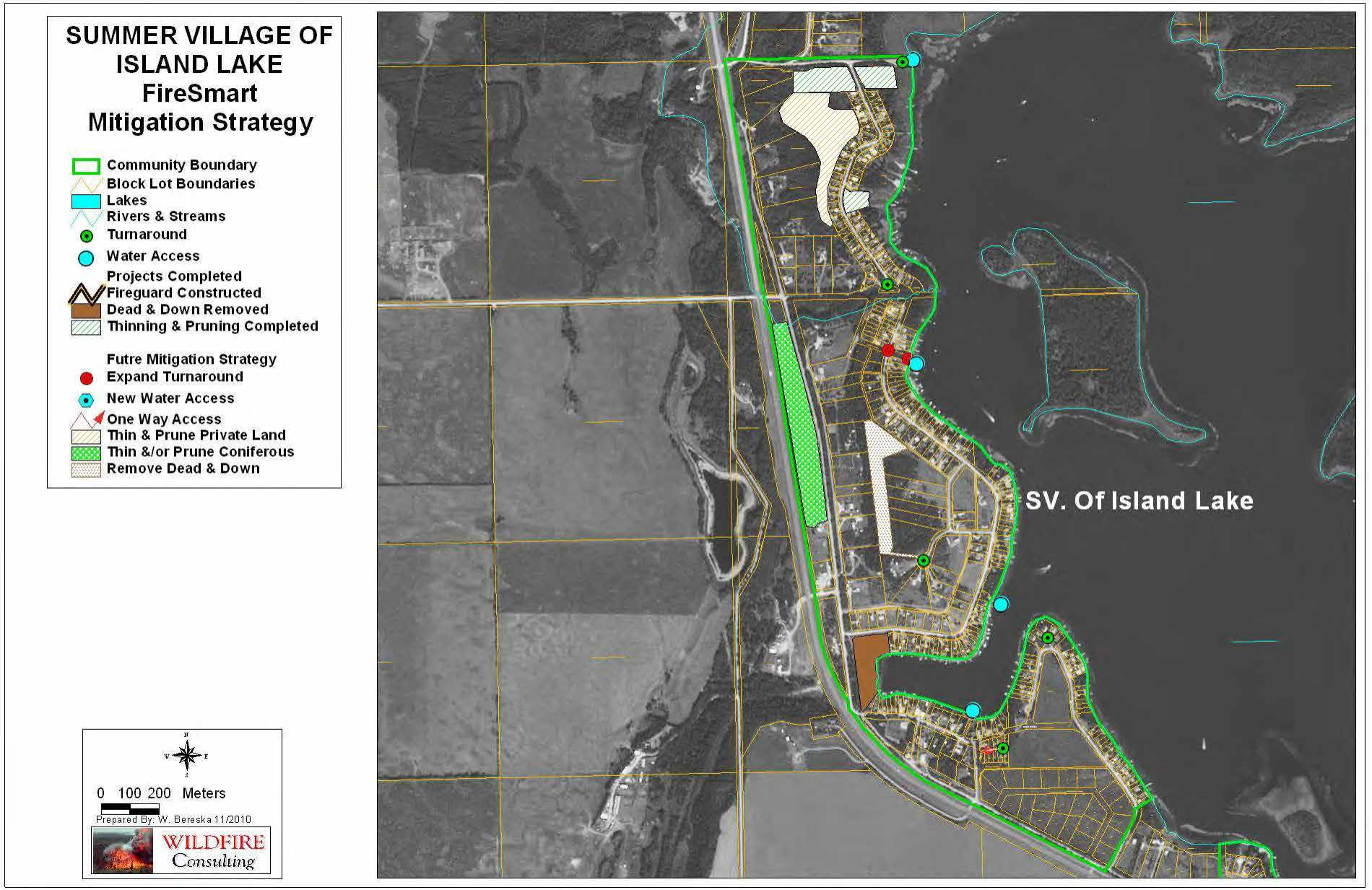

POPLAR POINT
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
Pac Beach
Poplar Point
0
100 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE
Consulting

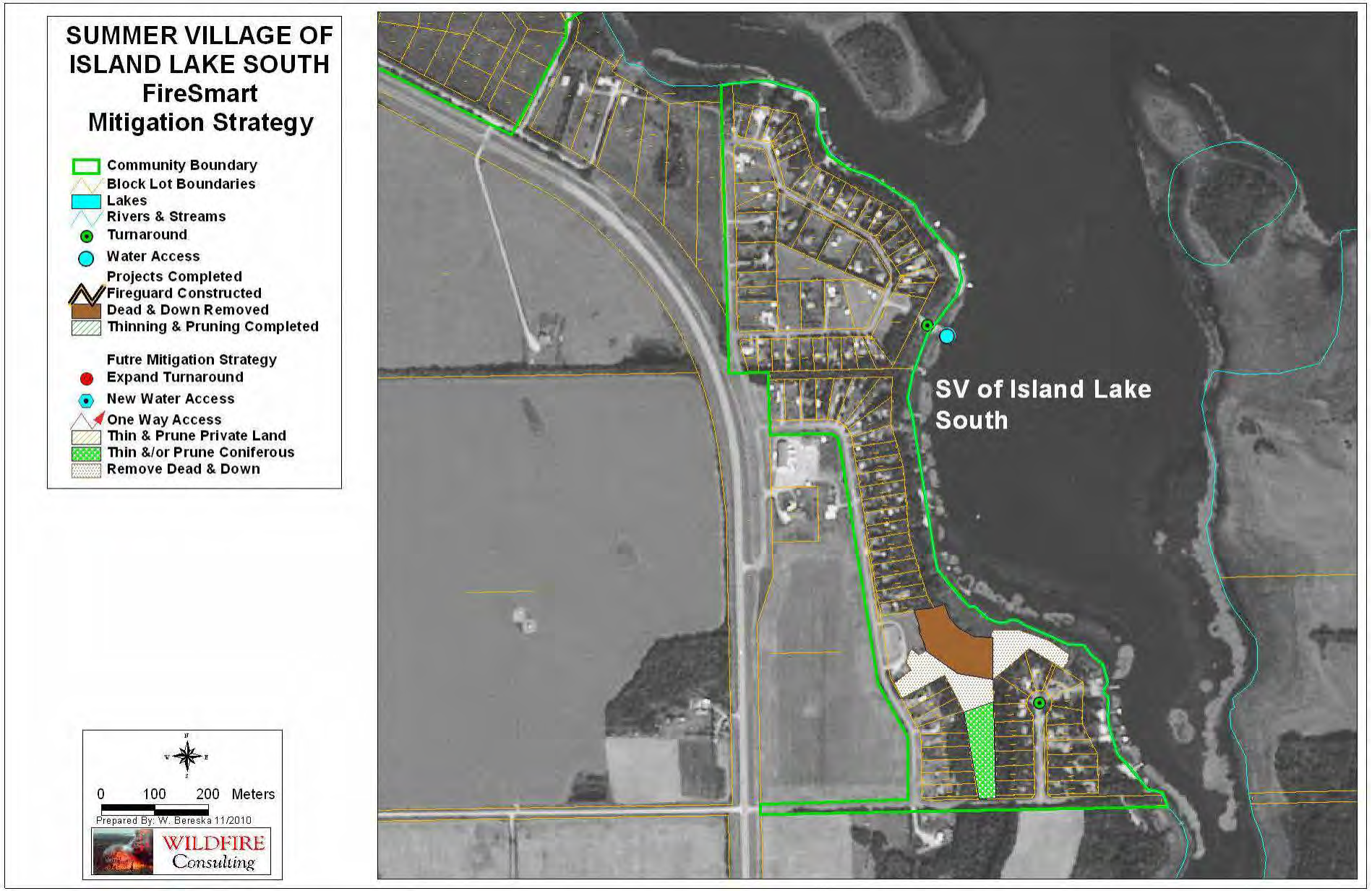

PAC BEACH
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
White Gull
Pac Beach
0
100 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE
Consulting

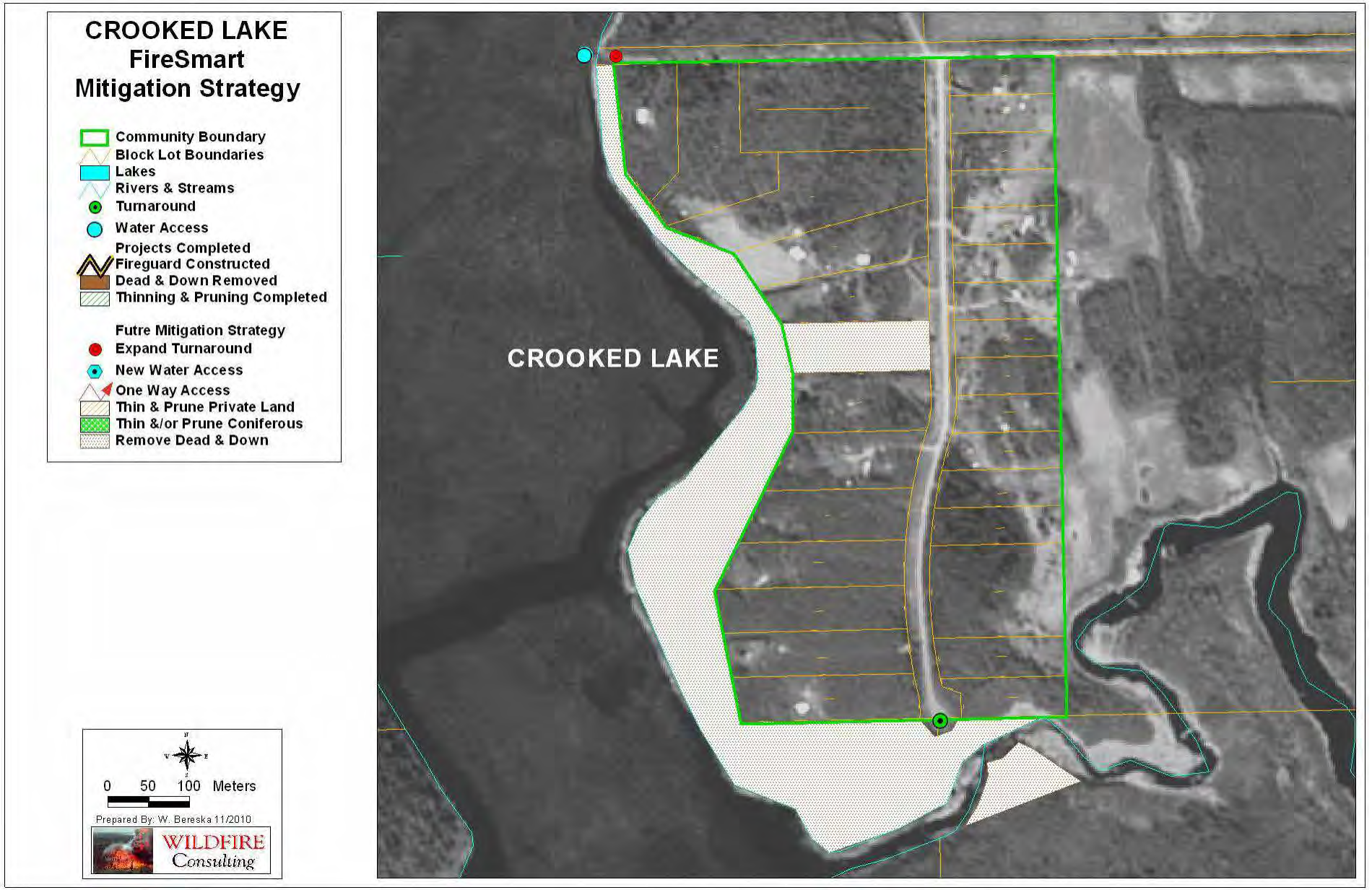

WHITE GULL
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
White Gull
Pac Beach
0
100 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE
Consulting

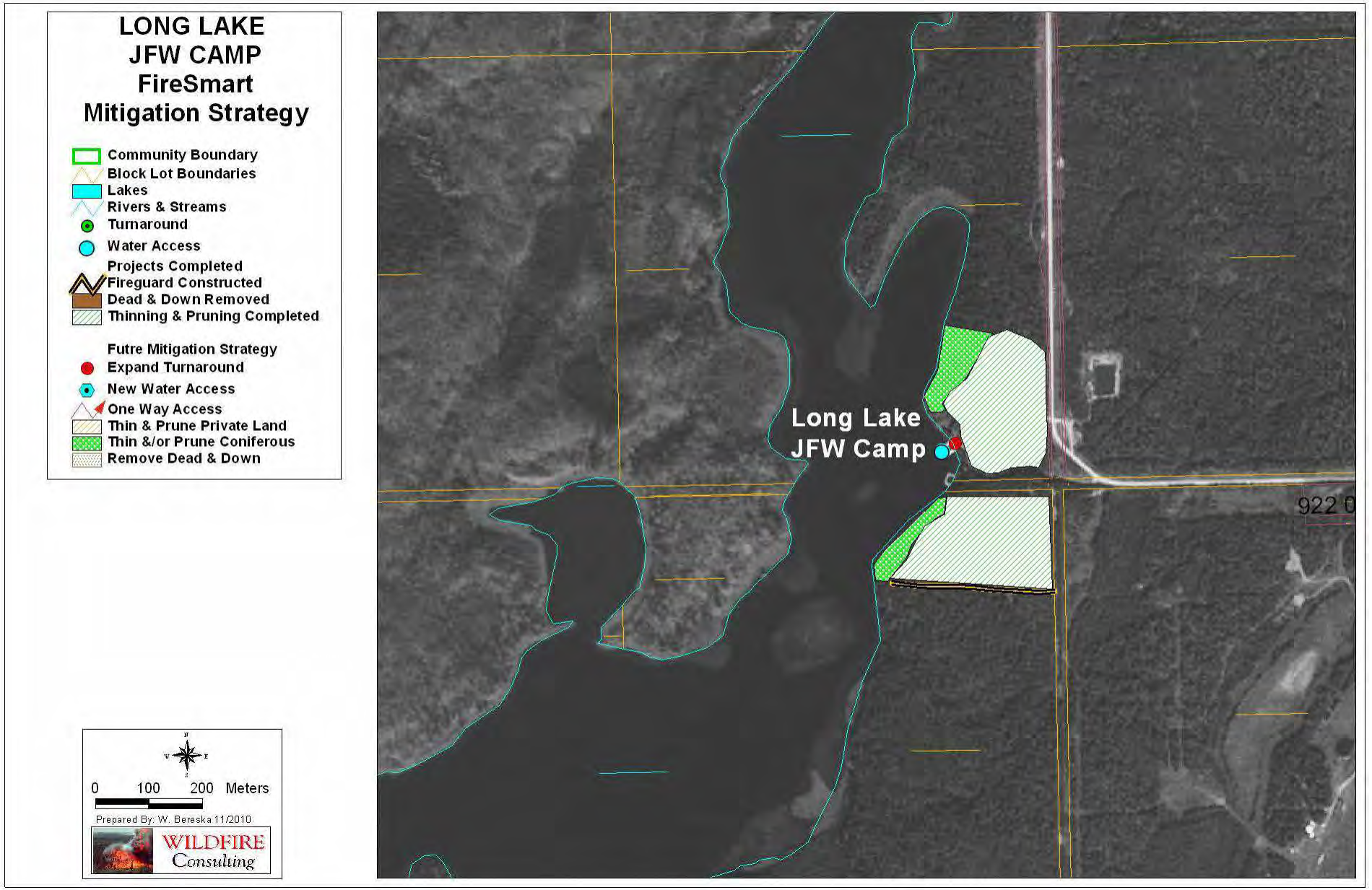

SUMMER VILLAGE OF
WHISPERING HILLS
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
SV of Whispering Hills
0 100 200 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE
Consulting

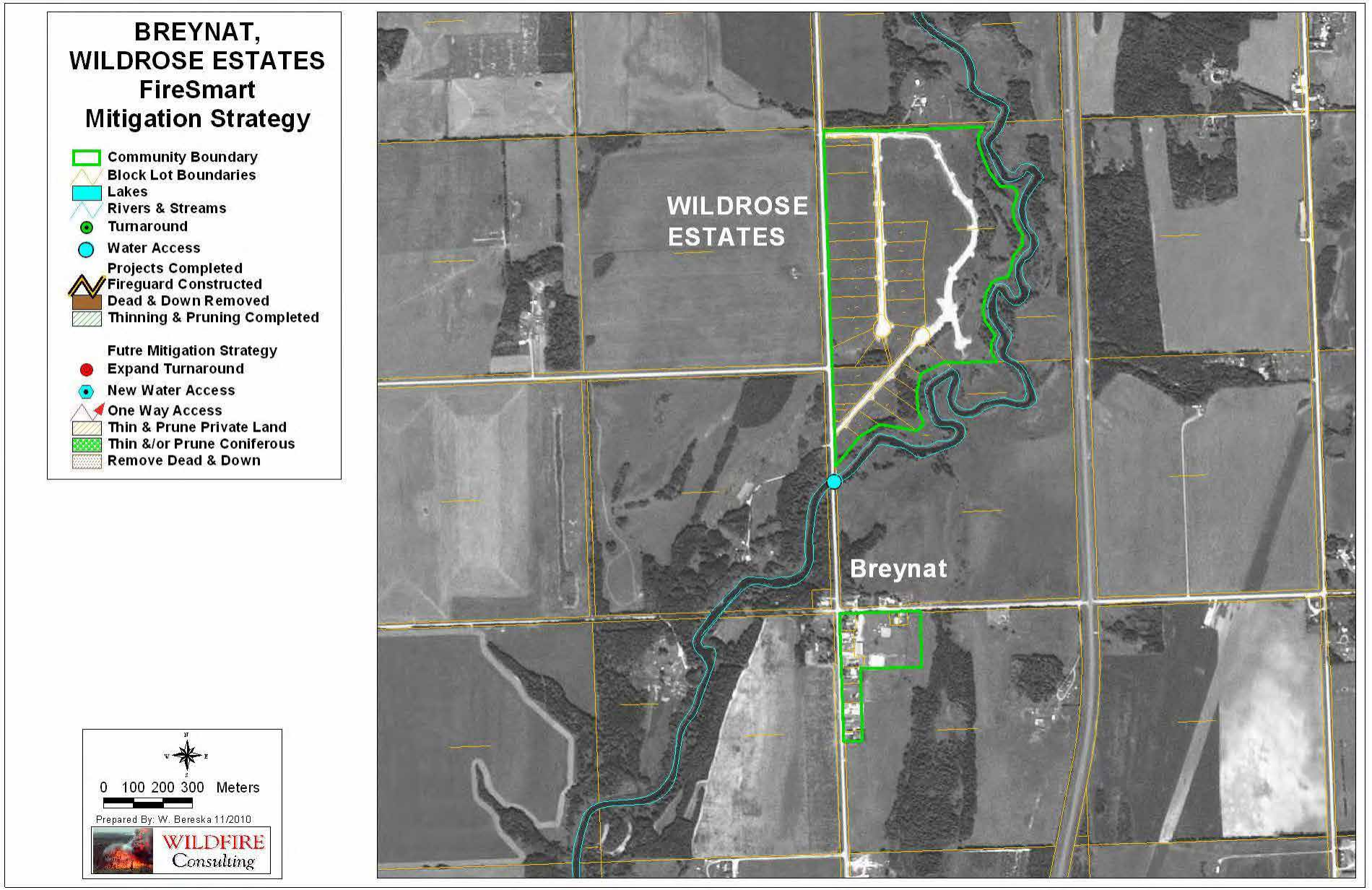

NORTH BAY ESTATES
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
North Bay Estates
0 100 200 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE Consulting

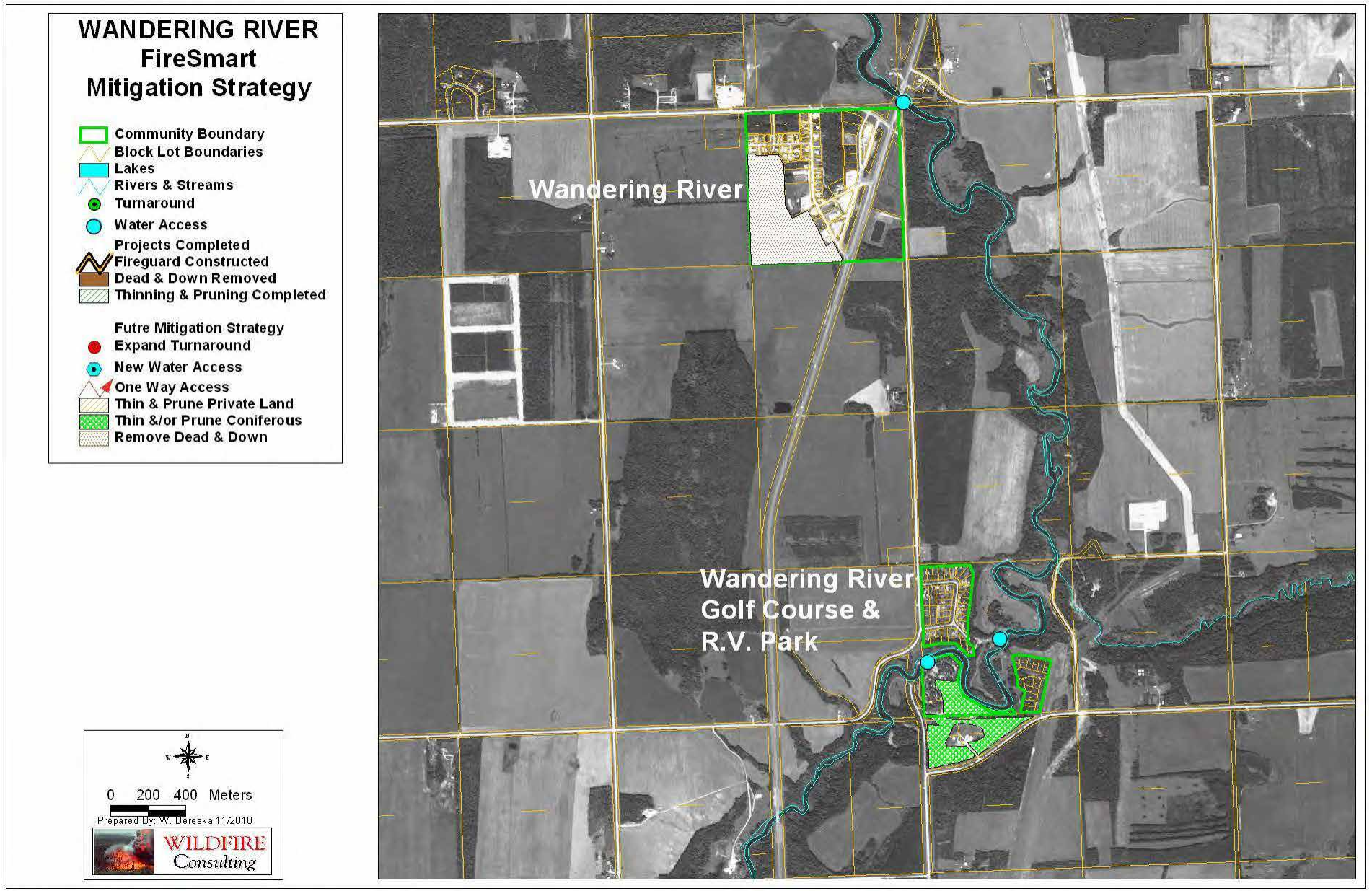

SUMMER VILLAGE OF
ISLAND LAKE
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
SV. Of Island Lake
0 100 200 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE
Consulting


SUMMER VILLAGE OF
ISLAND LAKE SOUTH
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
SV of Island Lake South
0 100 200 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE Consulting


CROOKED LAKE
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
CROOKED LAKE
0 50 100 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE Consulting


LONG LAKE
JFW CAMP
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
Long Lake
JFW Camp
922 0
0 100 200 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE
Consulting


BREYNAT,
WILDROSE ESTATES
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
WILDROSE ESTATES
Breynat
0 100 200 300 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE Consulting


WANDERING RIVER
FireSmart
Mitigation Strategy
Community Boundary
Block Lot Boundaries
Lakes
Rivers & Streams
Turnaround
Water Access
Projects Completed
Fireguard Constructed
Dead & Down Removed
Thinning & Pruning Completed
Futre Mitigation Strategy
Expand Turnaround
New Water Access
One Way Access
Thin & Prune Private Land
Thin &/or Prune Coniferous
Remove Dead & Down
Wandering River
Wandering River
Golf Course &
R.V. Park
0 200 400 Meters
Prepared By: W. Bereska 11/2010
WILDFIRE
Consulting