

Greater Bragg Creek

Wildfire Mitigation Strategy



Prepared for:



Government of Alberta ■

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1 Introduction

The goal of the Greater Bragg Creek Wildfire Mitigation Strategy is to develop and implement a comprehensive plan to reduce the threat of wildfire to development, and the threat of structure fire to the wildlands, within the project area. The plan was developed under the guidance of the Bragg Creek FireSmart Committee consisting of representatives from:

- Bragg Creek Residents
- Rocky View County Council
- Rocky View Fire Services
- Alberta Sustainable Resource Development (SRD) – Forestry Division

The intent of this plan is to provide a working document that land and fire managers, municipal administration and elected officials, and local residents and businesses can use to guide *FireSmart* development practices in the project area. The plan was developed with consultation and input from several local stakeholder groups to ensure that multiple objectives are considered in the FireSmart process.

The plan development process included assessing present wildland/urban interface site hazards, reviewing current and historic wildfire history in the area, studying existing municipal documents and guidelines directing development, and reviewing present emergency fire response plans, interagency cooperation, and cross-training. Based on the findings, recommendations and an implementation strategy were developed using the seven disciplines of wildland/urban interface approach.

1. Vegetation management
2. Development
3. Public education
4. Legislation
5. Interagency cooperation
6. Cross-training
7. Emergency planning

The Greater Bragg Creek Wildfire Mitigation Strategy recommendations focus on mitigative options at the structure, community, and landscape levels with the intent of reducing wildfire intensity and rate of spread as wildfire approaches development and improving structure survival as the wildfire enters the community. This plan is intended to supplement the Kananaskis Country Vegetation Management Strategy (Walkinshaw, 2008) which sets conceptual strategies to manage vegetation on the landscape to meet multiple objectives, including community protection and landscape-level wildfire management.

2 Planning Area and Stakeholders

The planning area includes lands within Rocky View County (RVC), including the Hamlet of Bragg Creek and Bragg Creek Provincial Park, and Kananaskis Improvement District (KID), including crown Provincial Recreation Areas and Rocky Mountain Forest Reserve lands (Map 1). The planning area is bordered on the east by the Tsuu T'ina First Nations lands.

RVC and KID have development authority for all lands within municipal boundaries, including Crown lands. Land management authority on crown lands is shared between AB. Sustainable Resource Development and AB. Tourism, Parks and Recreation.

RVC holds wildland and structural fire jurisdiction for all lands within their boundaries as they are outside of the Forest Protection Area. Within KID, wildland fire jurisdiction is held by AB. Sustainable Resource Development and structure fire jurisdiction is held by KID.

Spray Lake Sawmills (1980) Ltd. (SLS) is the Forest Management Agreement (FMA) holder within and adjacent to the planning area. The approved SLS Detailed Forest Management Plan (SLS, 2006) (DFMP) includes considerations for FireSmart forest management practices within the planning area.

Map 1 - Planning Area

-  Planning Area Boundary
-  Forest Protection Area Boundary
-  Tsuu T'ina First Nation Boundary
-  Spray Lake Sawmills FMA
-  Municipal Boundary
-  Parks & Protected Areas

**Kananaskis
Improvement
District**

**Rocky View
County**

**Tsuu T'ina
First Nation**

**MD Foothills
No. 31**

**MD
Bighorn
No. 8**

Twp Rd 232

Hamlet of
Bragg Cr

Bragg Creek
Prov Park

68

22

66

762

22X



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3 Hazard & Risk Assessment

The hazard and risk assessment process analyses the risk of wildfire ignition through analysis of fire incidence and historical wildfire data, the wildfire behavior potential through analysis of fuels and weather data, and the values at risk to wildfire through FireSmart hazard assessments.

3.1 Wildfire Incidence

The assessment of recent fire history was done using the provincial wildfire database for the twenty-year period from 1991 to 2010. The database consists of point source locations of all reported fires in the planning area and includes attributes related to fire date, size, and general cause. Data from Rocky View County was not available for this assessment. Historical fire occurrence was determined using the Sustainable Resource Development (SRD) spatial wildfire information for large fires (Class E>200 ha) for the years 1930 to 1940 and historical fire regime studies (Rogean, 2006) to describe spatial and temporal patterns of fire occurrence prior to modern fire suppression.

3.1.1 Recent Wildfire Analysis

Twenty-year analysis (1991 – 2010) of fire incidence data indicates a total of 37 wildfires in the planning area, not including those which would be included in RVC’s records. Human-caused ignition accounts for 97% of the wildfires and lightning accounts for 3% of wildfires (Table 1). Human-caused wildfires are generally located along major travel corridors and in the vicinity of recreation facilities, with many human-caused wildfires being found just outside the planning area (Map 2), including the Wintergreen Estates fire that burned from the east-side of the road into the subdivision in May/1993.

Table 1: Fire Incidence by General Cause 1991 – 2010

| General Cause | Number of Fires | Percent of Total |
|---------------|-----------------|------------------|
| Human | 36 | 97.3 |
| Lightning | 1 | 2.7 |
| Totals | 37 | 100.0 |

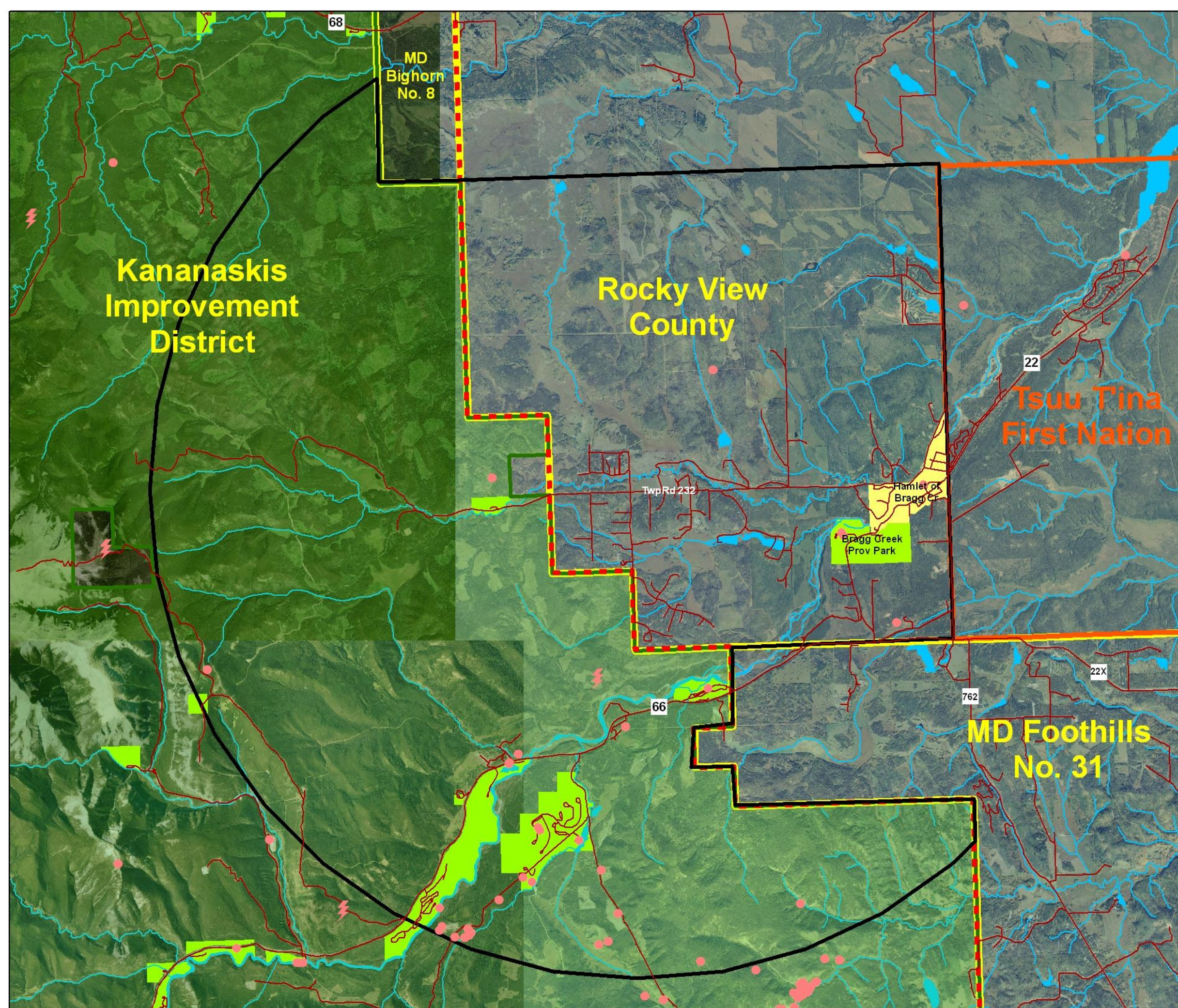
3.1.2 Historic Wildfire Analysis

Historical wildfire analysis shows that large wildfire occurs infrequently throughout the project area. Analysis of historic wildfire data prior to 1940 indicates that the threat of large-scale wildfire does exist under the appropriate conditions. Large wildfires occurred in Kananaskis Improvement District during the 1880’s and 1890’s, 1910, and 1936 and exhibited extreme fire behavior and rapid spread rates in areas that currently have significant interface structural values at risk.

The risk of wildfire in the planning area is significant and most frequently occurs in areas accessible to recreating public and residents.

Map 2 - Wildfire Incidence 1991 - 2010

- Human-Caused Wildfire
- ⚡ Lightning-Caused Wildfire
- ▭ Planning Area Boundary
- - - Forest Protection Area Boundary
- ▭ Tsuu T'ina First Nation Boundary
- ▭ Spray Lake Sawmills FMA
- ▭ Municipal Boundary
- ▭ Parks & Protected Areas



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3.2 Wildfire Behaviour Potential

3.2.1 Wildland Fuel Types

Fire Behavior Prediction (FBP) fuel types were derived using Alberta Vegetation Inventory data processed with AVI2FBP software. Fuel types in the planning area consist predominantly of mature pine (C-3) spruce (C-2) in the west-half and a mixture of mature pine and spruce, deciduous (D-1), and cured grass (O1a) in the east-half (Map 3). Many of the planning area developments are located in or near flammable wildland fuel types, increasing the threat of wildfire to the structures.

3.2.2 Fire Weather Analysis

Ten years of historical fire weather (Apr 1 – Oct 31 1999-2008) from the Elbow auto weather station (B7) was used to determine the number of high hazard days based on fire weather indices.

Critical burning days are defined as Extreme fire hazard days with an Initial Spread Index (ISI) greater than 11 and a Fire Weather Index (FWI) greater than 14. From a total of 1675 fire season days, 32% (536 days) had an FWI value greater than 14 and 9% (156 days) had an FWI greater than 14 and an ISI greater than 11. This indicates that an average of 16 days per fire season will have fire weather indices sufficient to provide extreme wildfire behavior.

Analysis of wind direction (B7 Wx Stn) shows that the predominant wind directions are from the E and NE (44%) and SW and W (25%) (Figure 1). The strongest winds are from the W and SW and these winds are present on 65% of the critical burning days when FWI is greater than 14 and ISI is greater than 11. This indicates that the primary wildfire threat for the planning will be from the W and SW.

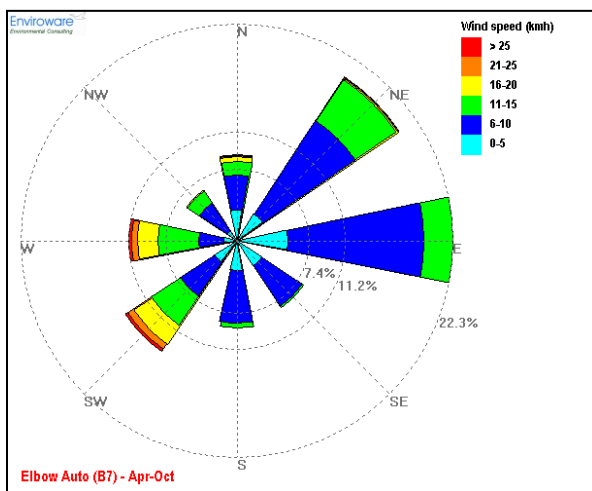















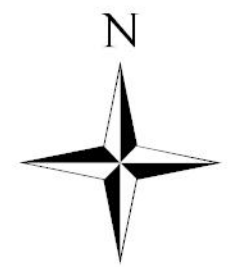
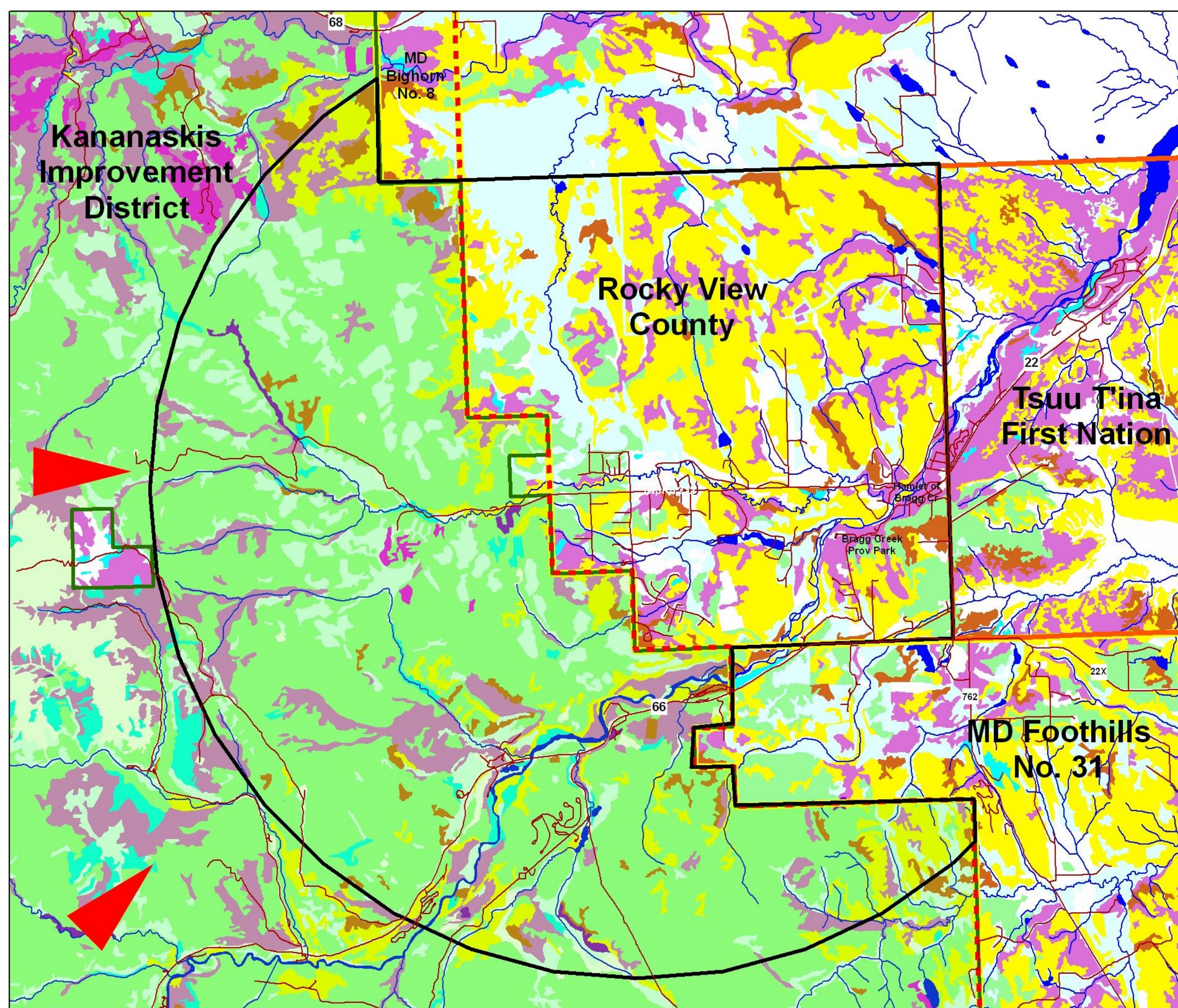


Figure 1 – Elbow Auto (B7) Windrose April – October

Wildland fuels and fire weather data indicates that the potential for High to Extreme wildfire behaviour exists in the Greater Bragg Creek planning area.

Map 3 - FBP Fuel Types

-  Spruce-Lichen Woodland (C-1)
-  Boreal Spruce (C-2)
-  Mature Pine (C-3)
-  Immature Pine (C-4)
-  Open Mature Pine (C-7)
-  Deciduous (D-1)
-  Mixedwood (M-1)
-  Non-Fuel (NF)
-  Cured Grass (O1)
-  Predominant/Strongest Winds (Critical Burning Days)
-  Planning Area Boundary
-  Forest Protection Area Boundary
-  Tsuu T'ina First Nation Boundary
-  Spray Lake Sawmills FMA
-  Municipal Boundary



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3.2.3 Wildfire Behavior Potential

The Sustainable Resource Development Wildfire Threat Assessment model was used to evaluate fire behavior potential on a seasonal basis. The model indicates that the highest fire behavior potential occurs during the fall season (Aug. 15 – Oct. 31) (Figure 2), due to drying of fuels and buildup of indices throughout the fire season and curing of grass and brush fuel types.

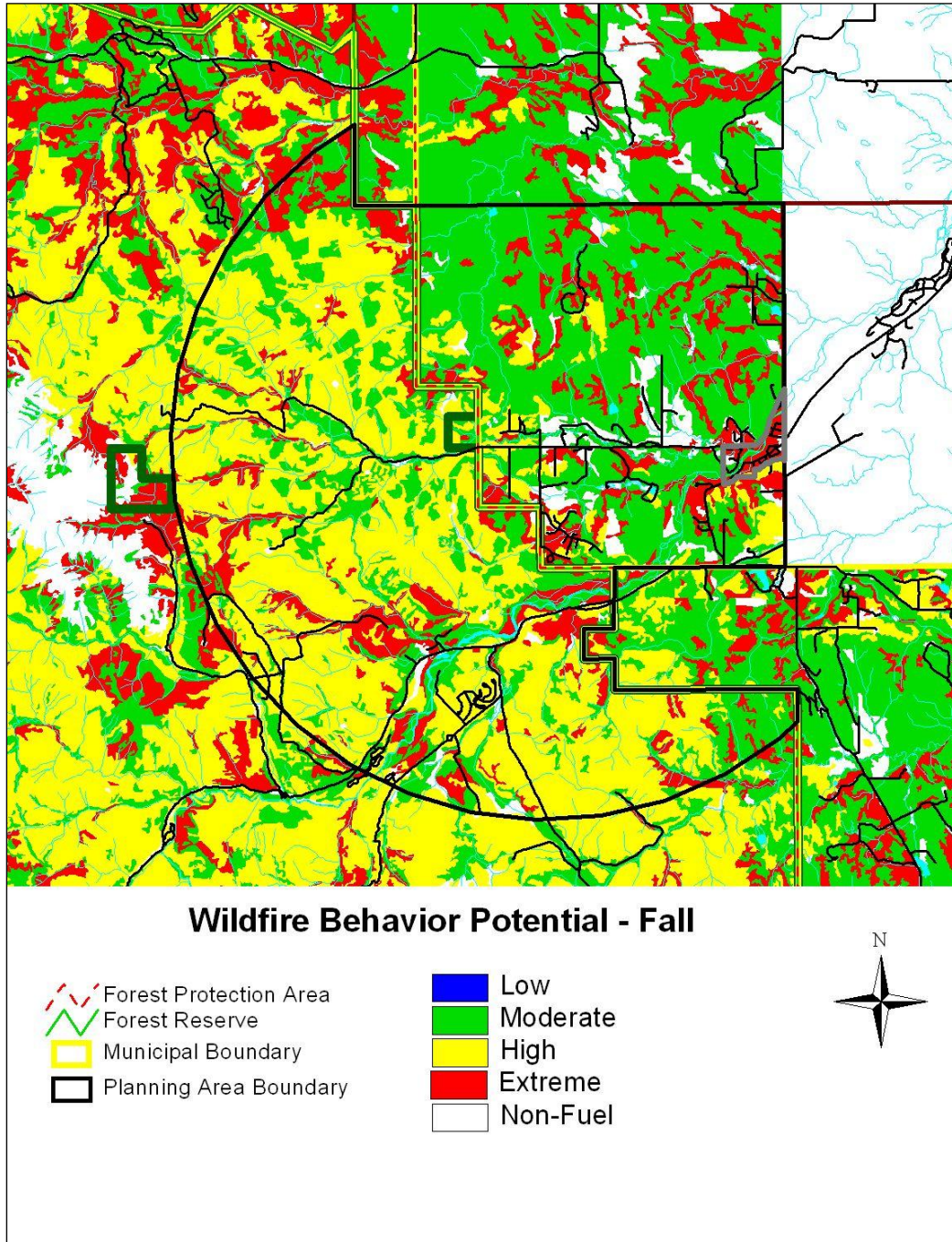


Figure 2 – Fall Wildfire Behavior Potential

3.3 Values at Risk FireSmart Hazard Assessments

FireSmart hazard assessments (P.I.P., 2003) were conducted on developments and adjacent wildland fuel types within the planning area (Table 2 and Map 4). The FireSmart hazard assessment process evaluates wildland and structural fuel types, structural features, and topography within and adjacent to the development area to consistently quantify the wildland/urban interface hazards within the planning area and to help set priorities for mitigative options.

While average conditions were used to rate each development area, it is important to understand that individual structures within a development may have a higher or lower FireSmart hazard class rating based on the exterior structural and vegetation characteristics of the structure.

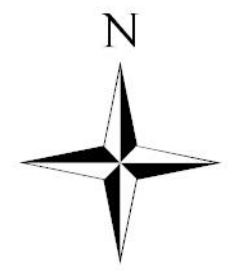
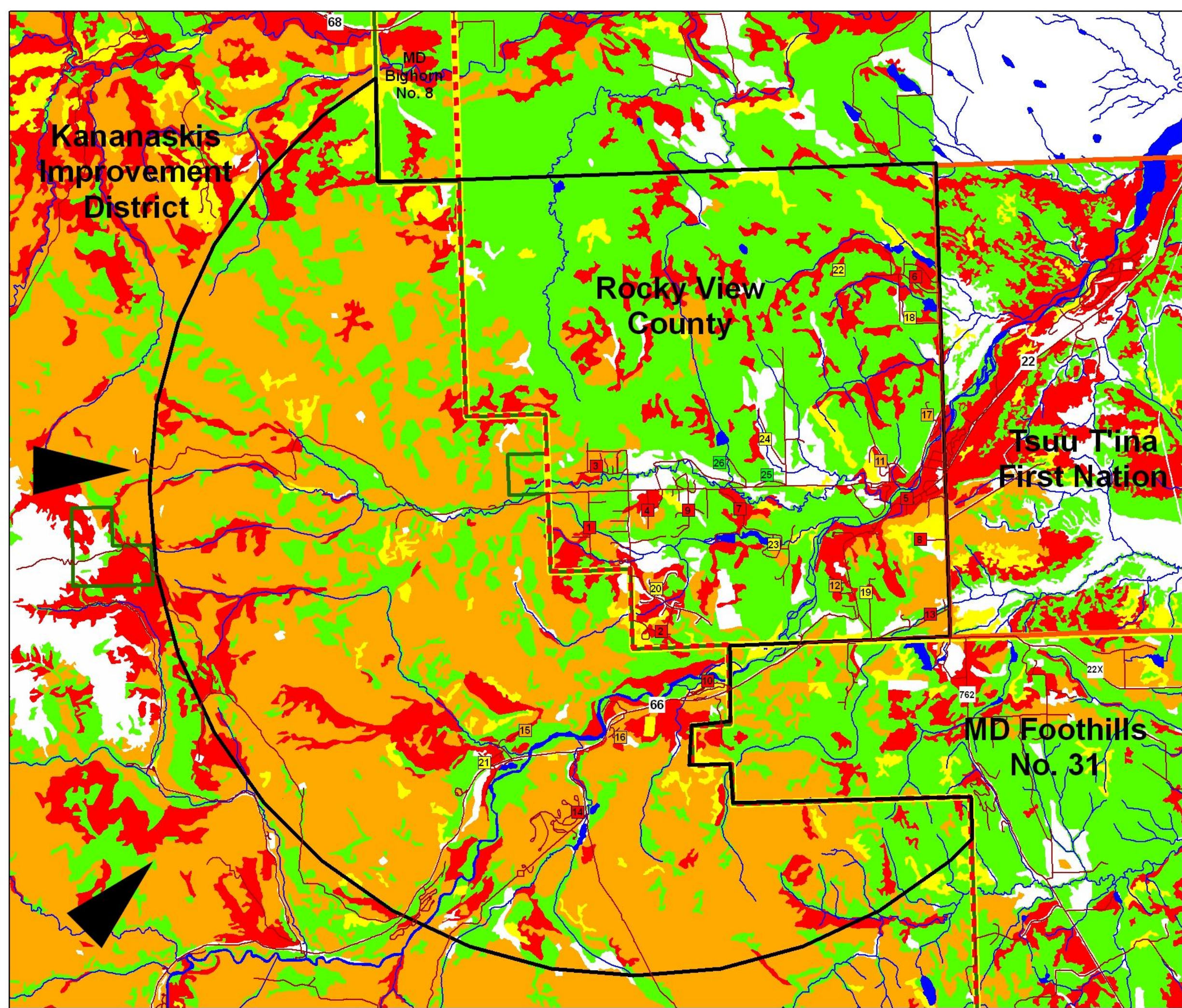
Table 2: FireSmart Hazard Assessments

| Map Key | Development Name | Structure/Site Hazard (0 – 30m) | Area Hazard (30 – 100m) |
|---------|-------------------------------|---------------------------------|-------------------------|
| 1 | Forestry Way | Extreme | Extreme |
| 2 | Elk Valley Park | Extreme | Extreme |
| 3 | Hawkeye/Bonnie Brae Estates | Extreme | Extreme |
| 4 | Breezewood Bay/Forest Heights | Extreme | Extreme |
| 5 | Hamlet of Bragg Creek | Extreme | Extreme |
| 6 | Wintergreen Estates | Extreme | Extreme |
| 7 | Wildrose Estates - North | Extreme | High |
| 8 | East Park Place | Extreme | High |
| 9 | Meadow View Road | Extreme | High |
| 10 | Elbow Info Centre | Extreme | High |
| 11 | Elkana Estates | High | High |
| 12 | 100 Acre Wood | High | High |
| 13 | Boyce Ranch Estates | Extreme | Moderate |
| 14 | McLean Creek Campers Village | Extreme | Moderate |
| 15 | Elbow R/S Housing | High | Moderate |
| 16 | Camp Horizon | High | Moderate |
| 17 | Elbow Rise CR Sub | High | Moderate |
| 18 | Wintergreen Way | Moderate | High |
| 19 | Sleepy Hollow | Moderate | Moderate |
| 20 | Elk Valley Estates | Moderate | Moderate |
| 21 | Elbow Firebase | Moderate | Moderate |
| 22 | Queen of Peace Youth Camp | Moderate | Moderate |
| 23 | Wildrose Estates - South | Moderate | Low |
| 24 | Fawn Hills | Moderate | Low |
| 25 | Mountain View Park | Low | Low |
| 26 | Saddle & Sirloin Acres | Low | Low |

FireSmart hazard is High/Extreme for several development areas within the planning area and the threat of multiple structure losses to wildfire is significant.

Map 4 - FireSmart Hazard

- Low
- Moderate
- High
- Extreme
- Predominant/Strongest Winds (Critical Burning Days)
- Planning Area Boundary
- Forest Protection Area Boundary
- Tsuu T'ina First Nation Boundary
- Spray Lake Sawmills FMA
- Municipal Boundary



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4 Vegetation Management Options

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

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

- Fuel removal
- 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*” (PIP 2003).

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

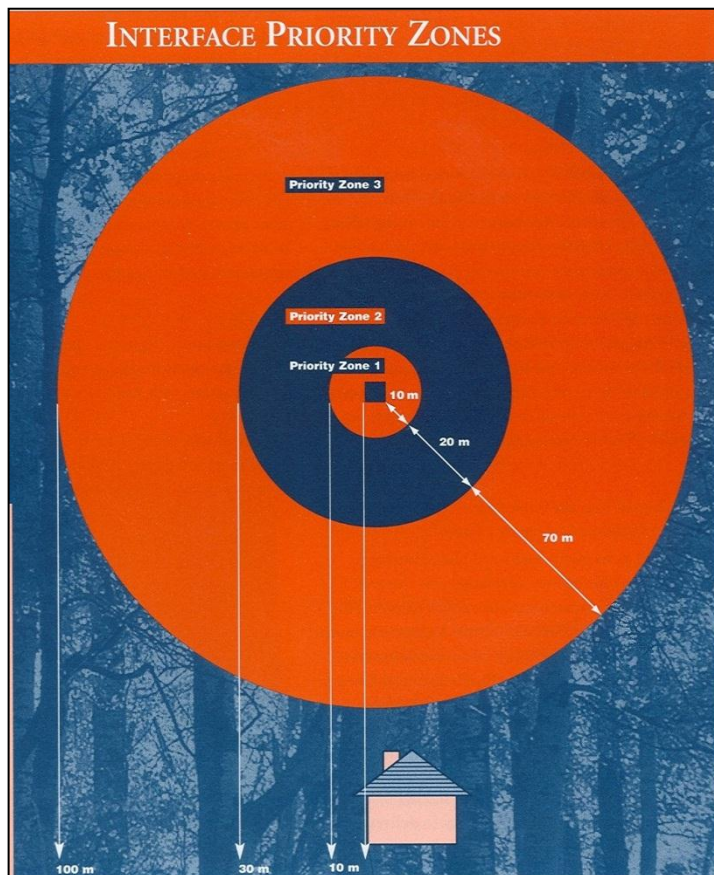


Figure 3 – Interface Priority Zones (PIP, 2003)

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 from 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 from 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.



4.1 Existing Vegetation Management

FireSmart vegetation management projects have been performed at Camp Horizon, the Elbow Ranger Station/Firebase, Queen of Peace Youth Camp, and recently in several Rocky View County municipal reserves in Elkana Estates, Hamlet of Bragg Creek, Elk Valley, and Wintergreen (Map 5).

Ongoing inspections and maintenance of all completed fuel modification projects is required on a regular basis to ensure fuelbreak effectiveness is maintained.

Recommendation 1: Ensure that all fuel modification projects are inspected on a regular basis and maintained as necessary.

4.2 Proposed Vegetation Management

Vegetation management is proposed at the structure (Zone 1-2) and community reserve (Zone 2-3) levels to provide *FireSmart* defensible space adjacent to structures and at the landscape level (Zone 3) to provide containment areas on the forest reserve lands. Conceptual vegetation management areas are offered in this plan with the understanding that *detailed fuel modification plans must be developed prior to implementing any of these projects.*

Recommendation 2: Detailed fuel modification prescriptions must be developed for each proposed vegetation management project prior to implementation.

4.2.1 Zone 1-2

Zone 1-2 vegetation management is the responsibility of the homeowner and is required for the majority of the structures in the planning area. It is the *highest priority area* for fuels management. Zone 1 vegetation management options include:

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

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

Recommendation 3: Zone 1-2 vegetation management is necessary for a large proportion of the structures in the project area and is the responsibility of residents, business owners, and facility operators. Vegetation management required includes:

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

4.2.2 Zone 2-3

Zone 2-3 vegetation management is the responsibility of private landowners and residents on larger rural properties that influence interface hazard to neighboring properties, Rocky View County on the Municipal Reserve (MR) and Environmental Reserve (ER) lands within country-residential subdivisions, and the provincial government and Kananaskis Improvement District and facility operators on crown lands in the forest reserve.

A priority ranking system has been used to place vegetation management areas into Priority A or B categories, based on interface hazard and values at risk, with Priority A being the highest priority (Table 3).

Several conceptual fuel modification areas have been proposed for the MR/ER lands within Elk Valley Park, Wildrose Estates, Elkana Estates, Wintergreen Estates, Bonnie Brae Estates, and the Hamlet of Bragg Creek and on provincial Crown lands for Elbow Information Station, Camp Horizon, Elbow Ranger Station Housing, McLean Creek Campers Village, and Bragg Creek Provincial Park (Map 5).

Table 3: Priority Vegetation Management Areas

| Priority | Development Node | Structure & Site Hazard Level | Area Hazard Level |
|----------|--|-------------------------------|-------------------|
| A | Hamlet of Bragg Creek | Extreme | Extreme |
| A | Elk Valley Park | Extreme | Extreme |
| A | Wintergreen Estates | Extreme | Extreme |
| A | Hawkeye/Bonnie Brae Estates | Extreme | Extreme |
| A | Meadow View Rd. | Extreme | Extreme |
| A | East Park Place (Bragg Creek Prov. Park) | Extreme | High |
| A | Wildrose Estates - North | Extreme | High |
| A | Elbow Info Centre | Extreme | High |
| A | Elkana Estates | High | High |
| B | McLean Creek Campers Village | Extreme | Moderate |
| B | Elbow R/S Housing | High | Moderate |
| B | Camp Horizon | High | Moderate |
| B | Wildrose Estates - South | Moderate | Low |

Recommendation 4: Zone 2-3 vegetation management is the responsibility of municipal and provincial governments, residents and landowners, and business owners/facility operators. All stakeholders should implement fuels reduction based on the priorities identified in this plan.

Recommendation 5: RVC should consider innovative methods to assist private landowners with debris disposal from Zone 1, 2, and 3 private land FireSmart vegetation management actions.

Environmental reserve lands within Rocky View County subdivisions represent the largest area and highest municipal land base threat to planning area developments however, Section 664(3)(b) of the Municipal Government Act (MGA) states that “*The environmental reserve easement must require that land that is subject to the easement remain in a natural state as if it were owned by the municipality, whether or not the municipality has an interest in land that would be benefitted by the easement*”.

This section of the Municipal Government Act limits the municipality’s ability to complete fire hazard reduction work on environmental reserve lands resulting in a significant hurdle to the creation of FireSmart communities throughout the province. In Rocky View County’s case, the inability to complete fire hazard reduction work on ER lands results in significant wildfire threat to development and structural fire threat to the wildlands.

Recommendation 6: Rocky View County, along with other municipal governments, and Sustainable Resource Development should investigate the possibility of amending Section 664(3)(b) of the Municipal Government Act to permit fire hazard reduction on environmental reserve lands.

4.2.3 Priority Zone 3

Policy 8.2.1(h) of the Greater Bragg Creek Area Structure Plan (MDRV, 2007) states that in the short-term “*A partnership between the Municipality, Kananaskis Improvement District and Alberta Sustainable Resource Development should be investigated with a goal of constructing a fire break within lands south and west of the Plan area. The MD should work closely with Sustainable Resource Development to investigate the goal of establishing firebreaks within the lands south and west of the Plan area.*”

The lands referred to in Policy 8.2.1(h) are forested Provincial crown lands within the Spray Lake Sawmills (1980) Ltd. Forest Management Agreement (FMA) area. The Spray Lake Sawmills detailed forest management plan (DFMP) (SLS, 2006) identifies the need to manage for multiple objectives including forest management and fire management on the Forest Management Agreement lands within the planning area.

Based on the hazard and risk assessment and values at risk in the Greater Bragg Creek planning area, *preliminary* planning for two containment areas on the Forest Reserve lands south and west of Bragg Creek is ongoing. The intent of the containment areas is to

provide fire managers with operational fuelbreaks to deploy defensive strategies and tactics to reduce wildfire intensity and rate of spread before it reaches the developed areas. Both containment areas are within the Spray Lake Sawmills (1980) Ltd. Forest Management Agreement area.

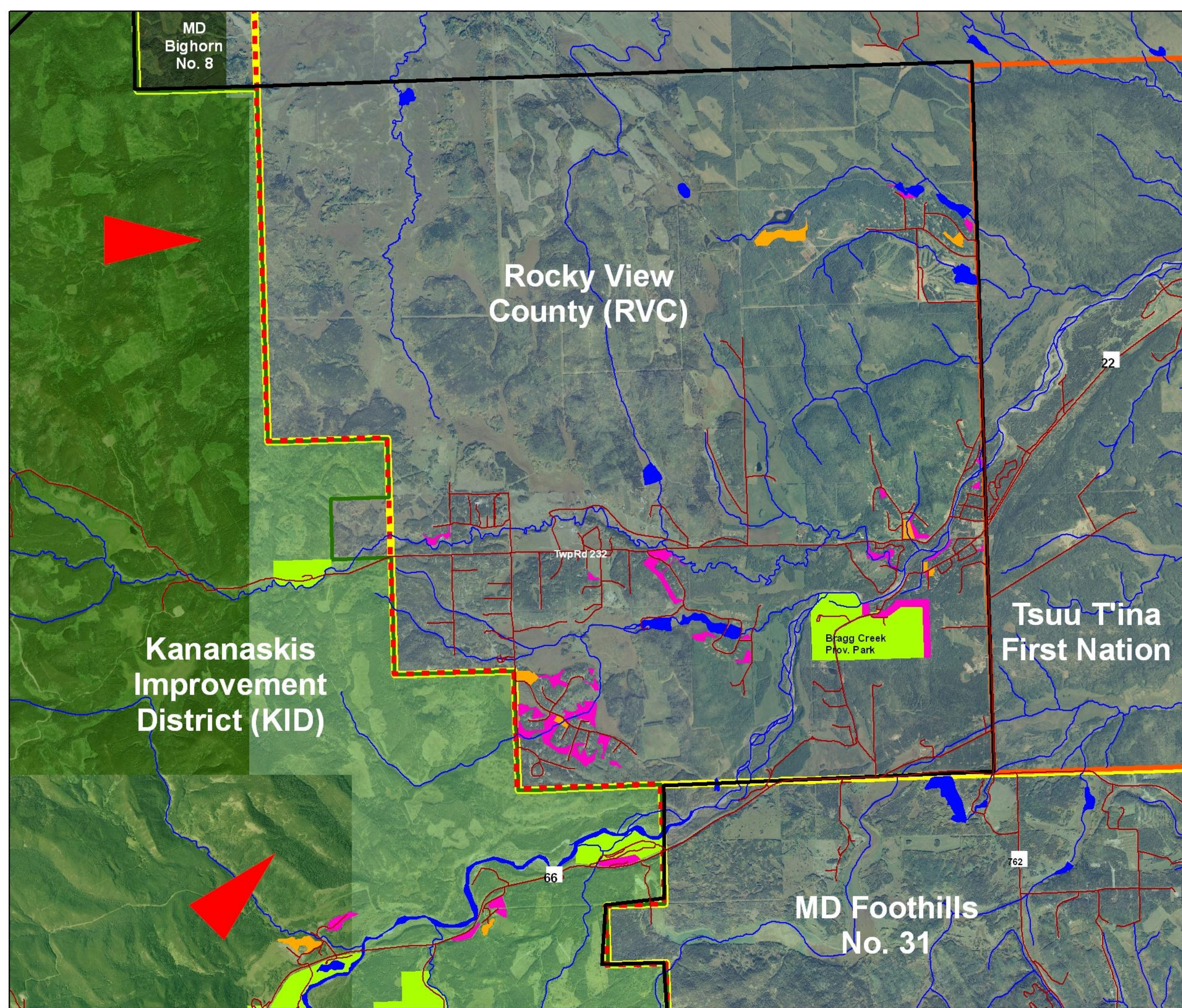
Detailed planning, public consultation, and harvest operations will be conducted by Spray Lake Sawmills (1980) Ltd. and will be subject to all Provincial legislation and standards, the Spray Lake Sawmills (1980) Ltd. Detailed Forest Management Plan (SLS, 2006), and the Spray Lake Sawmills (1980) Ltd. FMA Timber Harvest Planning and Operating Ground Rules (SLS, 2009).

The West Bragg Creek Land Users Group has been working together to ensure that all land users' needs are met in the multiple-use planning process through development of the West Bragg Creek Land Users Agreement (Appendix II). The groups needs include, but are not limited to, trails development and management (West Bragg Creek Trails Association/Calgary Mountain Bike Alliance and AB. Tourism, Parks and Recreation), FireSmart containment area strategy (AB. Sustainable Resource Development and Spray Lake Sawmills), and range management (grazing allotment holders).

Recommendation 7: Zone 3 containment areas should be planned with collaboration of all parties in the West Bragg Creek Land Users Group. The responsibility for approval lies with Sustainable Resource Development and the strategy will be implemented jointly by Sustainable Resource Development and Spray Lake Sawmills (1980) Ltd.

Map 5 - Fuel Modification

- Completed RVC/KID Zone 2-3 Fuels Reduction
- Proposed RVC/KID Zone 2-3 Fuels Reduction
- Predominant/Strongest Winds (Critical Burning Days)
- Planning Area Boundary
- Forest Protection Area Boundary
- Tsuu T'ina First Nation Boundary
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- Municipal Boundary
- Parks & Protected Areas



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5 Development Options

As the wildland/urban interface issue becomes more widely recognized as a safety issue in Alberta, the design and construction of structures, subdivisions, access systems, water supply, and utilities within new subdivisions will reflect these concerns. Municipalities must incorporate wildfire at the planning stage of the development and ensure that adequate structural and infrastructure options are implemented to minimize the interface hazard. Wildfire must be identified as a risk and incorporated into land use and development planning at the initial stages of any development that is located in the wildland/urban interface.

Development options include structural considerations such as location on site, exterior construction materials, and additions such as balconies, porches and decks. Infrastructure options include access road design, water supply, utility installation, and signage.

5.1 Structural Options

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



Combustible roofing materials are the main cause of structure loss in wildland/urban interface fires. Combustible wood-shake roofing materials are found in developments throughout the planning area with many of the developments having significant proportions of combustible roofs.

Siding materials contribute to structure loss, especially if flammable wildland fuels are close to the structure. The majority of structures in the planning

area have flammable exterior siding materials, increasing the chances of structure loss.

Many of the structures within the planning area have exposed decks and porches and flammable woodpiles and combustibles within 10 metres, increasing the chances of structure loss to wildfire.

Recommendation 8: Establish and implement FireSmart standards for exterior building materials for all new developments and retrofits of existing structures.

5.2 Infrastructure Options

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

5.2.1 Access Routes

Access road standards vary significantly throughout the planning area with some access roads that are impassable for large fire suppression apparatus.



The West Bragg Creek (Centre Ave/Twp Rd 232) and Wintergreen Roads are narrow dead-end roads which must cross the Elbow River at the Bragg Creek bridge. Resident evacuation on the west side of the Elbow River may be limited by the width of road and the single bridge access. As a result, emergency personnel will be severely limited in implementing an organized evacuation of the area.

Several subdivision access roadways and private driveways are narrow, steep, have poor turn-arounds, and/or travel through dense coniferous forest putting emergency responders at risk during a wildfire event.

Access route standards specified in *“FireSmart – Protecting Your Community from Wildfire”* (2003) are the recommended minimum guidelines for interface developments.



Recommendation 9: Establish and legislate FireSmart access road standards for all new developments to ensure safe ingress and egress routes for residents/public and emergency responders.

5.2.2 Water Supply

The majority of developments in the planning area do not have a fire suppression water supply and rely on mobile fire service water tenders. Elkana Estates has a private water tender fill station, Fawn Hills has an underground fire suppression water tank, and Wildrose Country Estates has a large water pond with two dry-hydrant fill stations.

RVC is considering the construction of a water treatment plant and installation of a limited hydrant system within the Hamlet of Bragg Creek however a final decision has not yet been made. Elkana Ranch will likely be connected to the RVC water utility in 2012, possibly making their Elbow River water gallery and pumphouse available as an additional water tender fill station.



Recommendation 10: Ensure that adequate fire suppression water supply is provided for the Hamlet of Bragg Creek and all new developments within Rocky View County. Consideration should be given by RVC to the integration of the existing Elkana Ranch Elbow River water gallery and pumphouse as a water tender fill station.

5.2.3 Franchised Utilities

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



Electrical Power

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

Recommendation 11: Establish a powerline tree-freeing program with the distribution power provider to reduce the threat of wildfire ignition from downed powerlines.

Gas

Gas distribution is provided by underground natural gas throughout the planning area.

Above-ground propane tanks for heating gas are found at the Elbow Ranger Station/Firebase and McLean Creek Campers Village. Propane tanks at the Elbow Ranger Station housing area do not have adequate defensible space from wildland fuels.



Recommendation 12: Ensure adequate FireSmart defensible space is established and maintained around propane tanks at Elbow Housing area.

5.2.4 Signage

FireSmart standards (PIP, 2003) recommend the following standards for interface signage:

- Signs should be clearly visible and legible from the road and use a consistent system that provides for sequenced or patterned numbering and non-duplicated naming.
- Signs should be built of non-combustible materials and mounted 2 metres above the surface of the road.
- Letters, numbers, and symbols used on all signs should be at least 10 centimetres high with a 12 millimetre stroke, contrast with the background color of the sign, and be reflective.

Road, facility, and address signage differs between developments however the majority of road and address signage is adequate. Improvements could be made in FireSmart standardization for address signage within all Rocky View County subdivisions.

Recommendation 13: Develop and implement a standardized FireSmart signage system for Rocky View County address signage.

6 Public Education Options

Residents, business owners, and facility operators need to be aware of the issues related to *FireSmart* development and the solutions to minimizing the risk and need to become a partner in implementation of the solutions in their communities. Public education is a large part of the solution to success.

Several public education events have been held over the past few years to inform area stakeholders of the FireSmart issues and methods to reduce the threat of wildfire to their properties. Open houses, booths at Bragg Creek Days, parade floats, local newspaper articles, and door-to-door visits by municipal firefighters have been used to reach the public.



The Bragg Creek FireSmart Committee has discussed the desire to reach the public in different ways including completion of some FireSmart demonstration forest areas for the public to view and gain understanding of the issues and solutions. The first Rocky View County FireSmart Demonstration Forest grand opening was held September 19, 2009 and was attended by local residents, Rocky View County administration and elected officials, Sustainable Resource Development representatives, and Greater Bragg Creek FireSmart Committee members.

Recommendation 14: The Greater Bragg Creek FireSmart Committee and Rocky View County should professionally build and implement a FireSmart Communications Plan to ensure that target audiences, effective key messages, and communications methods and tools are identified.

Recommendation 15: Provide an open house and information session to inform public and stakeholders of the findings and recommendations of the Greater Bragg Creek Wildfire Mitigation Strategy.

Recommendation 16: Resident education should focus on the following items in order of priority:

- FireSmart Zone 1 and 2 fuels management and FireSmart landscaping options
- FireSmart structure and site maintenance focusing on annual maintenance items
- FireSmart structural options including roofing and siding materials, decks/open spaces, and combustibles storage
- Emergency planning including evacuation planning and structure and site preparation during a wildfire

Recommendation 17: Develop the Rocky View County FireSmart Demonstration Forest areas to provide FireSmart educational opportunities for all local residents of the area to understand the role of wildfire in the area and the need for FireSmart actions to reduce the threat to values at risk.

7 Legislation Options

Legislating *FireSmart* requirements for structural materials, infrastructure, and vegetation management is an important step to *FireSmart* development in a municipality.

Rocky View County utilizes the Municipal Development Plan (MDP), Land Use Bylaw (LUB), and the Greater Bragg Creek Area Structure Plan (ASP) to control land use and development within the planning area. A review of each of these documents revealed that presently there are no specific *FireSmart* policies or regulations in the MDP or LUB but there are significant *FireSmart* policy statements in the ASP. There are also several Municipal bylaws that regulate disaster and emergency services, which will be discussed in Section 9.

Section 8.2 of the ASP provides a “vision” statement for the year 2030 that states “*In order to mitigate risks associated with wildland/community interface development, an alternate municipal collector road has been constructed to service lands west of the Elbow River. As well, a water supply and distribution system provides urban levels of fire flows within the Hamlet Service area; and all new subdivision within the Community has been required to implement specific architectural standards that encourage use of fire resistant construction materials and appropriate site design and landscape techniques. Additionally, all local landowners regularly participate in “fuel reduction programs” designed to reduce unnecessary vegetation*” (MDRV 2007). This long-term vision provides the direction for the *FireSmart* legislation recommendations included in this strategy.

Recommendation 18: Complete a review and revise all applicable RVC bylaws and planning documents to ensure alignment with the Greater Bragg Creek Wildfire Mitigation Strategy and *FireSmart* best-practices.

7.1 Rocky View County Municipal Development Plan

The Rocky View County Municipal Development Plan (MDP) (MDRV, 1998) expresses the County’s vision for the future and describes the means by which the vision will be realized. The Plan describes the Municipal philosophy regarding the use of land for agriculture, residential, business, resource or other purposes.

The MDP has policies in Sections 5, 6, and 8 that refer to the ability of the County to assess developments based on natural or man-made hazards and to require any additional studies, reports and tests to be completed at the developer’s expense. These policies however, do not specifically deal with wildland/urban interface hazard and risk.

Recommendation 19: Complete a review and update of the Rocky View County Municipal Development Plan to include a policy that requires the “*preparation and submission of a Wildfire Risk Assessment, completed by a qualified professional, and a requirement to implement the recommendations for all new developments in the Greater Bragg Creek planning area*”.

7.2 Rocky View County Land Use Bylaw

The Rocky View County Land Use Bylaw (LUB) (MDRV, 1998) regulates the use and development of land and buildings, as per the MDP. It divides the County into land use districts and establishes subdivision design and development standards with respect to each land use district. It is within the LUB that specific FireSmart development regulation can be achieved.

The present MD of Rocky View LUB has *no specific reference to FireSmart development standards*.

Recommendation 20: Complete a review and update the Rocky View County Land Use Bylaw to consider revision or inclusion of the following FireSmart policies.

a) Revise Section 20.1(d) to read:

20.1 The Development Authority may consider with respect to land that is the subject of an application for a Development Permit:

(d) its potential for flooding, subsidence, erosion, *or wildfire*;

b) Structure Exterior - Add Sections to read:

i) All roofing materials on new, replacement, or retrofitted dwellings, accessory buildings and commercial buildings within 2 kilometres of High and Extreme FireSmart hazard class areas shall meet a minimum Class “C” U.L.C. rating or as specified by the Development Authority based on wildland/urban interface hazard and risk.

ii) All siding materials on new, replacement, or retrofitted dwellings, accessory buildings and commercial buildings within High and Extreme FireSmart hazard class areas shall use fire resistant materials a minimum of 12 millimetres thick and extend from ground level to the roofline.

iii) All new dwellings, accessory buildings, and commercial buildings with exposed undersides and/or with raised decks and porches less than 2 metres from ground level shall be sheathed from the floor level to the ground level to prohibit the entry of sparks and embers under the structure.

c) Water Supply – Add a Section to read:

i) All new multi-lot subdivision developments and commercial developments shall be required to provide adequate fire suppression water supply as required by the Development Authority.

d) Vegetation Management – Add Sections to read:

i. All new dwellings, accessory buildings, and commercial buildings shall establish and maintain *FireSmart* defensible space for a minimum of 30 metres from the structure or to lot boundary.

ii) All new dwellings, accessory buildings, and commercial buildings shall have a minimum of one-metre of non-combustible surface cover (gravel, rock, concrete, etc.) around the perimeter of the structure. All new exposed decks, greater than 2 metres from ground level shall require a minimum one-metre of non-combustible surface cover placed around the outside perimeter and underneath.

iii) Fire resistant species, as per the attached list and *FireSmart – Protecting Your Community from Wildfire* (2003), shall be used for all landscaping within 10 metres of the all structures.

e) Access Standards – Add a Section to read:

i) Access to all new dwellings and commercial buildings shall meet adequate standards for emergency vehicle access as requested by the Development Authority.

7.3 Greater Bragg Creek Area Structure Plan

The Greater Bragg Creek Area Structure Plan (ASP) (MDRV, 2007) has several FireSmart policies including:

- Recognition that the Greater Bragg Creek area is located in the wildland/urban interface (Policy 3.1).
- Recognition that access and egress for all lands west of the Elbow River and fire suppression water supply for the entire area is limited and recommendations that alternate access and improved water supply is required (Policies 3.3.4, 6.2.4, 8.2.1).
- Identification of the need to develop a wildland/urban interface assessment of the Greater Bragg Creek area to establish a framework for development of subsequent land use policies designed to mitigate identified risks (Policy 4.2).
- Identification of the need to minimize natural vegetation removal while encouraging selective vegetation removal based on FireSmart principles (Policies 5.1.1, 5.2.1, 7.2.1, 7.4.1).
- Encouragement of FireSmart education opportunities for local stakeholders (Policies 5.1.6, 10.1.5).
- Recognition of the need for developers to submit a Wildfire Risk Assessment, prepared by a qualified professional, for any new developments (Policies 7.1, 8.2.2).
- Design and implementation of a community fuel load reduction program to encourage reduction of vegetative materials in proximity to combustible structures on all public and private property (Policies 8.2.1, 8.2.2, 10.1.13).
- Recommendation that RVC should establish a partnership with KID and SRD to investigate construction of a firebreak within lands south and west of the Plan area (Policies 8.2.1, 10.1.13).
- Recommendations for new developments that:
 - All roofs within the Hamlet of Bragg Creek shall be constructed of fire resistant materials in compliance with the Alberta Building Code (Policy 11.1.2).
 - Early warning devices should be considered (Policy 8.2.1).
 - The use of external and internal sprinklers is recommended (Policy 8.2.1).

Recommendation 21: Review and implement all FireSmart recommendations/policies from the Greater Bragg Creek Area Structure Plan (2007).

8 Inter-Agency Cooperation and Cross-Training Options

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

Agency representatives have been working together for many years on *FireSmart* issues and cross-training for the Greater Bragg Creek planning area including:

- Formation of the Bragg Creek FireSmart Committee.
- Cooperation in developing and implementing several FireSmart public open houses in Bragg Creek.
- Provision of Fire Operations in the Wildland/Urban Interface (S-215), Wildland Fire Fighter (NFPA 1051 Level I), and Wildfire Orientation training to members from Rocky View Fire Services, Redwood Meadows Fire Department, and Kananaskis Emergency Services.
- SRD and RVC have entered into a formal Mutual-Aid Agreement to assist with administrative and operational issues related to mutual-aid response.

At present, new development applications are not referred by Rocky View County Planning and Development to Rocky View Fire Services for FireSmart review and comment.

Recommendation 22: All new development applications should be referred by Rocky View Planning and Development department to Rocky View Fire Services for FireSmart review and comment.

Recommendation 23: The Greater Bragg Creek FireSmart Committee should continue to be the coordinating group for all agencies and stakeholders involved in the Greater Bragg Creek *FireSmart* program.

Recommendation 24: Rocky View Fire Services and Redwood Meadows Emergency Services staff should be cross-trained and certified to the following minimum standards:

- Wildland Firefighter (NFPA 1051 Level I or equivalent)
- Structure & Site Preparation Workshop (S-115)
- Fire Operations in the Wildland/Urban Interface (S-215)
- Incident Command System (I-100 to I-400) as applicable

Sustainable Resource Development should assist with this cross-training where applicable and qualified training providers should be used.

9 Emergency Planning Options

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

Rocky View County has several emergency services bylaws and guidelines including:

- Municipal Disaster Services Bylaw (1998)
- Emergency Services Bylaw (2004) (Presently under revision)
- Mutual-Aid Bylaw (1993)
- Fire Permit Bylaw (2002)
- Fire Pit Guidelines (2009)

The Rocky View County Municipal Emergency Plan (MEP) is the primary document to direct municipal emergency response and recovery activities for emergencies in Rocky View County. The purpose of the plan is to provide a prompt and coordinated response to emergencies affecting Rocky View County. The plan provides details on procedures to be followed during a wildfire for use of mutual-aid resources, public notification, evacuation, and wildfire response. The Municipal Emergency Plan is presently under revision and not available for review.

The Bragg Creek Community Zone Pre-Suppression Plan (Walkinshaw, 2007) was developed for the planning area to identify fire behavior potential, values at risk, and fire operations strategies and tactics during a wildland/urban interface incident however the plan requires updating.

Recommendation 25: Ensure that wildland/urban interface fire is recognized as a risk in the updated Rocky View County Municipal Emergency Plan and that Sustainable Resource Development is consulted for input into the plan.

Recommendation 26: Develop a detailed Community Wildfire Pre-Plan for the Greater Bragg Creek planning area to provide greater detail to emergency responders during a wildland/urban interface incident.

Recommendation 27: Conduct a wildland/urban interface emergency exercise to train local emergency responders, test the pre-plan for operational effectiveness, and educate residents of the issues and impacts related to interface fire incidents.

10 Implementation Plan

The goal of the implementation plan is to identify the responsible stakeholders for each of the recommendations and set timelines for commencement and completion based on priorities and funding availability.

Vegetation Management

| Issue | Recommendation | Responsible Agency |
|--|---|---|
| Fuel Modification Maintenance | Recommendation 1: Ensure that all fuel modification projects are inspected on a regular basis and maintained as necessary. | Land Owners Land Managers |
| Fuel Modification Prescription Planning | Recommendation 2: Detailed fuel modification prescriptions must be developed for each proposed vegetation management project prior to implementation. | Rocky View County Kananaskis Imp District AB. SRD / TPR |
| Zone 1-2 Vegetation Mgt | Recommendation 3: Zone 1-2 vegetation management is necessary for a large proportion of the structures in the project area and is the responsibility of residents, business owners, and facility operators. Vegetation management required includes: <ul style="list-style-type: none"> ▪ Removal of flammable forest vegetation within 10 metres of structures. ▪ Removal of all coniferous ladder fuels (limbs) to a minimum height of 2 metres from ground level on residual overstory trees. ▪ Removal of all dead and down forest vegetation from the forest floor. ▪ Increased maintenance to ensure that all combustible needles, leaves, and native grass are removed from on and around structures. ▪ Establishment and maintenance of a non-combustible surface cover around the structure including the use of FireSmart landscaping species. ▪ Removal of all combustible material piles (firewood, lumber, etc.) within 10 metres of the structure. | Landowners |
| Zone 2-3 Vegetation Mgt | Recommendation 4: Zone 2-3 vegetation management is the responsibility of municipal and provincial governments, residents and landowners, and business owners/facility operators. All stakeholders should implement fuels reduction based on the priorities identified in this plan. | Rocky View County Kananaskis Imp District AB. SRD / TPR Landowners |
| Private Land Debris Disposal | Recommendation 5: RVC should consider innovative methods to assist private landowners with debris disposal from Zone 1, 2, and 3 private land FireSmart vegetation management actions. | Rocky View County |
| Municipal Environmental Reserve Lands | Recommendation 6: Rocky View County, along with other municipal governments, and Sustainable Resource Development should investigate the possibility of amending Section 664(3)(b) of the Municipal Government Act to permit fire hazard reduction on environmental reserve lands. | Rocky View County AB. SRD |
| Zone 3 Vegetation Mgt | Recommendation 7: Zone 3 containment areas should be planned with collaboration of all parties in the West Bragg Creek Land Users Group. The responsibility for approval lies with Sustainable Resource Development and the strategy will be implemented jointly by Sustainable Resource Development and Spray Lake Sawmills (1980) Ltd. | AB. SRD Spray Lake Sawmills WBC Land Users Group |

Development

| Issue | Recommendation | Responsible Agency |
|--|--|---|
| FireSmart Exterior Structural Materials | Recommendation 8: Establish and implement FireSmart standards for exterior building materials for all new developments and retrofits of existing structures. | Rocky View County |
| FireSmart Access Road Standards | Recommendation 9: Establish and legislate FireSmart access road standards for all new developments to ensure safe ingress and egress routes for residents/public and emergency responders. | Rocky View County |
| Fire Suppression Water Supply | Recommendation 10: Ensure that adequate fire suppression water supply is provided for the Hamlet of Bragg Creek and all new developments within Rocky View County. Consideration should be given by RVC to the integration of the existing Elkana Ranch Elbow River water gallery and pumphouse as a water tender fill station. | Rocky View County |
| Overhead Powerlines | Recommendation 11: Establish a powerline tree-freeing program with the distribution power provider to reduce the threat of wildfire ignition from downed powerlines. | Rocky View County AB. SRD Distribution Power Provider |
| Propane Tanks | Recommendation 12: Ensure adequate FireSmart defensible space is established and maintained around propane tanks at Elbow Housing area. | AB. SRD |
| Address Signage | Recommendation 13: Develop and implement a standardized FireSmart signage system for Rocky View County address signage. | Rocky View County |

Public Education

| Issue | Recommendation | Responsible Agency |
|--|--|--|
| FireSmart Communications Plan | Recommendation 14: The Greater Bragg Creek FireSmart Committee and Rocky View County should professionally build and implement a FireSmart Communications Plan to ensure that target audiences, effective key messages, and communications methods and tools are identified. | GBC FireSmart Committee Rocky View County |
| Greater Bragg Creek FireSmart Strategy Open House | Recommendation 15: Provide an open house and information session to inform public and stakeholders of the findings and recommendations of the Greater Bragg Creek Wildfire Mitigation Strategy. | GBC FireSmart Committee |
| Public Education Priorities | Recommendation 16: Resident education should focus on the following items in order or priority: <ul style="list-style-type: none"> ▪ FireSmart Zone 1 and 2 fuels management options ▪ FireSmart structure and site maintenance focusing on annual maintenance items ▪ FireSmart structural options including roofing and siding materials, decks/open spaces, and combustibles storage ▪ Emergency planning including evacuation planning and structure and site preparation during a wildfire | GBC FireSmart Committee Rocky View County |
| Demonstration Forest | Recommendation 17: Develop the Rocky View County FireSmart Demonstration Forest areas to provide FireSmart educational opportunities for all local residents of the area to understand the role of wildfire in the area and the need for FireSmart actions to reduce the threat to values at risk. | GBC FireSmart Committee Rocky View County |

Legislation

| Issue | Recommendation | Responsible Agency |
|---|---|--------------------|
| FireSmart Legislation | Recommendation 18: Complete a review and revise all applicable RVC bylaws and planning documents to ensure alignment with the Greater Bragg Creek Wildfire Mitigation Strategy and FireSmart best-practices. | Rocky View County |
| Rocky View County Municipal Development Plan | Recommendation 19: Complete a review and update of the Rocky View County Municipal Development Plan to include a policy that requires the “ <i>preparation and submission of a Wildfire Risk Assessment, completed by a qualified professional, and a requirement to implement the recommendations for all new developments in the Greater Bragg Creek planning area</i> ”. | Rocky View County |
| Rocky View County Land Use Bylaw | <p>Recommendation 20: Complete a review and update the Rocky View County Land Use Bylaw to consider revision or inclusion of the following FireSmart policies.</p> <p>a) Revise Section 20.1(d) to read: 20.1 The Development Authority may consider with respect to land that is the subject of an application for a Development Permit:</p> <p>(d) its potential for flooding, subsidence, erosion, <i>or wildfire</i>;</p> <p>b) Structure Exterior - Add Sections to read:</p> <p>i) All roofing materials on new, replacement, or retrofitted dwellings, accessory buildings and commercial buildings within 2 kilometres of High and Extreme FireSmart hazard class areas shall meet a minimum Class “C” U.L.C. rating or as specified by the Development Authority based on wildland/urban interface hazard and risk.</p> <p>ii) All siding materials on new, replacement, or retrofitted dwellings, accessory buildings and commercial buildings within High and Extreme FireSmart hazard class areas shall use fire resistant materials a minimum of 12 millimetres thick and extend from ground level to the roofline.</p> <p>iii) All new dwellings, accessory buildings, and commercial buildings with exposed undersides and/or with raised decks and porches less than 2 metres from ground level shall be sheathed from the floor level to the ground level to prohibit the entry of sparks and embers under the structure.</p> <p>c) Water Supply – Add a Section to read:</p> <p>i) All new multi-lot subdivision developments and commercial developments shall be required to provide adequate fire suppression water supply as required by the Development Authority.</p> <p>d) Vegetation Management – Add Sections to read:</p> <p>i. All new dwellings, accessory buildings, and commercial buildings shall establish and maintain <i>FireSmart</i> defensible space for a minimum of 30 metres from the structure or to lot boundary.</p> <p>ii) All new dwellings, accessory buildings, and commercial buildings shall have a minimum of one-metre of non-combustible surface cover (gravel, rock, concrete, etc.) around the perimeter of the structure. All new exposed decks, greater than 2 metres from ground level shall require a minimum one-metre of non-combustible surface cover placed around the outside perimeter and underneath.</p> <p>iii) Fire resistant species, as per the attached list and <i>FireSmart – Protecting Your Community from Wildfire</i> (2003), shall be used for all landscaping within 10 metres of the all structures.</p> <p>e) Access Standards – Add a Section to read:</p> <p>i) Access to all new dwellings and commercial buildings shall meet adequate standards for emergency vehicle access as requested by the Development Authority.</p> | Rocky View County |
| Greater Bragg Creek Area Structure Plan | Recommendation 21: Review and implement all FireSmart recommendations/policies from the Greater Bragg Creek Area Structure Plan (2007). | Rocky View County |

Interagency Cooperation & Cross-Training

| Issue | Recommendation | Responsible Agency |
|------------------------------|--|--|
| Development Referrals | Recommendation 22: All new development applications should be referred by Rocky View Planning and Development department to Rocky View Fire Services for FireSmart review and comment. | Rocky View County Development & Planning |
| FireSmart Committee | Recommendation 23: The Greater Bragg Creek FireSmart Committee should continue to be the coordinating group for all agencies and stakeholders involved in the Greater Bragg Creek <i>FireSmart</i> program. | GBC FireSmart Committee Rocky View County |
| Cross-Training | Recommendation 24: Rocky View Fire Services and Redwood Meadows Emergency Services staff should be cross-trained and certified to the following minimum standards: <ul style="list-style-type: none"> ▪ Wildland Firefighter (NFPA 1051 Level I or equivalent) ▪ Structure & Site Preparation Workshop (S-115) ▪ Fire Operations in the Wildland/Urban Interface (S-215) ▪ Incident Command System (I-100 to I-400) as applicable Sustainable Resource Development should assist with this cross-training where applicable and qualified training providers should be used. | Rocky View County AB. SRD |

Emergency Planning

| Issue | Recommendation | Responsible Agency |
|---|--|------------------------------|
| Rocky View County Municipal Emergency Plan | Recommendation 25: Ensure that wildland/urban interface fire is recognized as a risk in the updated Rocky View County Municipal Emergency Plan and that Sustainable Resource Development is consulted for input into the plan. | Rocky View County |
| Community Wildfire Pre-Plan | Recommendation 26: Develop a detailed Community Wildfire Pre-Plan for the Greater Bragg Creek planning area to provide greater detail to emergency responders during a wildland/urban interface incident. | Rocky View County AB. SRD |
| Emergency Exercise | Recommendation 27: Conduct a wildland/urban interface emergency exercise to train local emergency responders, test the pre-plan for operational effectiveness, and educate residents of the issues and impacts related to interface fire incidents. | Rocky View County AB. SRD |

11 Approvals

Rob Coon, Chief Administrative Officer
Rocky View County

Date

Morgan Kehr, Forestry Program Manager
Alberta Sustainable Resource Development, Southern Rockies Area

Date

Clint Docken, Chairperson
Greater Bragg Creek FireSmart Committee

Date

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Appendix I – Glossary of Terms

Alberta Vegetation Inventory (AVI) – the Alberta Vegetation Inventory is a photo-based digital inventory developed to identify the type, extent, and conditions of vegetation, where vegetation exists, and what changes are occurring with the vegetation. It provides detailed information to assist in the decision-making process for forest management planning, forest protection/wildfire management, wildlife habitat classification and integrated resource management activities.

Area Structure Plan (ASP) - An ASP provides a more detailed framework than the Municipal Development Plan for subsequent subdivision, development or redevelopment of an area of land. An ASP or ARP generally describes the sequence of events for development, proposed land use, population density, and the location of major transportation routes and public utilities.

Canadian Forest Fire Behavior Prediction (FBP) System – a systematic method for assessing wildland fire behavior potential for discrete Canadian fuel types and topographic situations:

| | | | |
|-----|------------------------|-----|-------------------------|
| C-1 | Spruce-Lichen Woodland | C-7 | Douglas fir/Pine |
| C-2 | Boreal Spruce | D-1 | Deciduous |
| C-3 | Mature Pine | M-1 | Mixedwood (conif/decid) |
| C-4 | Immature Pine | O1a | Cured grass |

Canadian Forest Fire Weather Index (FWI) – the components of the FWI system provide numerical ratings of relative fire potential in a standard fuel type on level terrain, based solely on consecutive observations of four fire weather elements (temp, relative humidity, wind speed, precipitation) measured daily at noon (LST), to provide a uniform method of rating fire danger across Canada. The FWI system consists of six components:

Fine Fuel Moisture Code (FFMC) – a numerical rating of the moisture content of litter and other cured fine fuels indicating the relative ease of ignition and flammability of fine fuel.

Duff Moisture Code (DMC) – a numerical rating of the average moisture content of loosely compacted organic layers of moderate depth indicating fuel consumption in moderate duff layers and medium-sized woody material.

Drought Code (DC) – a numerical rating of the average moisture content of deep, compact, organic layers indicating seasonal drought effects on forest fuels and the amount of smouldering in deep duff layers and large logs.

Initial Spread Index (ISI) – a numerical rating of the expected rate of fire spread, combining the effects of wind and the FFMC.

Buildup Index (BUI) – a numerical rating, combining DMC and DC, of the total amount of fuel available for combustion.

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.

Detailed Forest Management Plan (DFMP) – a technical document, prepared by the Forest Management Agreement (FMA) holder, describing forest management objectives, strategies and commitments and identify methods of cutting, reforestation, and managing timber resources within the defined area of responsibility. The detailed forest management planning time frame considered is 200 years, or two full life cycles for trees in the FMA.

Forest Management Agreement (FMA) – an area-based forest management tenure system providing FMA holders with the ability to manage the forest on a long-term, sustained yield basis considering a broad range of forest values and social, economic and factors such as watershed, environment and wildlife habitat. FMA holders are required to provide an opportunity for public consultation during the development of a Forest Management Plan for the area.

Kananaskis Improvement District (KID) – the Municipality with development authority for lands within the Forest Reserve.

Land Use Bylaw (LUB) - The Land Use Bylaw prohibits or regulates and controls the use and development of land and buildings in accordance with a municipality's Municipal Development Plan. The Land Use Bylaw divides the municipality into land use districts or zones and establishes subdivision design and development standards with respect to each land use district.

Municipal Development Plan (MDP) - A Municipal Development Plan addresses the future land use within the municipality through broad statements of general objectives.

Municipal Emergency Plan (MEP) – a plan developed and maintained by the Municipality to provide a prompt and coordinated response to emergencies affecting the Municipality.

Rocky View County (RVC) – the Municipality with development authority for planning area lands outside of the Forest Reserve. Previously known as Municipal District of Rocky View.

Sustainable Resource Development (SRD) – the Provincial government department responsible for forest, fire, land, and fish & wildlife management on Crown lands within the forest reserve portions of the planning area. Consists of Forests Division, Lands Division, and Fish & Wildlife Division.

Tourism, Parks, and Recreation (TPR) – the Provincial government department responsible for land management of all Provincial parks and protected areas within the planning area. Consists of Parks Division.

Appendix II
West Bragg Creek Land Users Agreement

West Bragg Creek Land Users Agreement - Date: April 18, 2011

Re: West Bragg Creek All Season Trails Plan (WBCASTP)

1) Introduction

This document has been drafted to assist in completing the process of the implementation of the approved West Bragg Creek All Season Trail Plan (WBCASTP) dated September 12, 2010, led by the Greater Bragg Creek Trails Association (GBCTA). Outlined in the WBCASTP (section 6.3) it states that: “the proponent will provide written documentation to Alberta Sustainable Resource Development (SRD) with concerns that were identified by stakeholders and what mitigative measures were mutually agreed to by the stakeholders and trail proponent.” The WBCASTP area is located in the Kananaskis Country Forest Land Use Zone as designated by AR 343/1979 with subsequent amendments. This document is modeled after a similar format, familiar to SRD, and already used by Grazing Disposition Holders and Timber Companies identified as a Grazing Timber Agreement (GTA). It has been expanded to include: Greater Bragg Creek Trails Association (and its partners), Alberta Tourism Parks and Recreation (maintenance), The Bragg Creek FireSmart Committee, Spray Lakes Sawmills (SLS), and Grazing Disposition holders.

2) Purpose

This agreement has been formulated and endorsed by all the parties listed below to promote better management, coordination and sustainability of their respective activities on the land for mutual benefit in the West Bragg Creek All Season Trail Plan area.

3) Objective

The parties to this agreement commit and agree to work towards a better understanding of each other’s needs, roles, and responsibilities, as we operate and recreate on this working landscape.

The parties are committed to working collaboratively toward a signed multi-party agreement to ensure all concerns and potential issues are identified for each land user, effective mitigation strategies and actions are identified and carried out, and appropriate monitoring of results is completed.

This will enable the parties to operate and recreate proactively while ensuring that this working landscape remains functional, healthy and sustainable for future generations.

4) Parties to the agreement with contact information

Timber Operator

Spray Lakes Sawmills (1980) Ltd.
Jordan Dyck P: (403) 932-2234
F: (403) 932-6675
jordan.dyck@spraylakesawmills.com 305 Griffin Road West
Cochrane, AB T4C 2C4

Grazing Operators

Jumping Pound Allotment
John Buckley
Harvey Buckley
P: (403) 932-2486 qcxranch@xplornet.com 253004 Cope Trail
Calgary, AB T3Z 2L4

Bragg Creek Allotment

William Bateman
James Bateman
P: (403) 932-5428
P: (403) 932-5594
bpbateman@xplornet.ca
watsonbateman@gmail.com
50180 Twp. Rd 244
Calgary, AB T3Z 2N7

McLean Creek Allotment

Charlie Fullerton P: (403) 628-3444

Elbow Allotment

Milo Munro
Corbin Munro
P: (403) 286-4374
P: (403) 615-0860
cjmunro@telus.net
250090 Munro Road, Calgary ,
AB T3Z 2T7

Fire Smart Partners

Bragg Creek FireSmart Community Zone Planning Committee
Carol Leriger, Chair P: (403) 949-4383
P: (403) 471-2276
cjleriger@gmail.com
Alberta Sustainable Resources Development,
Southern Rockies Area
Rick Arthur P: (403) 297-5317 rick.arthur@gov.ab.ca 8660 Bearspaw Dam Road NW
Calgary, AB T3L 1S4

Trail Maintenance Alberta Tourism, Parks, Recreation

Bill O'Connor P: (403) 604-1242 bill.o'connor@gov.ab.ca
TPR – Kananaskis Country
Bag #1
Bragg Creek, AB
TOL OKO

Land Manager

Alberta Sustainable Resource Development
Roger Meyer P: (403) 297-8815 roger.meyer@gov.ab.ca
8660 Bearspaw Dam Road NW
Calgary, AB T3L 1S4

Recreational User Groups

Greater Bragg Creek Trails Association
Eric Lloyd P: (403) 949-2696 elloyd@davincibb.net Box 442
Bragg Creek, AB TOL OKO
Calgary Mountain Bike Alliance
Chris Salvador P: (403) 606-5374 info@cmbalink.com 1111 Memorial Dr. NW
Calgary, AB T2N 3E4

5 Land User Operations

West Bragg Creek has a long history of summer cattle grazing, timber harvesting and recreational activities, all of which are managed under the Kananaskis Country Integrated Resources Plan (IRP) Resource Management Area C Elbow/Jumpingpound.

The IRP (section 5.2) outlines the management priorities for this area, which are as follows:

- First level priority - Maintenance of water quality, quantity and flow regime.
- Second level priority - Provision of recreational opportunities and provision for the management and development of renewable and non-renewable resources.
- Third level priority – Maintenance or enhancement of the abundance, diversity, distribution and recreational use of the fish and wildlife resource.
- Fourth level priority – Protection of areas of ecological, archaeological or historical significance.

Recreation activities are generally regulated as per the Forest Recreation Regulation pursuant to Public Lands Act Alberta Regulation 343/1979 with subsequent amendments which designated the original Kananaskis Country Forest Land Use Zone (KC FLUZ). In addition to the normal regulations that govern such lands, a number of specific restrictions with the KC FLUZ have been enacted:

- The use of campfires (unless in a provided facilities) and camping are not permitted within one kilometre of a forest recreation area or roadway within the zone.
- The use of any motor vehicle off highway is not permitted except for public safety, approved maintenance activities or for registered trapping area activities.

During various consultation meetings in 2010, specifically FireSmart consultation meetings and West Bragg Creek All Seasons Trail Plan (WBCASTP) consultation meetings, it became apparent that there were numerous overlapping activities planned by many different user groups in the area outlined in the WBCASTP. As a result, the groups are committed to work collaboratively to develop this “multiple land users agreement”. All parties believe that an agreement such as this is an essential tool that will promote better integration of the different activities on the working landscape.

5.1 Greater Bragg Creek Trails Association (GBCTA) and the West Bragg Creek All Season Trail Plan (WBCASTP)

The GBCTA is leading the implementation of the WBCASTP (approved September 2010) in partnership with Alberta Tourism, Parks and Recreation (TPR), Calgary Mountain Bike Alliance (CMBA) and others. The WBCASTP contains numerous recommendations including the construction of 65 km of new summer and winter trails, which commenced in October, 2010. Please

see:<http://tpr.alberta.ca/parks/consult/braggCreek/FinalWestBraggCreekTrailsPlan.pdf>

5.2 Spray Lakes Sawmills

Spray Lake Sawmills (1980) Ltd (SLS) is an Alberta based, family owned and operated company which was originally founded in 1943. The company began as a portable bush mill and has evolved to a state-of the-art, high technology lumber mill which has been located in Cochrane since 1973. SLS has a Forest Management Agreement (FMA) Area with the province of Alberta which provides the company with a long term sustainable timber supply along the eastern slopes of the Rockies in the Rocky Mountain Forest Reserve.

Forest Management Planning on the FMA Area involves a comprehensive, multi step planning process which helps ensure sustainability and protection of forest resource values. This ensures our operational plans will be conducted to:

- obey the laws of the land;
- ensure protection of the watershed;
- ensure protection of environment;
- address wildlife concerns;
- minimize conflicts with other land users, and
- ensures prompt and effective reforestation.

There are also Quota Areas located in the Forest Reserve which also contribute to the long term timber supply requirements of SLS. (For more information please refer to appendix 3, also refer to the current **SLS Detailed Forest Management Plan (DFMP)**).

5.3 Bragg Creek FireSmart Community Zone Planning Committee

The FireSmart Committee was formed to guide the community zone planning process and to provide advice on issues related to wildfire threat and community protection within the 10 km zone surrounding the Bragg Creek area. The committee was charged with the tasks of development of strategic and operational options to reduce wildfire threat for inclusion in municipal development, natural resource, and forest protection plans. Also, to educate stakeholders and community members about the threat of wildfire and the actions they can take to mitigate that threat. To this end the committee has drafted the Greater Bragg Creek FireSmart Mitigation Strategy, which will be reviewed by stakeholders and residents, with the final revisions being made

from their input prior to the document being submitted for approval by Rocky View County and Alberta Sustainable Resources Development, Southern Rockies Area, with subsequent implementation. After which, the committee will continue to be active in identifying specific issues of concern of residents and stakeholders with respect to wildfire, and remain active in educating them about actions that may be taken to reduce wildfire risks and hazards.

5.4 Alberta Tourism, Parks and Recreation

Alberta Tourism, Parks and Recreation (TPR) in cooperation with Sustainable Resource Development (SRD) fully supports the development and operation of non-

motorized trail recreation for the benefit of the public in the West Bragg Creek area of Kananaskis Country.

The "All Season Trail Plan for West Bragg Creek, Kananaskis Country" as endorsed by both TPR and SRD, dated September 12, 2010 provides for both the upgrading of existing trails as well as the development of a number of proposed new trails. TPR will have primary responsibility for management of designated WBC trails including operations, maintenance, repair, and upgrading in cooperation with the GBCTA and other partners. In so far as TPR is involved with trail maintenance and winter trail grooming for the area, TPR and the Greater Bragg Creek Trails Association have entered into a long term partnership agreement (see appendix 4). The purpose of the partnership agreement is to provide a stable framework upon which to facilitate the development and on-going maintenance of trails within West Bragg Creek area.

The development of this Land User agreement will ensure that major sectors with significant interests on the landscape, including recreation users, have a process to address short and long-term development and maintenance issues.

As the party who will hold responsibility for maintenance of trails in the West Bragg Creek Area, it is important that TPR is an active ongoing participant in this agreement. TPR will ensure, on behalf of the Alberta Government, that approved trails and trail facility standards (eg. Bridges) are maintained. They will also ensure that any trail volunteer activities are consistent with current approved volunteer management policies and practices. TPR also performs the initial response to public search and rescue events, as they do throughout Kananaskis Country in close consultation with the RCMP, who hold the primary mandate for public safety. All construction and trail maintenance will be conducted subject to the terms of the existing Partnership Agreement (see Appendix 4).

5.5 Grazing Dispositions

Summer cattle grazing has occurred in the forested Eastern Slopes of Alberta since the late 1800's. Summer grazing is expected to continue along the eastern slopes including the West Bragg Creek All Seasons Trail Plan (WBCASTP) area as outlined in the Kananaskis Country Integrated Resource Plan (IRP).

The WBCASTP area contains one allotment (Bragg Creek) and portions of three others (Elbow, McLean Creek and Jumpingpound) within it. Each allotment is subdivided into Distribution Units each subject to a grazing management plan (approved by Sustainable Resource Development (SRD)) designed to optimize forage utilization sustaining rangeland health while ensuring adequate forage is left for wildlife, water quality is protected and conflicts with other land uses are minimized. The Distribution Units primarily affected by the GBCTA Plan are as follows:

| DU | Allotment |
|------------------|--------------|
| South Pine Creek | Jumpingpound |
| Bragg Creek | Bragg Creek |
| Ranger Creek | Elbow |
| Iron Creek | McLean Creek |

6) Present and Potential Impacts Related to Overlapping Operations

6.1 Disturbance

Increased and overlapping disturbance and associated effects, especially when located near recreational trails, Distribution Unit (DU) boundaries, Allotment boundaries, natural barriers and in regenerating cutblocks can create issues. These include:

- Impact on recreational trail use
- livestock distribution and containment
- forest management issues
- undesirable environmental issues (erosion, blow-down, increased human and animal traffic)
- resource impacts to: rangelands, forest regeneration and historic resource values.
- loss of productive area
- potential increased operating costs to all or some parties.

These issues could potentially have negative impacts toward a party's ability to coexist within the WBCASTP area of interest.

6.2 Weeds

Soil disturbance resulting from any of the activities upon the land may create a suitable seed bed for weeds to germinate and spread, therefore further spread of existing species or introduction of new species via various vectors (animal, human, machine) is of concern.

6.3 Timing of Activities

Timing of activities has the potential to be disruptive and create increased opportunity for conflict between users (see also cumulative effect).

6.4 Appropriate Design

Design of infrastructure (trails, temporary roads, permanent roads (LOCs), pipelines, well sites, parking lots, fences, gates) for one purpose may be inappropriate for other users, which may unknowingly create issues relating to safety, maintenance, cost of replacement, increased labour requirements, etc.

6.5 Visual Landscape and Scenic Values

The visual landscape and scenic values have the potential to be impacted, both positively and negatively, by increased activity on the landscape. A land users' perception of such impacts can vary depending on both one's perspective and also over time as the landscape changes. Of particular concern is that the parties will be

to strive for a naturally occurring landscape that accepts change as part of that landscape.

6.6 Forest Regeneration and Rangeland Management

Increased pressures from activities on the working landscape (recreation, cattle grazing, wildlife browsing and industrial operations) can create causes of concern in regards to the potential damage which could occur to both forest regeneration in cutblocks and to primary grazing rangeland. These impacts could create increased costs to existing resource values, to repair damages which could potentially occur, and further could impact the sustainability of the forestry and grazing resources on the working landscape.

6.7 Safety

Issues concerning the safety of individuals operating or recreating on the landscape may arise in the areas of overlap between uses or due to timing of uses (see Definitions sec.10).

This could include but is not limited to:

- Issues between types of recreation user (mountain bike/ hiker/ equestrian)
- Issues across user groups (recreation/ timber/ grazing/ resource extraction)

6.8 Cumulative effects impact

High use levels, in the way of increased human traffic, if un-managed could have marked negative effects upon the landscape (i.e. watershed integrity) as well as other uses (livestock distribution and forage utilization, trail damage, increased potential for conflict between users, forest regeneration damage).

6.9 Land User interactions

With increased activity in the area the potential for negative interactions across users is increased dramatically. Issues such as manure on trails, traffic damage to trails (hoof damage, livestock and equestrian, tire damage, foot damage), lack of knowledge around other land-user's values, roles, and responsibilities all create potential conflict areas between users. Negative interactions and conflicts, if not overcome effectively, have the potential to create an unwillingness to work cooperatively with each other to ensure effective low cost solutions are found without increasing financial burdens to other user group(s). (see also Safety)

6.10 Communication

Lack of effective communication between user groups and education of various users could be counter-productive to the efforts of any land user's efforts to be good stewards of the land.

7) Strategies and Mitigation Measures

7.1 Disturbance

- a) Strategies to address these issues need to be visited on a case by case basis. Issues will be discussed and resolved by the affected parties (see section 7) and an action plan developed and executed. The parties will employ science-based decision making and adaptive management to determine the appropriate management tools for each case to be outlined in an action plan. For example linear disturbances such as fences are undesirable due to the cost of construction and maintenance and should only be used as a last resort.
- b) Action plans as developed will be signed off (see section 7) and appended to this document.
- c) GBCTA has agreed to construct specific fences and gates to mitigate concerns raised with regards to specific trails crossing or adjacent to DU and Allotment Boundaries (see appendix # 2).
- d) Trail construction standards are detailed in the WBCASTP (see sec.7.4).
- e) Trails that are not sustainable will be upgraded as per the WBCASTP sec. 7.1.1. The parties will review and discuss trails, or portions of trails, identified as candidates to be decommissioned with regards to developing a reclamation strategy and action plan for those trails or portions thereof.
- f) All parties will conduct operations to minimize environmental impacts (ie erosion), as per the standards outlined by SRD, minimize impacts on other users (such as damage to resource values, loss of productive area, and increased operating costs) and operate to enhance the safety of all land users.
- g) The overriding goal for overlapping disturbances will be to work collaboratively to ensure all parties are able to effectively operate, recreate and co-exist on the working landscape today and into the future.

7.2 Weeds

The parties to this agreement agree that the existing standard practice weed control policy referenced in the WBCASTP, sec. 7.4.9, is limited in scope.

Weed control strategies will include identification of existing weed species and their distribution prior to the commencement of the construction phases of all land users' plans in the West Bragg Creek (WBC) area.

The parties commit to participating co-operatively in weed control as part of a WBC weed management strategy with a goal of limiting the spread of existing weeds and reducing the risk of introducing new weed species to the area.

All parties are to notify SRD and TPR of weed infestation and co-operate in limiting their spread.

All parties will work to minimize the risk of introducing new weeds to the area through a communication strategy related to education and supported with signage.

7.3 Timing of Activities

A “calendar” style document will be appended to this agreement (appendix 1) outlining each party’s period of use. This will aid in managing for minimal conflicts between users.

7.4 Appropriate Design

All parties will design their respective plans and conduct their respective operations in order to minimize trail user conflict or hazards (i.e. livestock/recreation conflicts), with the intent of ensuring the safety of all land users, maintaining aesthetics, watershed integrity and sustainability of the landscape as well as addressing long term maintenance/replacement of trail infrastructure issues. The parties agree that a collaborative approach adopted early on in the planning process will aid in minimizing or avoiding land user conflicts into the future.

7.5 Visual Landscape

Visual impact modeling, where possible, will be done for proposed activities in an attempt to mitigate impact on the visual landscape and scenic values for land users. The parties believe that using tools like this and science-based decision making and adaptive management will aid in addressing the concern of minimizing negative impacts amongst users and operators. Strategies will be developed as required on a case by case basis and an action plan appended to this document (see section 7). Refer also to the IRP, the approved SLS DFMP and the WBCASTP (section 5.2.2).

7.6 Forest Regeneration and Rangeland Management

The parties agree that protecting and minimizing impacts to: regenerating trees in harvest cutblocks and primary grazing rangeland is important to the sustainability of the regenerating forest and rangeland management of resources. All parties will monitor their perspective activities on the landscape ensure negative impacts and costs toward forest and grazing operators are mitigated (refer also to the Monitoring Section). Opportunities for educating recreational users on the forest and grazing values would also be an important tool in mitigating damages and other negative impacts. Upfront strategies will be developed as required on a case by case basis in areas of overlap with an action plan appended to this document.

7.7 Safety

Since safety is of paramount importance for all parties and the general public, TPR in its role as coordinator of trail maintenance, will act as the one window point for any safety issues that may be identified.

Safety issues as identified by the public and from within the agreeing parties will be referred to the TPR contact as contained within the Contact Information Table. Infrastructure should be designed and constructed for safe use by multiple user groups.

Management tools can be implemented (i.e. temporary closures) to help ensure safety of land users.

The parties agree that a public education strategy regarding user interactions needs to be developed and implemented. This could involve increased and better signage, a clearer on/off leash policy for dogs, management techniques to minimize interactions between the public and livestock, etc. (see Definitions sec. 10)

7.8 Cumulative Effects Impact

The parties to this agreement will consider the impact of cumulative effects upon the landscape and employ such tools that may be available to them during the design, construction and operation of any given activity. Examples of tools could be:

- Multi use trail concept – design trails to accommodate bike, horse and foot traffic.
- Two way traffic trail system to reduce impacts.
- Temporary trail closures.
- Use of approved design and construction standards.
- Inclusion of “relief areas” within project designs allowing for areas for wildlife or livestock to move into, when pressured by increased human activity, without the animals having to vacate the area.

7.9 Land User interactions

The parties agree that addressing this issue is important and will require a multifaceted approach through communication, education, and use of management tools outlined in this document.

It is also believed that through proper deployment of strategies outlined under this agreement that most negative interactions between users can be eliminated. With that in mind, the parties agree that they will conduct their activities in a way that reflects a high standard of operation and professionalism that will meet and may exceed accepted industry standards.

7.10 Communication

Open communication between the parties in this agreement and continuing education

of the various users is essential to successful implementation of the WBCASTP and achievement of the objective of this agreement.

8) Communication and Dispute Resolution

a) All parties to this agreement will act in good faith to carry out the terms of this agreement.

b) TPR as the one window contact for safety concerns will ensure that all parties are appropriately informed when an issue is identified and work, where

- necessary, with the agreeing parties to address the concern in a timely fashion.
- c) All parties will be in contact with each other at least once per year (November) to discuss: updates, monitoring results, issues and any proposed changes to the agreement. GBCTA will initiate this annual meeting and table proposed agenda.
- d) Additions to the agreement (site or issue specific events) that do not alter the intent of the current agreement can be added and signed off and appended to the current agreement by the affected parties with notification to all parties.
- e) Amendments to the current agreement need to be approved and signed by all parties to the agreement.
- f) Should a party's plans change such that it impacts the operation of another, then all parties shall be contacted and a meeting of the affected parties will be held to determine whether any additions or amendments need to be made to this agreement.
- g) Should a party's operations or activities come close to a neighbour (for example a nearby allotment, property, infrastructure etc.), then that neighbor shall be contacted to discuss any issues and concerns they may have regarding the proposed operation or activity. Any feedback will be incorporated into the agreement by way of additions (in the appendix) or amendment whichever is deemed appropriate by the parties to the agreement.
- h) The following table lists critical dates for each of the parties to this agreement and will be used to guide the land users as they operate/recreate on the land and carry out the strategies and action items contained within this agreement.
- i) In the event that the parties to this agreement cannot come to a consensus upon on a strategy to address any particular issue that may arise, then, the issue shall be documented explaining the reason for lack of agreement and forwarded to SRD. SRD shall make itself familiar with the issue and render a decision under present protocols.

9) Critical Dates

Timber Operator

Spray Lakes Sawmills (1980) Ltd. early April Submission of SLS Annual Operating Plan (AOP) of current years activities to SRD
 early May Annual SLS Open House in Cochrane for viewing of SLS AOP
 June 1 Typical Start Date for harvest operations, road construction and log hauling

Grazing Operators

Jumping Pound Allotment March 15 Start of calving season – very limited availability for next two month.
 August 1 Cattle move into allotment
 August 7 to 15 Cattle enter Southpine DU, are present for 4 to 6 weeks
 October 1 to 7 Cattle start to be gathered from allotment, out completely by Nov 1.
 Bragg Creek Allotment March 15 Start of calving season – very limited availability for next two month.
 July 5 to 10 Cattle move into allotment.
 July 27 to 31 Cattle moved from east to west side of allotment.
 September 5 to 10 Cattle moved from west to east side of allotment.
 October 5 to 10 Cattle gathered from allotment and moved out
 Elbow Allotment Last week of June Cattle move into allotment
 First week of October Cattle move out of allotment
 McLean Creek Allotment
 July 1
 October 31
 Cattle move into allotment
 Cattle move out of allotment

Trail Managers
Alberta Tourism, Parks, Recreation

Recreational User Groups
Greater Bragg Creek Trails Association March 1 Early building season begins; ideally have season's needed TFAs in place by then.
Calgary Mountain Bike Alliance March 1 Early building season begins; ideally have season's needed TFAs in place by then.

10) Monitoring

a) All parties agree to carry out monitoring of their own respective uses (grazing distribution, forage utilization, forest regeneration in cutblocks, trail health, related issues).

b) Level 1 monitoring is accomplished via day-to-day operations of each party.

i. Level I monitoring for grazing includes checking utilization of forage in the cutblocks to keep utilization levels below about 30%. It is accomplished during normal day to day operations such as checking fences, gates and livestock, riding, moving salt and range health inspections.

ii. Level I monitoring for timber includes following required ASRD standards for forest regeneration monitoring (establishment and performance surveys) which are part of the normal operations of SLS.

iii. Level I monitoring for GBCTA / CMBA / TPR includes evaluating trail function and condition to ensure the trails are meeting the needs of users while ensuring user safety and minimizing impacts, particularly on the watershed.

c) Should Level 1 identify a potential problem that involves another party, then Level 2 will be initiated.

d) Level 2 monitoring requires the other parties to be contacted immediately to discuss the problem and if required agree upon how the problem will be corrected.

e) Joint monitoring should be carried out to confirm that the problem has been corrected.

11) Endorsement

Approved this 18th day of April, 2011 by:

Eric Lloyd _____ Greater Bragg Creek Trails Association
Name Signature Organization

Rob Berndt _____ Spray Lakes Sawmills (1982)
Name Signature Organization

William Bateman _____ Bragg Creek Allotment
Name Signature Organization

James Bateman _____ Bragg Creek Allotment
Name Signature Organization

John Buckley _____ Jumping Pound Allotment
Name Signature Organization

Charlie Fullerton _____ McLean Creek Allotment
Name Signature Organization

Milo Munro _____ Elbow Allotment
Name Signature Organization

Rod Gow _____ Alberta Tourism, Parks and Recreation
Name Signature Organization

Chris Salvador _____ Calgary Mountain Bike Alliance
Name Signature Organization

Carol Leriger _____ Bragg Creek FireSmart Committee
Name Signature Organization

Rick Arthur _____ SRD - Bragg Creek FireSmart Committee
Name Signature Organization

Roger Meyer _____ Alberta Sustainable Resource Development
Name Signature Organization

12) Definitions

Disturbance – for the purposes of this agreement this term is an inclusive term meant to include all man made disturbance within the plan area, including but not limited to: roads, trails, pipelines, range improvements, cutblocks, forest regeneration sites, fence lines, seismic lines, leases, prescribed burns.

Working Landscape – a relatively new term being used in the area of land management the term “working landscape” refers to a landscape that is healthy and functioning and embraces change while promoting stability and ensuring sustainability.

Safety – for the purposes of this agreement, this term applies to construction, design and operational standards and activities employed by all the parties. The parties commit to design and construct infrastructure and operate in a manner that is congruent with the activities of the intended users. All users are responsible for their own personal safety.

Appendix 1: Calendar of Land Use Activity

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Timber - harvesting, road construction Jun 1 to Apr 1 Jun 1 to Apr 1

- planning, surveying (1 to 2

people, OHV) year round

Grazing - official grazing season Jun 15 to Oct 31

- traditional Jumpingpound

season Aug 1 to Oct 31

Trapping - all seasons combined together Oct 1 to mid May Oct 1 to mid May

Hunting - specific seasons cougar black bear big game cougar

- non-licensed hunting/target

shooting

year round non-licensed animal hunting and target shooting

Recreation - XC skiing, snow shoing mid Nov to mid Apr

- winter hiking, biking, &

equestrian on Shell mountain

road

mid Nov to mid Apr

- summer hiking, biking,

equestrian

mid Apr to mid Nov

- outdoor experience training year round

- orienteering Aug

Trail Building

And

Maintenance

- surveying year round

- clearing corridor Mar 1 to mid Nov

- tread construction, gate &

Land Use Activity Timeline Notes

Grazing

Officially June 15 to Oct 31. Each allotment or Distribution Unit (DU) may have different periods of use within the “official” timeline. In the Jumpingpound Allotment the traditional period of use is August 1 to Oct 15. Knowing individual dates of use may give the plan more flexibility

Trapping

Trapping for carnivores usually runs Oct 1 to the end of Feb.

Trapping for most fur bearing usually runs Oct 15 to end of Jan or Feb.

Trapping for felines usually runs Dec 1 to end of Jan or Feb

Trapping of beaver/muskrat usually runs mid Oct to mid May.

These are all generalities and will depend on species and the trapping regulations of that year, and may change yearly.

Hunting

There is a winter cougar season Dec 1 to possibly as late as end of Feb.

There are big game bow and then rifle seasons from just after the Sept long weekend to end of Nov.

Spring black bear usually runs Apr 1 to May 15.

Non licenced animals can be hunted year round on crown land outside of areas administered by Parks and Rec.

Target shooting is legal on all crown land outside parks and recreation areas.

Recreation

Winter cross country ski and snowshoe activities timing depends on snow conditions, but typically commences about mid November and ends by mid April. During that time frame, there is also considerable hiking and dog walking, as well as limited mountain biking and equestrian activity on Mountain Road. Trail use during the balance of the year is typically characterized by hiking, mountain biking, dog walking and equestrian activities.

Trail construction activities (timing) consists of trail layout (year round), clearing (March to November) summer trail tread construction (June to November) and fence and gate construction (June to November).

Outdoor experience training averages one event per week. Orienteering has some scattered events after August.

Mountain bike races are primarily held in June to Sept on weekends. Adventure and foot races are primarily held in June to Sept on weekends.

Harvesting Activities

Harvesting typically occurs from June 1 to April 1 (10 months). Our log haul usually follows harvesting dates, however there have been occasions when we have hauled in April and May. Log haul activities are subject to provincial weight restrictions and road closures. Road Construction is typically linked with block harvest timing.

General Forest Management Activities

General forest management activities also occur on the FMA year round. Such examples are: growth and yield, block planning layout, access planning layout, establishment surveys, performance surveys and other various tasks may occur at any time throughout the year. These activities would involve 1 to 2 person crews and possible use of quads or snowmobiles. Mitigations would be followed to not impact other users i.e.: current ski trail damage example by 4x4 recreation users.

Appendix 2: Proposed Gate and Fencing Agreement

All parties to this agreement are committed to working collaboratively to ensure effective cattle control measures are implemented and/or maintained in the area covered under this agreement.

For each new trail that crosses a fenced or unfenced grazing allotment boundary, all parties to this agreement will be consulted on the recommended action required.

This could include determining if a new fence is required, selecting the appropriate location for any fence to be constructed including start and end points, and gate requirements (V gates, swing gates, barb wire gates) as well as construction standards to be met (wire type, # of strands, post type and size).

An on-site meeting will be scheduled once each trail is cleared (to provide access) to reach agreement on the specific location, extent and description of the fence and gates. All affected partners to this agreement should be invited to participate in site visits. A final site specific agreement must be approved by directly affected parties, or mitigation options considered will be documented and provided to SRD.

Example:

Fence and gate specifications for _____ (location description):

- a) Metal posts will be used for the fencing as supplied and installed by Mr. Morrie Goetjen (optional), from One Time Fencing (please see <http://www.onetimefencing.ca/>).
- b) Barb wire specification is Canadian 4 point. 3 strands will be used.
- c) Swing gate is 5 feet wide (Hi Hog or similar) with chain loop to hold closed.
- d) Sign on swing gate stating: Please keep gate closed June 15th to October 31.
- e) V gate with metal fence posts (2 7/8 inch diameter tubing) with horizontal pressure treated 2 x 6 inch boards.
- f) The location of gates must be on relatively level ground for trail user safety reasons. We also intend to have the fence and gate well marked so that it is highly visible to trail users.

Appendix 3: Background for Forest Harvest Activities:

The Integrated Resource Plan (IRP) forms the long range, strategic plan that defines management objectives and guides management and resource allocation in this area.

The IRP guides the first step of the harvest planning process, the Detailed Forest Management Plan (DFMP). The DFMP defines the net land base, defines the Annual Allowable Cut, establishes the harvest level on a 200 year planning horizon, and establishes the planned harvest sequence for the upcoming 20 years. The DFMP also defines management objectives and strategies. The SLS DFMP is approved by SRD and is renewed every 10 years. The next subsequent levels of harvest planning align with the DFMP: the General Development Plan (GDP) – which is the rolling 5 year plan; the Final Harvest Plan (FHP) – an area specific plan outlining proposed harvest blocks and access; and the Annual Operating Plan (AOP) – which is SLS current year of planned activities.

The GDP, FHP and AOP are subject to the SLS and C5 Harvest Planning and Operating Ground Rules as well as SRD approval for each individual plan. In addition to the planning and approval processes forest planning and harvesting is subject to a number of Acts including: the Forests Act, the Public Lands Act, the Water Resources Act and the Prairie and Forest Protection Act, the Historic Resources Act, the Occupational Health and Safety Act and the Surface Rights Act as well as federal acts including the Navigable Waters and Fisheries Acts.

Appendix 4: Partnership Agreement for West Bragg Creek Trails in Kananaskis Country Between the Greater Bragg Creek Trails Association (GBCTA) and Alberta Tourism, Parks and Recreation (TPR)

AGREEMENT

THIS AGREEMENT is made as of the day of , 2009

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA

as represented by the MINISTER OF TOURISM, PARKS, AND RECREATION

(hereafter the "Minister")

- and -

GREATER BRAGG CREEK TRAILS ASSOCIATION

a Society incorporated pursuant to the Societies Act (Alberta) (hereafter the "Association")

WHEREAS the Minister has responsibility for certain parks, recreation and protected areas;

AND WHEREAS the Association desires to benefit the public in respect of West Bragg Creek

Trails in Kananaskis Country (the "Site");

NOW THEREFORE in consideration of their mutual promises, the Association and the Minister agree as follows:

Article 1 - Term

1.1 The term of this Agreement (the "term") begins on the ____1st__ day of _January, 2009 and expires at the close of the ____31st____ day of _December, 2018.

Article 2 – Purposes of the Association

2.1 The Association shall partner with the Minister at the Site to pack and establish set ski

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tracks on designated trails and also assist with other aspects of trail maintenance, planning and development under the supervision of Kananaskis Country staff.

2.2 The Association is not an employee, agent or contractor of the Minister and is an independent organization.

2.3 The Association shall provide the Minister with copies of all information intended to be used by the Association at the Site and shall refrain from using any information to which the Minister objects.

2.4 With respect to the Association's activities at the Site, the Association agrees to consult with, advise, and accept decisions from the Minister's representatives in respect of the Association's activities at the Site, subject to the provisions of Clause 3.5. Activities of the Association at the Site are subject to the Minister's approval.

2.6 The Association shall ensure that its representatives (which term includes members, volunteers, employees, agents and contractors) at the Site provide a good quality of public service and refrain from anything that would negatively affect the reputation and enjoyment of the Site. The Association shall ensure that its representatives are knowledgeable about the Site and permitted conduct in respect of the Site.

Article 3 – Conduct of the Association

3.1 The Association shall maintain itself in good standing under the Alberta *Societies Act* and

shall comply with all applicable statutes and regulations.

3.2 This Agreement is not intended to result in any private financial benefit for any member of the Alberta Public Service, any member of the Legislative Assembly of Alberta or any member of the Association.

3.3 The Minister shall designate a representative for the purposes of this Agreement. The Association shall deal directly with the representative of the Minister. The initial representative of the Minister is _Conservation Officer, Bill O'Connor, E-mail at Bill.O'Connor@gov.ab.ca, or telephone at (403) 949-4941.

3.4 The Association shall designate an officer of the Association to represent the Association in its dealings with the Minister. The initial representative of the Association is _Bruce Barker, Director E-mail at bruce@haywirecreative.ca, or telephone at (403) 949-0070.

3.5 If the Association disputes a decision or direction of the representative of the Minister, the Association shall promptly give the representative of the Minister written notice of the objection and detailed reasons for the objection. The representative of the Minister shall promptly respond in writing. The Association may appeal the decision of the representative of the Minister by giving prompt notice of the decision, the objection, the response of the representative of the Minister and detailed reasons for the appeal to the Area Manager. The Association agrees that the decision of the Area Manager is final.

3.6 Employees of the Department of Tourism, Parks and Recreation may be members of the Association, however employees who have direct employment responsibilities in respect of the Site, shall not serve as officer or directors of the Association; shall not negotiate or execute contracts on behalf of the Association; shall not issue cheques or make payments on behalf of the Association; shall not be paid by the Association, and shall not serve as designates of the Association in dealings with the Minister.

Article 4 – Space for the Association at the Site

4.1 The Association agrees that the Minister is not responsible for property of the Association kept at the Site.

Article 5 – Hold Harmless and Insurance

5.1 The Association agrees to indemnify and hold harmless the Minister from any and all third party claims, demands, actions or costs (including legal costs on a solicitor-client basis) for which the Association is legally responsible, including those arising out of negligence or wilful acts by the Association or the Association's employees or agents.

5.2 The Minister agrees to indemnify and hold harmless the Association from any and all third party claims, demands, actions or costs (including legal costs on a solicitor-client basis) for which the Minister is legally responsible, including those arising out of negligence or wilful acts by the Minister or the Minister's employees or agents.

5.3 These hold harmless provisions shall survive this Agreement.

5.4 The Association shall

a) at its own expense and without limiting its liabilities herein, insure its operations under a contract of General Liability Insurance, in accordance with the Alberta Insurance Act, in an amount not less than \$2,000,000 inclusive per occurrence, insuring against bodily injury, personal injury and property damage including loss of use thereof. Such insurance shall include blanket contractual liability, nonowned automobile liability, employees and volunteers as additional insureds, and tenant's/occupier's legal liability in an amount suited to the Occupier's occupancy of the Site;

b) maintain Liability Insurance on all vehicles owned, operated or licensed in the

name of the Association in an amount not less than \$1,000,000;

c) ensure that each policy of insurance required above is endorsed to provide the Minister with 30 day advance written notice of cancellation or material change restricting coverage; and

d) As evidence of all required insurance, certificates of insurance shall be provided to the Minister prior to the commencement of work under this Agreement, and annually thereafter. Certified true copies of the policies shall be provided promptly upon request.

Article 6 –Operations and Safety

6.1 The Association is responsible for recruiting and coordinating volunteers in support of grooming and maintenance of cross country ski trails at the Site.

6.2 During work operations at the Site, volunteers are under the supervision and direction of Kananaskis Country staff. Volunteers are required to have a completed and signed Volunteer Agreement with the Ministry, prior to any work commencement. The term of these Volunteer Agreements with the Ministry will normally be for a one year period renewed annually.

6.3 All signed Volunteer Agreements with the Ministry, shall be forwarded to the Friends of Kananaskis Country for central record keeping and reporting. A complete and up-to-date record is to be kept of all volunteer trail activities (see Schedule A Record Form) by the Association and a copy provided annually at the end of the ski season to the Friends of Kananaskis Country.

6.4 The Association will provide, operate and insure at its own expense, a suitable snowmobile complete with groomer and associated equipment (e.g. helmets) necessary for safe and effective operation by volunteers.

6.5 The Association shall keep any equipment, materials, supplies and tools of the Minister, that are in the custody of the Association, in secure storage when not in use and shall ensure that the items are used only for the purposes for which the items are designed or intended and that the items are properly maintained.

6.6 All volunteers who operate a snowmobile within Kananaskis Country are required to possess a valid Snowmobile Operators Certificate. Kananaskis Country staff will facilitate up to four (4) volunteers annually to take the Snowmobile Operators course.

6.7 Kananaskis Country staff will lead all Occupational Health and Safety compliance components for volunteer involvement in grooming and maintenance activities at the Site. These efforts will be reviewed and updated annually by Kananaskis Country staff in consultation with the Association and volunteers. Kananaskis Country will supply volunteers appropriate emergency communication devices for use during operations.

6.8 A member of the Association will act as the operational contact person for the volunteers and will ensure that good communication is maintained between the volunteers and Kananaskis Country maintenance staff at the Elbow Field Office (403-949-4941).

6.9 Prior to work commencement, upon completion and in compliance with Kananaskis Country Working Alone guidelines, volunteers will contact the Elbow staff to inform them of their work status, trail conditions and other general observations.

6.10 Elbow staff will advise the volunteer operational contact person whenever they are grooming the West Bragg Trails.

6.11 There will be at least one annual meeting between Kananaskis Country staff and Association volunteers, normally held in late October. This meeting will be to review roles, expectations and requirements for the upcoming season, to discuss any issues or concerns relating to trails management in this vicinity and to ensure good communication with all concerned. Any required amendments to this Agreement can also be discussed at this time. Additional either party can request a meeting at any time during the season, if required.

6.12 Kananaskis Country staff has the authority and responsibility for public safety at the Site may occasionally have to close the parking lot, trails or portions of the trails until the danger or threat have passed. (E.g. temporary fire hazard or flood damage).

6.13 The Association shall immediately inform the Minister of accidents and unsafe conditions or activities at the Site that come to the Association's attention.

6.14 The Association, the Minister, Alberta Sustainable Resource Development (ASRD) and other interested stakeholders will develop a long term plan for the West Bragg Creek Trail System for all season non-motorized use.

6.15 The Association will obtain a valid Temporary Field Authorization from ASRD for the operation of motorized vehicles on trails on Public Land within the site. It is understood that ASRD will grant this authorization with appropriate conditions, annually, for the term of this Agreement.

Article 7 - General Provisions

7.1 Either Party may terminate this Agreement by giving the other Party not less than 90 days prior written notice.

7.2 Nothing in this Agreement requires the Minister to keep the Site open or to operate the Site in a particular way.

7.3 The Association acknowledges that the Government of Alberta has passed the *Freedom of Information and Protection of Privacy Act* (the "Act"). All documents submitted by the Association to the Minister under this Agreement become the property of the Minister and subject to the provisions of the Act.

7.4 a) Except for negligence of the Minister causing direct loss, the Minister is not liable for any damage, expense or loss of the Association from any cause including strikes, acts of God, vandalism or other interference with the Association, the Association's assets or the Site.

b) If, in the opinion of the Minister, temporary closure of the Site is advisable for any reason including concerns in respect of wind, flood, fire hazard, pollution or public safety then the Association shall promptly co-operate in the closure of the Site and the Minister shall not be liable for any damage, expense or loss of the Association as a result of the closure.

7.5 No waiver by the Minister of any breach of this Agreement is binding unless given in writing. No waiver of any breach of this Agreement shall constitute a waiver of any further breach.

7.6 The Association shall not assign, transfer, mortgage, sublicense or grant any of its rights under this Agreement without the prior written consent of the Minister, which consent may be withheld for any reason.

7.7 In this Agreement, unless the context requires otherwise, the singular includes the plural and vice versa, and the masculine gender includes the feminine and neuter genders and vice versa.

7.8 The captions and headings in this Agreement are for convenience only and are not to be

construed as defining or in any way limiting the scope or intent of the provisions of this Agreement.

7.9 This Agreement shall be interpreted according to the laws of the Province of Alberta.

7.10 Wherever this Agreement refers to legislation, that reference includes any subsequent legislation.

7.11 If any part of this Agreement is found to be unenforceable, that part shall be considered separate and severable and the other parts shall remain enforceable to the fullest extent permitted by law.

Article 8 – Notice

8.1 Any notice, direction, consent or request given by the Association or the Minister shall be in writing and delivered to the address noted below or the address in Alberta substituted by written notice.

a) TO THE MINISTER

Dave Nielsen, Director
Kananaskis Country
201 – 800 Railway Avenue
Canmore, AB
T1W 1P1

b) TO THE ASSOCIATION

Bruce Barker
Greater Bragg Creek Trail Association
P.O. Box 1379
Bragg Creek, AB
T0L 0K0

8.2 Notwithstanding any other provision of this Agreement, any notice, direction, consent or request to be given by the Minister to the Association is properly given if it is given to the Association’s designated contact person or posted in a conspicuous place on the Site or attached to space occupied by the Association at the Site.

IN WITNESS WHEREOF the Minister and the Association have executed this Agreement as of the date first above written.

Signed on behalf of Her Majesty the Queen in Right of the Province of Alberta by an authorized representative of the Minister of Tourism, Parks and Recreation.

Witness Signature Minister’s Representative

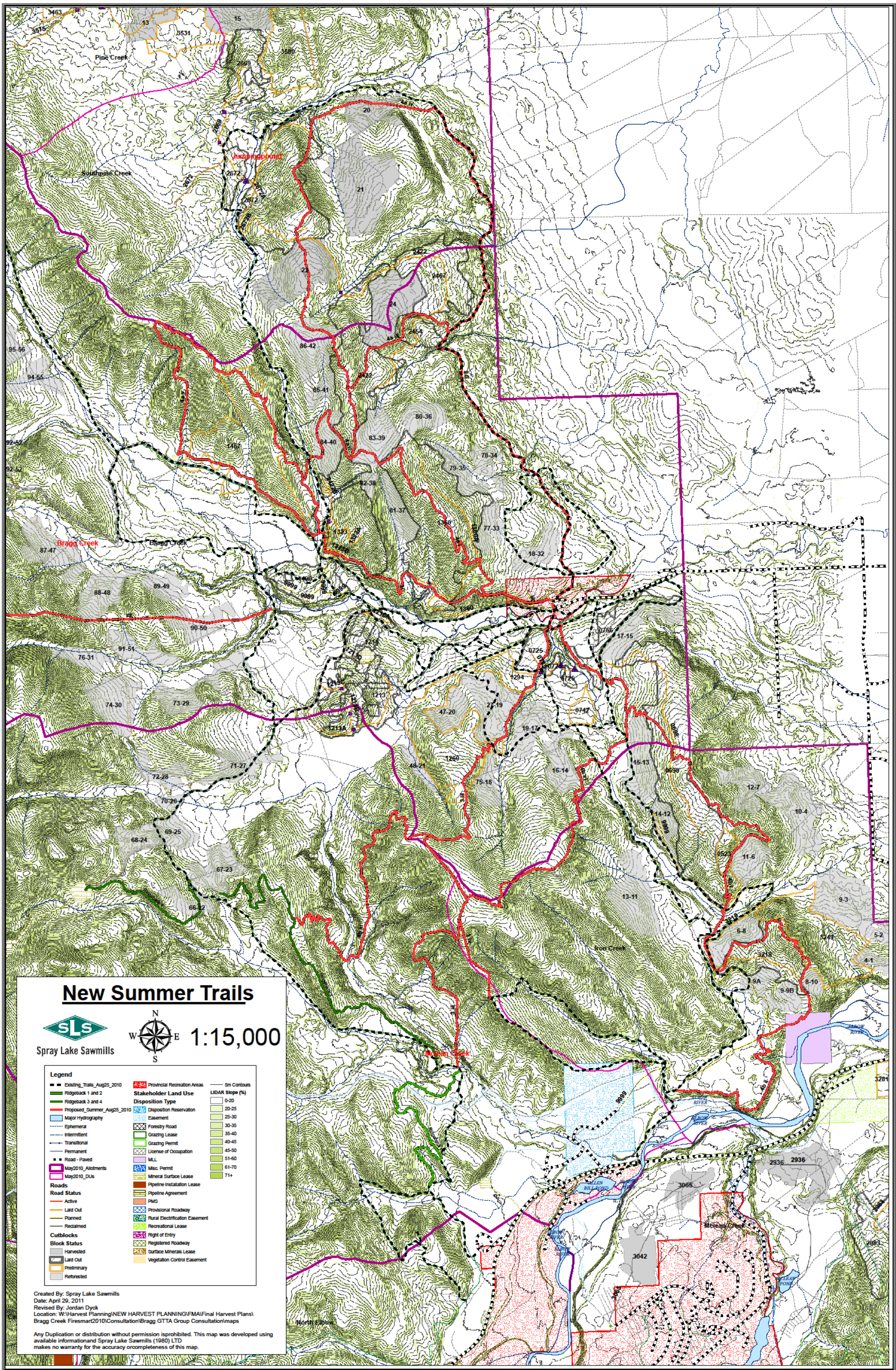
Witness - Print Name Print Name

Date
SIGNED by a duly authorized signatory of _____
Print Name of Association

Witness Signature Authorized Signatory

Witness - Print Name Print Name and Position

Date



New Summer Trails



1:15,000

| Legend | |
|----------------------------|---------------------------------------|
| Existing_Trails_Aug25_2010 | Provincial Recreation Areas |
| Ridgeback 1 and 2 | Stakeholder Land Use Disposition Type |
| Ridgeback 3 and 4 | Disposition Reservation |
| Proposed_Summer_Aug25_2010 | Easement |
| Major Hydrography | Forestry Road |
| Ephemeral | Grazing Lease |
| Intermittent | Grazing Permit |
| Permanent | License of Occupation |
| Road - Paved | M.L.L. |
| May2010_Alloiments | Misc. Permit |
| May2010_DUs | Mineral Surface Lease |
| Road Status | Pipeline Installation Lease |
| Active | Pipeline Agreement |
| Laid Out | PMS |
| Planned | Provisional Roadway |
| Reclaimed | Rural Electrification Easement |
| Cutblocks | Recreational Lease |
| Block Status | Right of Entry |
| Harvested | Registered Roadway |
| Laid Out | Surface Minerals Lease |
| Preliminary | Vegetation Control Easement |
| Reforested | |
| | Sim Contours |
| | LIDAR Slope (%) |
| | 0-20 |
| | 20-25 |
| | 25-30 |
| | 30-35 |
| | 35-40 |
| | 40-45 |
| | 45-50 |
| | 51-60 |
| | 61-70 |
| | 71+ |

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