

Town of Hinton

Wildfire Mitigation Strategy



Prepared for:
Todd Martens, Fire Rescue & Bylaw Services Manager



October 2016

Stew Walkinshaw, R.P.F.

MONTANE
Forest Management Ltd.

Canmore, AB.

Phone: (403) 678-7054 Email: montane@shaw.ca

Table of Contents

1	Introduction	1
2	Planning Area	2
3	FireSmart Accomplishments	4
4	Hazard & Risk Assessment	5
4.1	Wildfire Incidence	
4.2	Wildfire Behaviour Potential and FireSmart Hazard	
5	Vegetation Management Options	9
5.1	Existing Vegetation Management	
5.2	Proposed Vegetation Management	
5.3	Vegetation Management Maintenance	
6	Development & Legislation Options	19
6.1	Structural Options	
6.2	Infrastructure Options	
6.3	Legislation Options	
7	Public Education Options	21
7.1	Key Messages	
7.2	FireSmart Hazard Assessments	
7.3	FireSmart Canada Community Recognition Program	
8	Interagency Cooperation and Cross-Training Options	23
9	Emergency Planning Options	24
9.1	Town of Hinton Wildfire Preparedness Guide	
9.2	Town of Hinton Emergency Management Plan	
10	Implementation Plan	25

1 Introduction

The Town of Hinton, in cooperation with Yellowhead County and the Alberta Wildfire Management Branch developed the Town of Hinton-Yellowhead County Wildland/Urban Interface Plan in 1998. In 2011, the Town of Hinton identified the need to revise the plan based on FireSmart accomplishments over the past decade and the Town of Hinton FireSmart Mitigation Strategy (2011) was developed to update the hazard and risk assessment, review FireSmart mitigation progress over the past ten years, and develop priority FireSmart mitigation options.

The Town of Hinton has completed many of the recommendations in the 2011 plan and has developed this updated Wildfire Mitigation Strategy to:

- Identify FireSmart accomplishments over the past five-year period
- Re-assess the wildfire hazard and risk for the Town and surrounding area based on new development and FireSmart achievements
- Set new priorities for the next five year period

This review has found that significant vegetation management, cross-training, and emergency planning actions have been implemented however more attention to public education/awareness and FireSmart development planning and regulation is required in this next five-year cycle.

An implementation plan is included in this Plan to assist stakeholders to budget and complete projects based on the priorities identified. **FireSmart mitigation measures recommended in this strategy reduce the threat of wildfire to communities but do not remove the threat.**

The Town of Hinton Wildfire Mitigation Strategy should be reviewed and updated at **five year intervals** to ensure it is based on current conditions.

2 Planning Area and Stakeholders

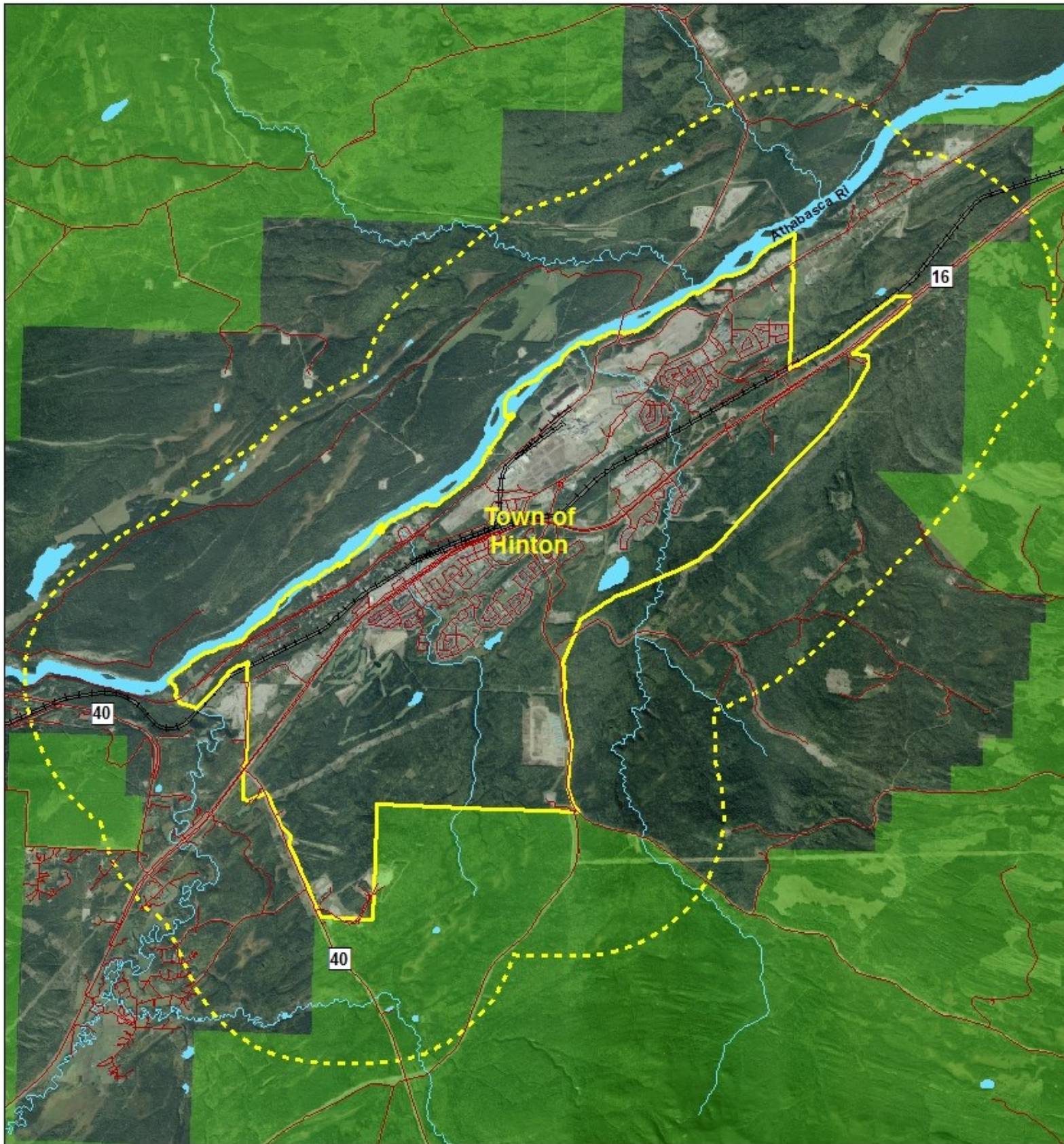
The planning area includes all lands within the Town of Hinton and a two-kilometre buffer surrounding the Town boundary.

Land ownership includes deeded lands, Municipal government lands, and Provincial crown-lands. The West Fraser Forest Management Agreement area is within portions of the two-kilometre buffer area.






Stakeholders consulted with in the planning process included:

- Todd Martens, Fire Rescue & Bylaw Services Manager, Town of Hinton
- Terry Dodge, Wolverine Forest Management
- Pat Scobie, FireSmart Coordinator, AB. Agriculture & Forestry, Edson Forest Area
- Warren Kehr, West Fraser Mills

Structural fire and wildfire suppression is the responsibility of the Town of Hinton within the Town boundaries. Outside the Town boundary, structural fire suppression is the responsibility of Yellowhead County, under mutual-aid agreement with the Town of Hinton, and wildfire suppression is the responsibility of the Alberta government.



Map 1 - Planning Area

-  Town Boundary
-  2-Kilometre Buffer
-  West Fraser FMA
-  Roads
-  Railway



1:70,000

3 FireSmart Accomplishments

The following FireSmart accomplishments have been completed.

Discipline	Accomplishment
Vegetation Management	<ul style="list-style-type: none"> Pre-2010 - 174 ha completed within and 2km surrounding Town of Hinton 2010-2016 – 118 ha completed within Town of Hinton Total Completed Area to Sept/2016 = 292 ha
Public Education	<ul style="list-style-type: none"> FireSmart information for residents and businesses provided on the Town of Hinton website and social media site
Development & Legislation	<ul style="list-style-type: none"> The Hinton Municipal Development Plan and Land Use Bylaw have been revised with minimal additions to FireSmart development guidelines and policy
Inter-Agency Cooperation	<ul style="list-style-type: none"> Town of Hinton and Alberta Wildfire Management hold a Wildfire Mutual-Aid Agreement Town of Hinton Fire/Rescue actively works with the Hinton Training Centre in the development of training programs
Cross-Training	<ul style="list-style-type: none"> ICS training provided to all Hinton Fire/Rescue and EOC personnel Wildland Firefighter (NFPA 1051) training and Fire Operations in the Wildland/Urban Interface (S-215) training provided to Hinton Fire/Rescue personnel Hinton Fire/Rescue personnel dispatched to 2016 Fort McMurray interface wildfire to assist Regional Municipality of Wood Buffalo Emergency Services
Emergency Planning	<ul style="list-style-type: none"> Hinton Wildfire Preparedness Guide developed in 2010 and revised/updated in 2014 Hinton Municipal Emergency Management Plan revised to follow the Incident Command System organization model 2012 - Functional wildfire emergency exercise conducted with Forestry and Town of Hinton 2016 - 2-day functional wildfire emergency exercise conducted with Forestry, military, and Town of Hinton

4 Hazard & Risk Assessment

The hazard and risk assessment assesses the risk of wildfire ignition, wildfire behaviour potential, and FireSmart hazard to determine priorities for action.

4.1 Wildfire Incidence

Provincial historical fire data for the ten-year period from 2006 to 2015 shows a total of 42 wildfires actioned by AB. Wildfire Management within the Town of Hinton and the two-kilometre surrounding area (Map 2) of which 15 were within the Town boundaries. AB. Wildfire Management has not responded to any wildfires within the Town since 2010 indicating a reduction in wildfire incidence within the Town.

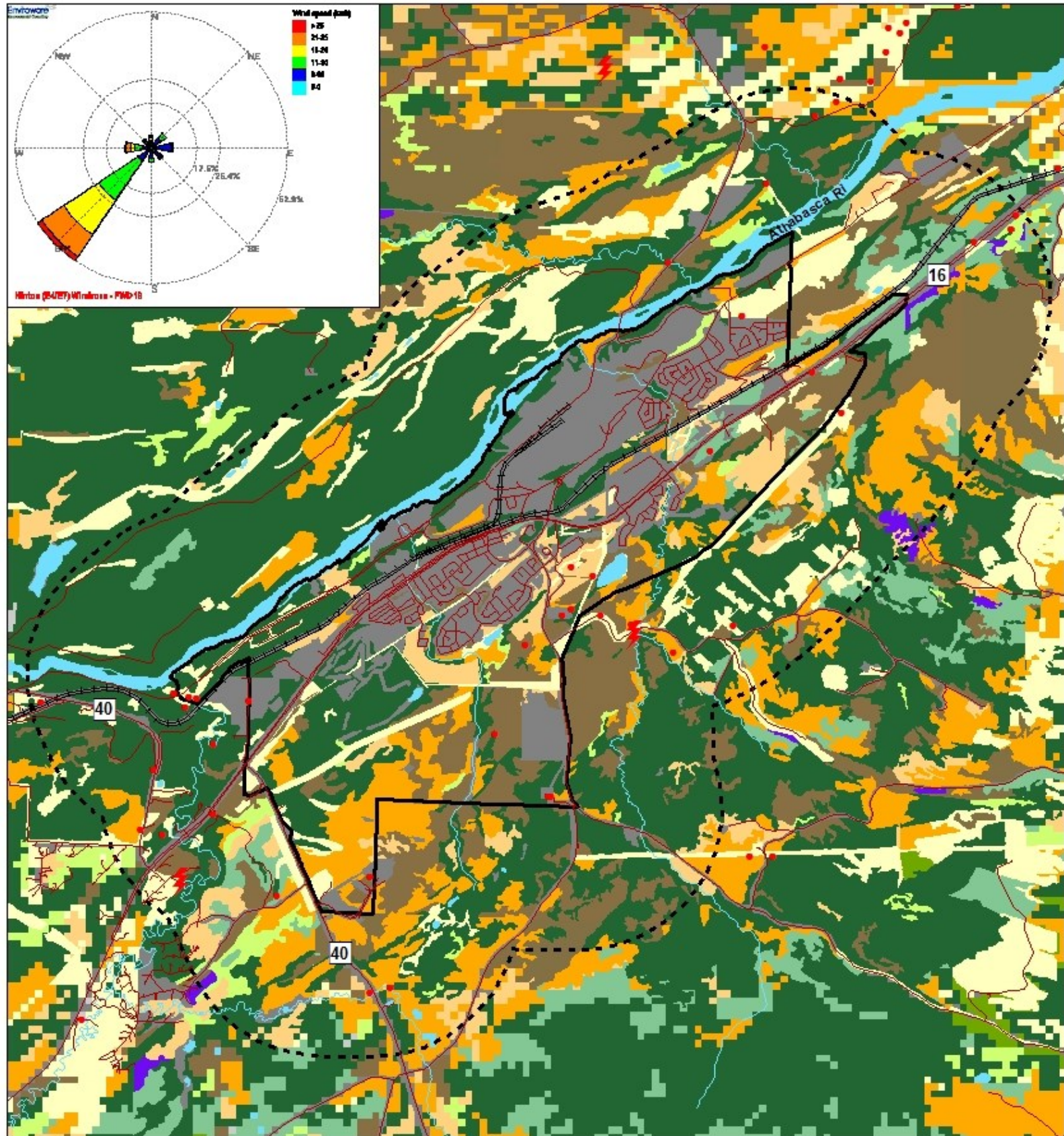
Historical wildfire data was not available from the Town of Hinton however discussion with the Fire Chief indicates that wildland fire trends have not changed significantly over the past 5-year period.

4.2 Wildfire Behaviour Potential & FireSmart Hazard

Wildfire behaviour potential is determined using Provincial fire weather records and wildland fuel types and FireSmart hazard is determined using the FireSmart Hazard Assessment process from “*FireSmart – Protecting Your Community from Wildfire*” (Partners in Protection, 2003).

A review of ten-years of fire weather records from the Entrance (E7) and Hinton (E4) weather stations indicate an average of 36 spread-event days (Very High-Extreme fire danger) per year. Winds are predominantly from the Southwest on the spread-event days (Map 2).

The Town of Hinton and surrounding lands is dominated with predominantly mature coniferous fuel types. The Hinton townsite is dominated with non-fuel (NF) in the developed subdivisions with mature spruce (C-2) and mixed-wood (M-1) fuel types on development area perimeters (Map 2). West Riverside, Thompson Lake, and Eaton development areas are intermixed with wildland fuels while developments in Hardisty, Riverside, and Hillcrest have a definite interface with wildland fuels. Mountain View community district has very little wildland fuels within or adjacent to development.

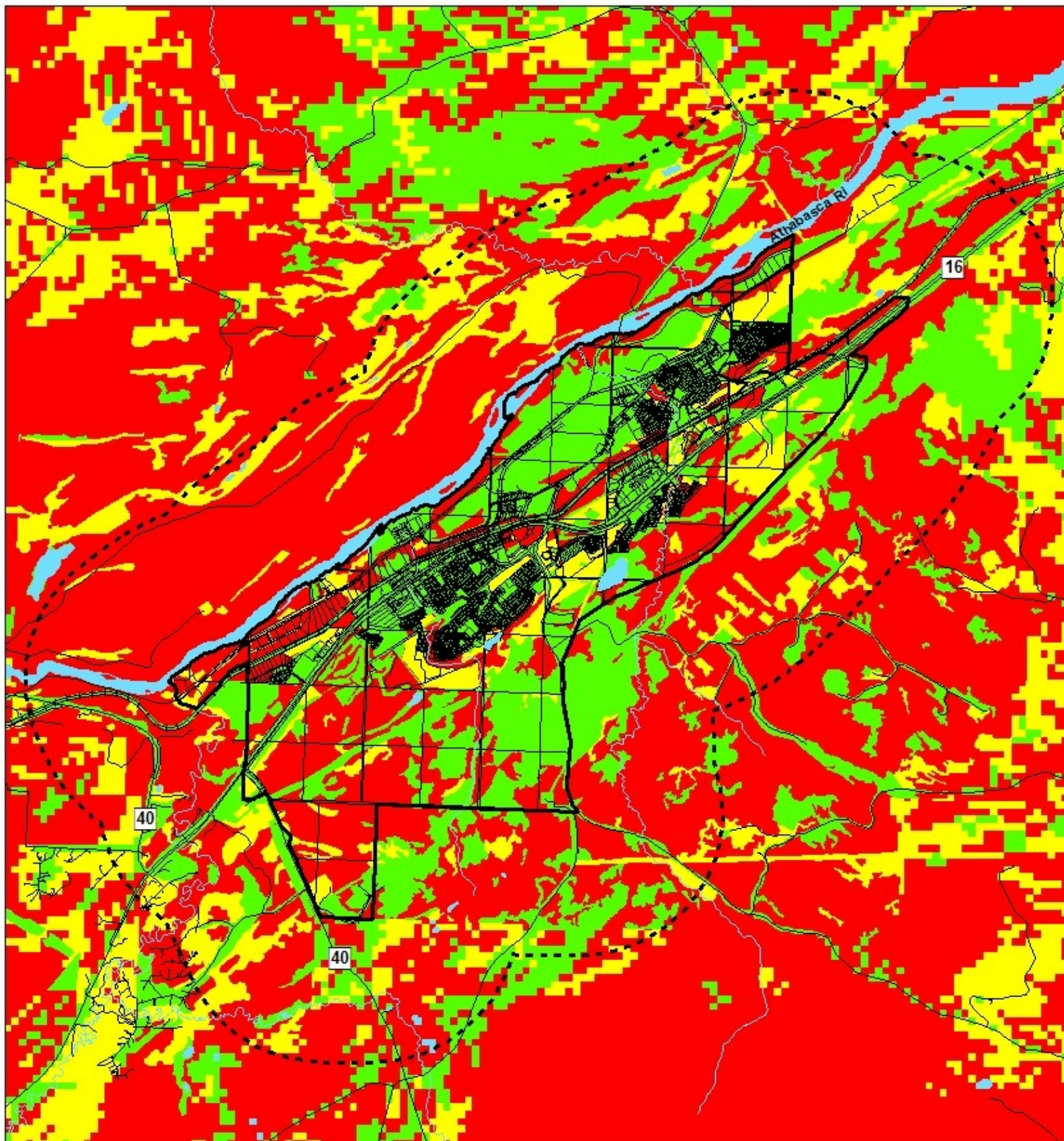


Fuels reduction projects identified in the 2011 plan and conducted over the past five years have reduced FireSmart hazard in many areas (Map 3).

The following development areas have High-Extreme FireSmart hazard (Table 1). Some are due to forest fuels on municipal, crown, and/or private lands and others are due to combustible roofing materials.

Table 1: High/Extreme FireSmart Structure/Site Hazard Development Areas

Development Area	FireSmart Structure/Site Hazard Level
Collinge Rd/Reimer Dr/Fairfax Dr	Extreme
Country Side Estates	Extreme
West River Rd	Extreme
Bradwell St/Sitar Cres/Appleyard Cove	Extreme
Bradwell St. South (Proposed development)	Extreme
Hinton Training Centre	High
Eaton Drive	High
Hallam Dr	High
Drinnan Rd	High
Skogg Ave/Boutin Ave	High



Map 3 - FireSmart Hazard

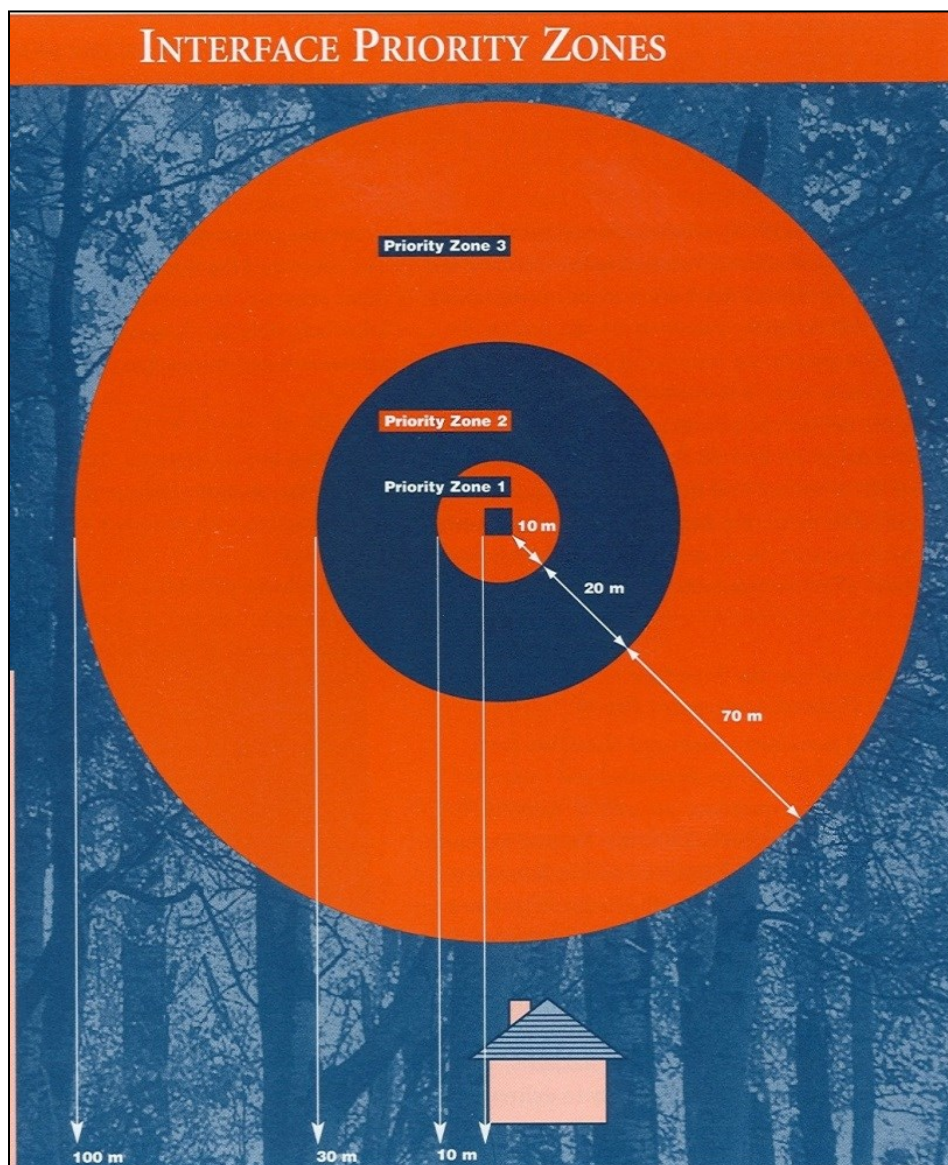


1:70,000

5 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 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.

FireSmart standards refer to three interface priority zones with vegetation management for interface structures recommended in Zones 1 (0-10m) and 2 (10-30m) at a minimum and in Zone 3 (30-100m+) based on hazard and risk.



Interface Priority Zones

5.1 Existing Vegetation Management

FireSmart fuelbreaks completed within and 2 kilometres surrounding the Town of Hinton includes (Map 4):

- Fuel removal (fireguards) – 148 hectares
- Fuel reduction (thin/prune/clean) – 144 hectares

Alberta Wildfire Management completed several landscape-level fireguards to the south and west of the Town of Hinton that are now approximately 10 years old. Inspection of the Hinton South Bypass fireguard shows that grass and deciduous regrowth is re-establishing however maintenance is not yet required.



2005 Hinton South Bypass Fireguard

The Town of Hinton has completed most of the recommended priority fuel reduction projects from the 2011 FireSmart Mitigation Strategy and several of the recommended areas from this 2016 plan are completed or in progress.



Town of Hinton Fuel Reduction Project

5.2 Proposed Vegetation Management

Additional priorities are identified in this plan based on FireSmart hazard and risk to further reduce the threat of wildfire to life and property within the Town of Hinton (Map 4).

5.2.1 Priority Zone 1-2 (0-30 metres from structure)

Inadequate Priority Zone 1-2 clearance from coniferous and/or native surface fuels continues to exist for many structures on:

- West River Road/Riverside Estates
- Country Side Estates (Woodley Drive)
- Collinge Road
- Bradwell St/Sitar Cres/Parker Pl
- Appleyard Cove
- Hallam Drive
- Drinnan Road
- Skogg Ave



Country Side Estates & West River Road



Drinnan Road

FireSmart guidelines recommend a minimum of 10 metres clearance from all combustible wildland fuels. FireSmart 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 coniferous trees
- **Removal** of all dead and down forest vegetation from the forest floor
- **Establishment** of a non-combustible surface cover around the structure
- **Removal** of all combustible material piles (firewood, lumber, etc.) within 10 metres of the structure
- Regular **maintenance** to ensure that all combustible needles, leaves, and native grass are removed from on and around structures

Recommendation 1: Educate and encourage residents to establish adequate Priority Zone 1-2 clearance from wildland fuels next to their structures.

5.2.2 Priority Zone 2-3 (10-100 metres from structure)

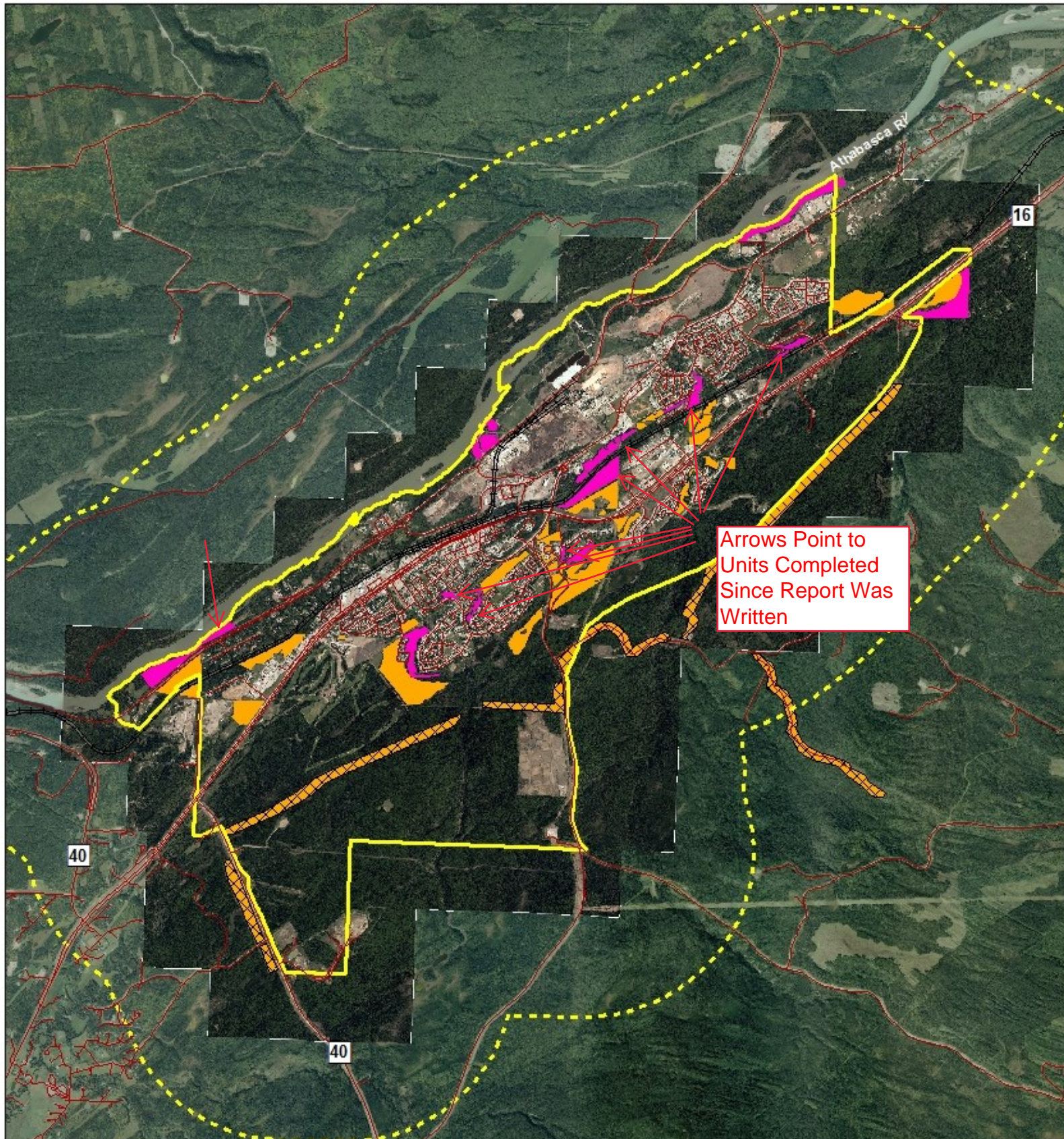
Implementation of several new Priority Zone 2-3 fuels reduction areas is proposed. Proposed areas are on Municipal and Provincial government lands (Table 2). There are several private land parcels that present High-Extreme wildfire threat to developments that were identified in the 2011 plan however none of these have been implemented by the landowners.

Proposed fuel modification areas will require detailed fuels reduction planning to identify fuels management prescription standards, unit boundaries, and operational constraints prior to implementation.



Table 2: Proposed Zone 2-3 FireSmart Vegetation Management Areas

Area	Priority A (Ha)	Priority B (Ha)
Hinton West	9.6	3.6
Happy Creek/Mountain St.	7.9	2.9
Hinton Central	18.6	3.5
Hinton East	15.6	2.4
East River Road	0.0	13.7
Water Plant	0.0	6.5
Eaton Drive	0.0	3.6
Totals	51.7	36.2

Recommendation 2: Implement Zone 2-3 fuels reduction on the Municipal and Provincial government lands based on priority and available funding.



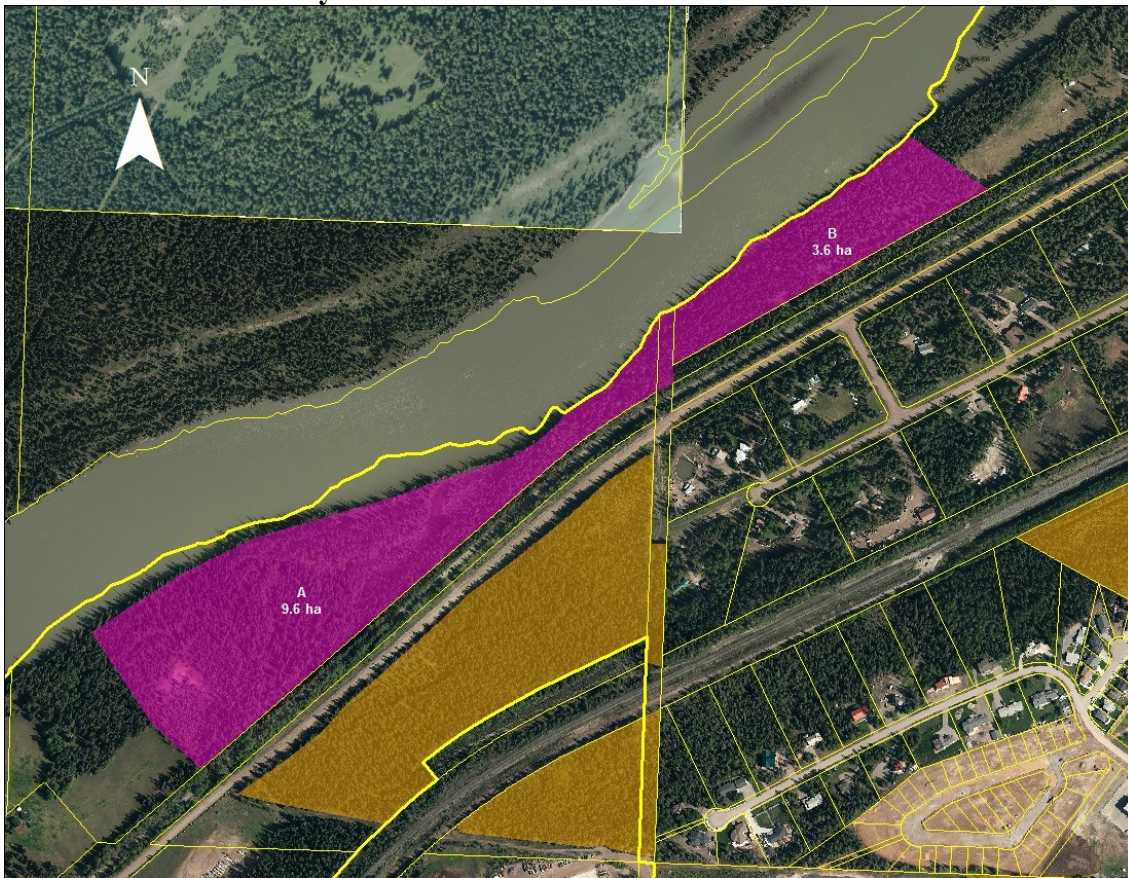
Map 4 - Vegetation Management

-  Completed Fuel Reduction
-  Completed Fuel Removal (Fireguard)
-  Proposed Fuel Reduction

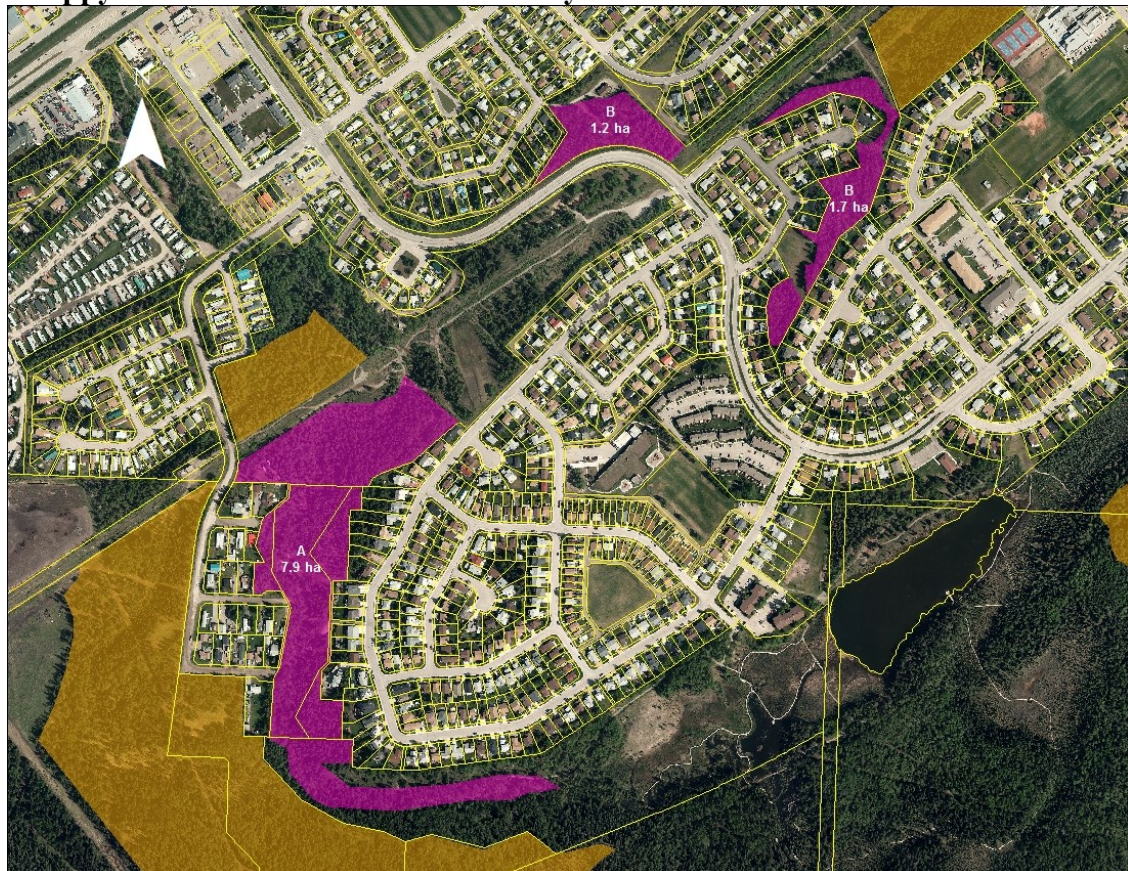


1:60,000

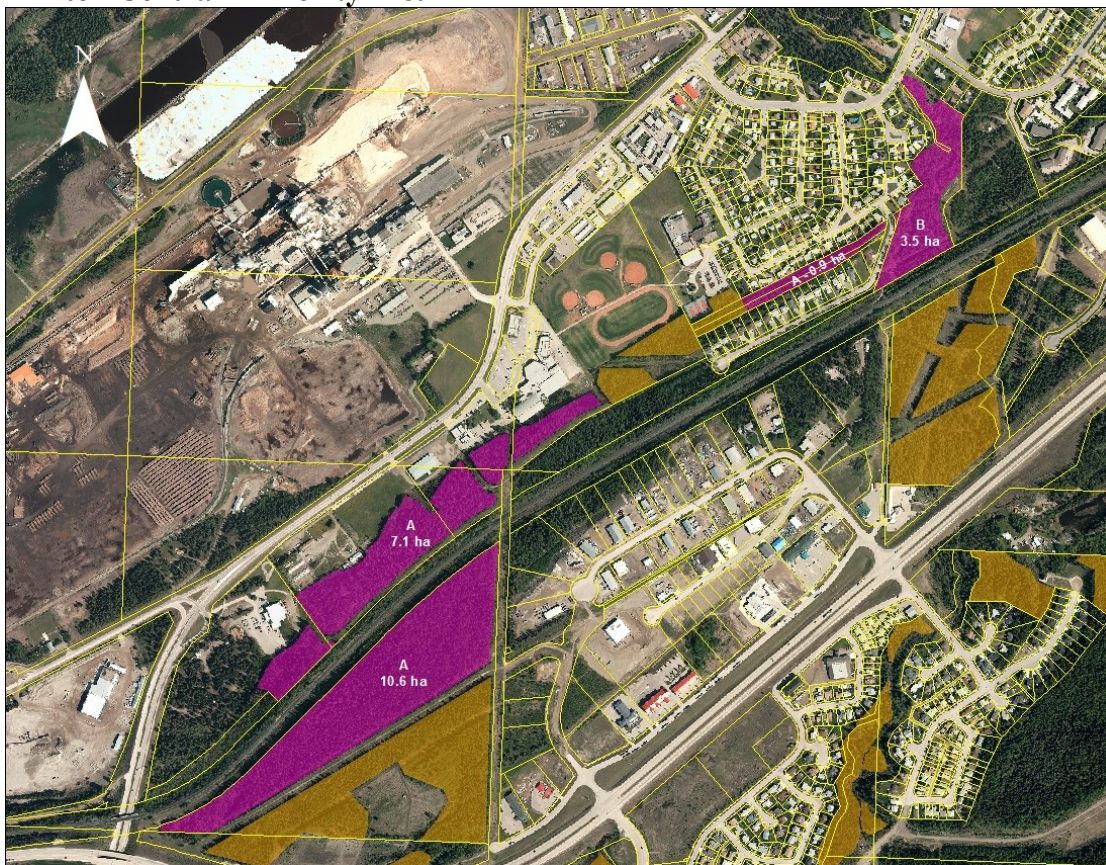
Hinton West – Priority A & B



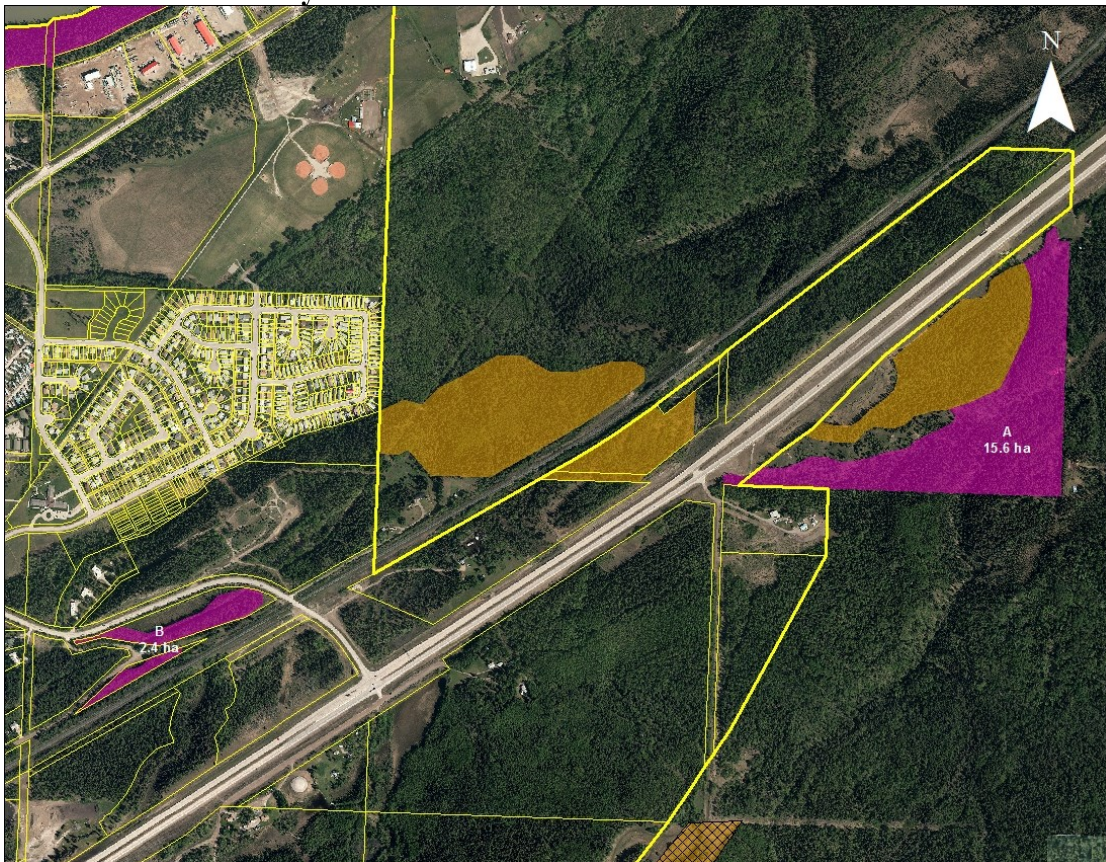
Happy Creek/Mountain Street – Priority A & B



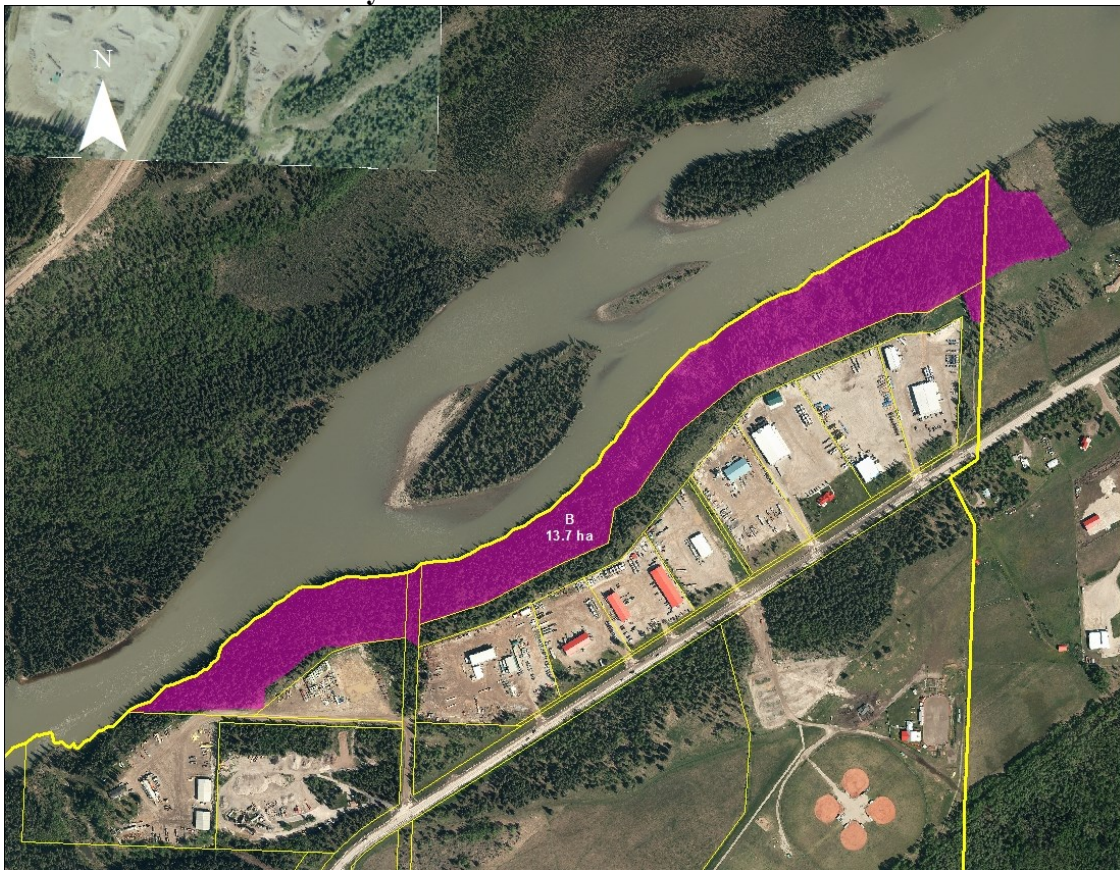
Hinton Central – Priority A & B



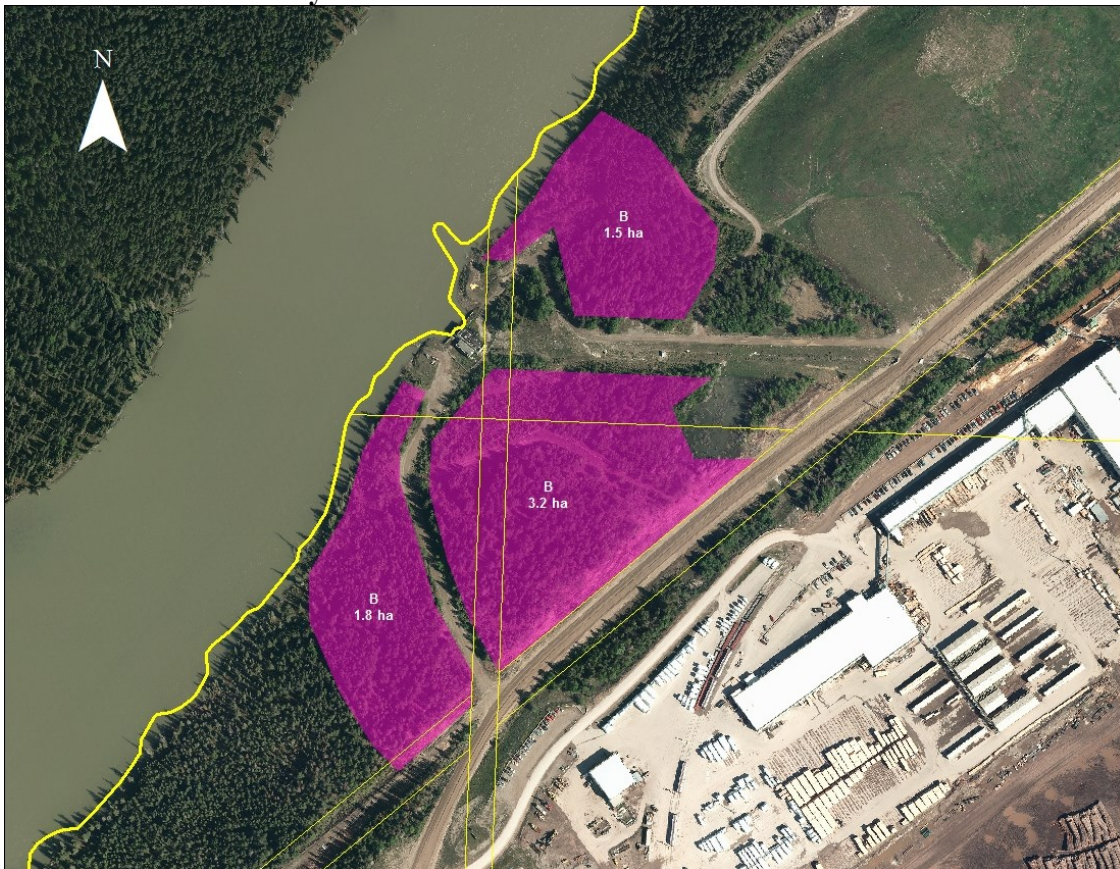
Hinton East – Priority A & B



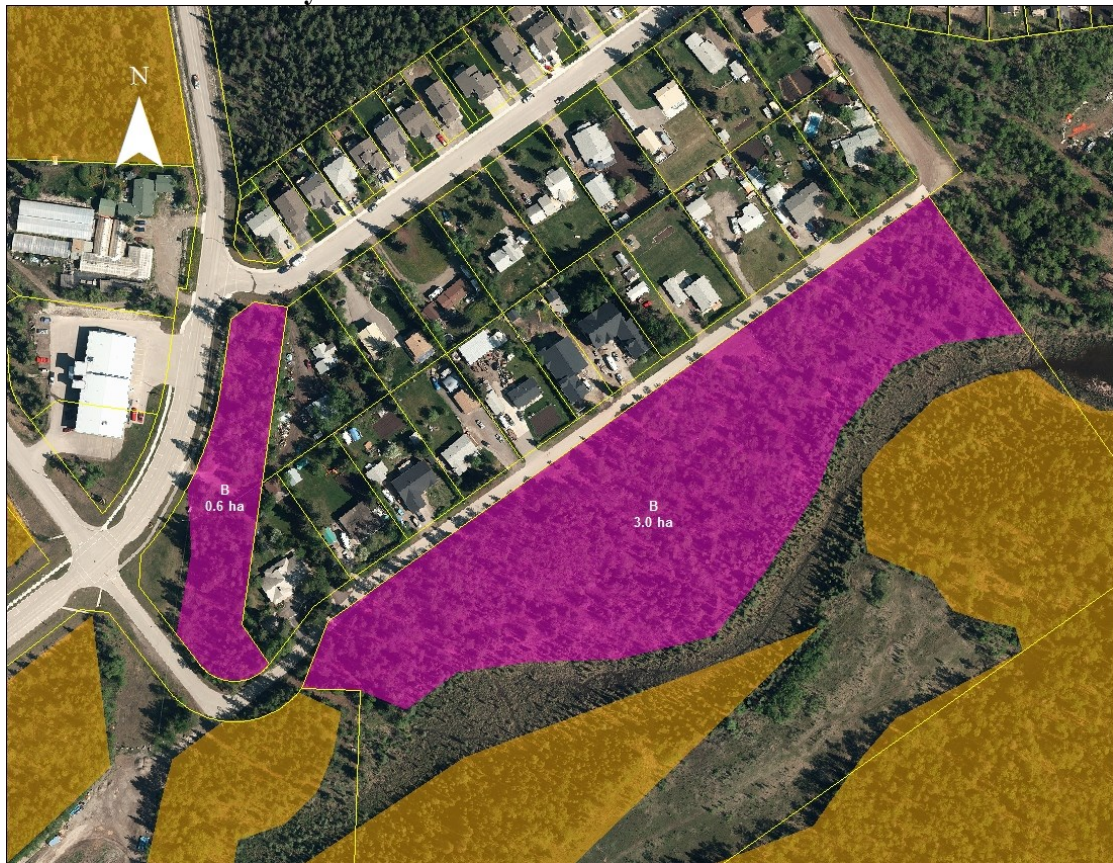
East River Road – Priority B



Water Plant – Priority B



Eaton Drive – Priority B



5.3 Vegetation Management Maintenance

Landowners and land managers must provide periodic inspections of fuel modification areas and implement maintenance as required. **Second-pass removals on several of the completed blocks should be considered to reduce fuel loads further once the priority vegetation management projects have been completed.**

Fuel modification maintenance is required on various different timelines depending on several factors.

Priority Zone 1 (10 metres from structure) – must be maintained regularly throughout the fire season including:

- Watering and maintaining grass
- Cleaning of dead needles and leaves from roof, eavestroughs, and around structures

Priority Zones 2-3 (10-100 metres from structure) – should be inspected and maintained as required including:

- Removal of dead and down and dead standing trees
- Thinning/removal of re-growth after original fuel reduction

Recommendation 3: Landowners and land managers must maintain FireSmart fuelbreaks as required. Completed fuel reduction projects should be inspected and considered for second-pass thinning to reduce fuel loads further.

6. Development and Legislation Options

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

6.1 Structural Options

Structural characteristics that contribute to a structure's ability to withstand wildfire ignition include exterior roofing, siding, and decking materials and proper construction and maintenance of eaves, vents, and openings to reduce the threat of airborne ember ignition of the structure.

Roofing materials in Hinton consist of primarily of non-combustible asphalt shingle with scattered dwellings having combustible wood-shake roofing materials.

Siding materials consist primarily of combustible wood or vinyl siding with some structures having non-combustible stucco, fibre-cement, or metal siding.

Combustible wooden decks and porches with open undersides are common which increases the wildfire threat.

6.2 Infrastructure Options

Infrastructure options include provision of adequate access standards, adequate and accessible fire suppression water supply, utility installation standards, and adequate road and address signage.

6.2.1 Access

Access road standards within the Town primarily meet FireSmart standards. The Town of Hinton Minimum Engineering Design Standards meets or exceeds FireSmart access road standards.

Section 17 of the Hinton Land Use Bylaw No. 1088 (Draft June/2016) requires that emergency access to new developments be provided as per the Safety Codes Act.

6.2.2 Water Supply

The Town of Hinton provides pressurized fire-hydrant supply for the core townsite area. Country-residential areas including West River Road/Riverside Estates and Highway 16 East have no hydrant-supply.

6.2.3 Franchised Utilities

The Minimum Engineering Design Standards require underground power installation for all new developments. Many older parts of Town have overhead supply which may result in loss of power during a wildfire.

Natural gas distribution is provided for the core area.

6.3 Legislation Options

Legislating *FireSmart* requirements for new development is an important step to creating FireSmart communities. The Hinton Municipal Development Plan (MDP) and Land Use Bylaw (LUB) are currently under review.

6.3.1 Municipal Development Plan (1998) & Bylaw 940-9 (2011)

The current Municipal Development Plan refers to FireSmart in two locations.

Section 4 – Issue C	Requires, through the design process, neighbourhoods to be safe and “firesmart”	
Section – Issue E	States that the Town will continue to work cooperatively with the Province and Yellowhead County to finalize the Wildland/Urban Interface Plan	REMOVE - First Plan was finalized in 1998 and revised in 2011 and 2016

Recommendation 4: Add a Policy to the MDP requiring new subdivision applications deemed to be in High or Extreme FireSmart hazard areas to prepare and submit a Wildfire Risk Assessment, prepared by a qualified FireSmart professional.

6.3.2 Land Use Bylaw No. 1088 (Draft June 2016)

The Land Use Bylaw provides specific standards for development that influence wildfire threat including exterior structure materials, setbacks, and addressing.

A review of the draft Land Use Bylaw (June/2016) does not show any FireSmart additions as recommended in the 2011 FireSmart plan.

Recommendation 5: Revise the Hinton Land Use Bylaw to require the use of:

- ULC fire-rated roofing materials for all new structures, replacements, or retro-fits;
- Fire-resistant siding materials for all new structures, replacements, or retro-fits;
- Fire-resistant decking materials for all new structures, replacements, or retro-fits.

7. Public Education Options

The Town of Hinton has added some FireSmart recommendations for residents to follow on the Town website and social media sites since the 2011 FireSmart plan however there has been minimal action taken by most residential property owners on the perimeter and in the country-residential areas.

7.1 Key Messages

The following key messages are recommended to educate residents on their priorities to reduce the threat of wildfire to their structures.

- Contact Town of Hinton Fire/Rescue to arrange for a FireSmart Hazard Assessment of your home and property
- Use non-combustible roofing, siding, and decking materials when building or renovating your home
- Thin or remove the spruce and pine trees around your structures for a minimum of 30 metres
- Provide regular maintenance of grass, brush, and dead needles and leaves for a minimum of 30 metres around your house
- Skirt the undersides of your decks and porches to reduce the chances of fire getting underneath
- Store combustible materials (firewood/debris piles, ATV's, fuel cans, etc.) a minimum of 10 metres away from your structures

Recommendation 6: Public education on acceptable FireSmart standards is recommended for all residents with a focus on development and maintenance of FireSmart Priority Zone 1, 2, and 3 clearance around the home and use of non-combustible exterior structural materials.

7.2 FireSmart Hazard Assessments

Residents would benefit from a FireSmart Hazard Assessment of their home and property to identify those items that present wildfire threat and recommended methods to reduce that threat. The FireSmart Canada FireSmart-Protecting Your Community from Wildfire and the Alberta Government FireSmart Homeowners Manual both provide FireSmart Hazard Assessment templates that could be used.

Recommendation 7: Identify and train Hinton Fire/Rescue personnel to provide FireSmart Hazard Assessments to those residents that are at risk to wildfire or those that request one.

7.3 FireSmart Canada Community Recognition Program

FireSmart Canada has initiated the FireSmart Community Recognition Program to motivate and engage residents to plan and take FireSmart actions in their “own backyards” to reduce wildfire losses from the “grassroots” level.

The program is driven through identification and training of key Municipal and wildland fire agency personnel to act as Local FireSmart Representatives to guide the process and community members to act as Community Champions to lead and implement the FireSmart Community Recognition Program within their community.

Recommendation 8: Identify and train key Hinton Fire Services personnel to act as Local FireSmart Representatives and to identify and assist the appropriate Community Champions within the Town neighbourhoods towards Recognized FireSmart Community status.

8. Inter-Agency Cooperation and Cross-Training Options

Inter-agency stakeholders within the planning area include:

- Town of Hinton
- Yellowhead County
- Alberta Wildfire Management – Edson Wildfire Management Area
- West Fraser Mills

Wildfire suppression within the Town is the responsibility the Town of Hinton and outside the Town is the responsibility of Alberta Wildfire Management. The Town of Hinton and AB. Wildfire Management hold a wildfire mutual-aid agreement.

Hinton Fire/Rescue continues to be active in cross-training their members in wildfire and wildland/urban interface fire operations. Cross-training options may include:

Wildfire:

- Wildland Firefighter (NFPA 1051 Level I)

Wildland/Urban Interface:

- Structure & Site Preparation (S-115)/Sprinkler Workshop
- Fire Operations in the Wildland/Urban Interface (S-215)

Incident Command System:

- Introduction to ICS (I-100)
- Basic ICS (I-200)
- Intermediate ICS (I-300)
- Advanced ICS (I-400)
- ICS for Executives (I-402)

Recommendation 9: Hinton Fire/Rescue and Town emergency management personnel should be cross-trained and qualified based on their participation in the emergency management organization.

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.

9.1 Town of Hinton Wildfire Preparedness Guide (2014)

The Town of Hinton Wildfire Preparedness Guide provides emergency responders with detailed tactical information to protect values at risk from approaching wildfire. This plan was developed based on a recommendation in the 2011 FireSmart plan, was tested in the mock-wildfire exercise in 2012, updated in 2014, and re-tested in the 2016 exercise.

9.2 Town of Hinton Emergency Management Plan (2014)

The Town of Hinton Emergency Management Plan has been revised to follow the Incident Command System model for the Emergency Operations Centre.

The Plan refers to wildfire as a hazard and uses the Wildfire Preparedness Guide prepared in 2014 as the hazard-specific plan to be used during a wildfire emergency.

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

Item	Recommendation	Responsible Agency
Priority Zone 1-2 Fuels Reduction	Recommendation 1: Educate and encourage residents to establish adequate Priority Zone 1-2 clearance from wildland fuels next to their structures.	Town of Hinton
Priority Zone 2-3 Fuels Reduction	Recommendation 2: Implement Zone 2-3 fuels reduction on the Municipal and Provincial government lands based on priority and available funding.	Town of Hinton AB. Wildfire Mgt. Yellowhead County
Vegetation Mgt Maintenance	Recommendation 3: Landowners and land managers must maintain FireSmart fuelbreaks as required. Completed fuel reduction projects should be inspected and considered for second-pass thinning to reduce fuel loads further.	Town of Hinton AB. Wildfire Mgt. Yellowhead County

Development & Legislation

Item	Recommendation	Responsible Agency
Municipal Development Plan	Recommendation 4: Add a Policy to the MDP requiring new subdivision applications deemed to be in High or Extreme FireSmart hazard areas to prepare and submit a Wildfire Risk Assessment, prepared by a qualified FireSmart professional.	Town of Hinton
Land Use Bylaw	Recommendation 5: Revise the Hinton Land Use Bylaw to require the use of: <ul style="list-style-type: none"> ▪ ULC fire-rated roofing materials for all new structures, replacements, or retro-fits; ▪ Fire-resistant siding materials for all new structures, replacements, or retro-fits; ▪ Fire-resistant decking materials for all new structures, replacements, or retro-fits. 	Town of Hinton

Public Education

Item	Recommendation	Responsible Agency
Public Education Priorities	Recommendation 6: Public education on acceptable FireSmart standards is recommended for all residents with a focus on development and maintenance of FireSmart Priority Zone 1, 2, and 3 clearance around the home and use of non-combustible exterior structural materials.	Town of Hinton
FireSmart Home Assessments	Recommendation 7: Identify and train Hinton Fire/Rescue personnel to provide FireSmart Hazard Assessments to those residents that are at risk to wildfire or those that request one.	Town of Hinton
FireSmart Canada Community Recognition Program	Recommendation 8: Identify and train key Hinton Fire Services personnel to act as Local FireSmart Representatives and to identify and assist the appropriate Community Champions within the Town neighbourhoods towards Recognized FireSmart Community status.	Town of Hinton

Interagency Cooperation & Cross-Training

Item	Recommendation	Responsible Agency
Cross-Training	Recommendation 9: Hinton Fire/Rescue and Town emergency management personnel should be cross-trained and qualified based on their participation in the emergency management organization.	Town of Hinton