UPDATED REVELSTOKE & AREA COMMUNITY WILDFIRE PROTECTION PLAN

JUNE 2015

Prepared for:

City of Revelstoke
Community Wildland Fire Protection Committee

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Trevor English, City Councilor and Committee Chairman

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Rob Girard, City of Revelstoke Fire Rescue Services

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Kevin Lavelle and Diane Millar, BC Ministry of Forests, Lands and Natural Resource Operations

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Lindsay McIntyre, Revelstoke Mountain Resort

Brian Gadbois, Citizen (past member)

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Abbreviations

BCWMB	BC Wildfire Management Branch
CPR	Canadian Pacific Railway
CRA	Controlled Recreation Area tenure
CSRD	Columbia Shuswap Regional District
CWPP	Community Wildfire Protection Plan
CWFP Committee	Community Wildland Fire Protection Committee
MFLNRO	Ministry of Forest, Lands and Natural Resource Operations
RMR	Revelstoke Mountain Resort
TCH	Trans-Canada Highway
UBCM	Union of BC Municipalities

Summary

Background

The Revelstoke and Area Emergency Management Program recognizes wildfires as one of the greatest risks to the community and surrounding area. The City's Community Wildland Fire Protection (CWFP) Committee, which includes representatives of provincial agencies, National Parks, Revelstoke Mountain Resort (RMR), community groups and a citizen, has guided the City's interface wildfire activities since 2006. The *Wildfire Risk Mapping Enhancement* report prepared for this Committee in 2011 identified designing community wildfire protection fuel breaks as one of the highest priority actions for Revelstoke and area.

This report summarizes the findings of the fuel break design process and updates recommendations to reduce wildfire risks in the Revelstoke area.

Community wildfire protection has become even more critical as recent experience in BC shows that catastrophic wildfires near communities sometimes cannot be suppressed immediately. BC Wildfire Management Branch has warned that, in the event of a mega fire, residents cannot rely on BC's suppression resources to protect communities and resources[1]. This is especially relevant in the Revelstoke area because high and extreme wildfire danger ratings, when catastrophic fires occur, develop later in the summer than in other areas of BC. By that time, fire suppression resources are usually already deployed to wildfires in other areas and may not be available to Revelstoke and area. The community's wildfire preparedness will be tested in these situations.

Project Area

The 2011 project included the City of Revelstoke Fire Protection Area and a two kilometer 'spotting' distance' around this area to account for flying embers as well as the developed portion of the Controlled Recreation Area (CRA) for Revelstoke Mountain Resort (RMR). For this project the area was expanded to include wildfire urban interface areas identified by the BC Wildfire Management Branch and the Greeley Creek watershed which is the City's primary water source (see map on page 11). Private lands, federal National Park lands and provincial Crown forest lands – some with uses such as gravel extraction, recreation and forestry - are within this area, creating an unusually complex set of wildfire jurisdictions and responsibilities.

Updated Wildfire Risk Ratings

The methodology used to analyze wildfire probability, consequences and resulting risks in the 2011 project was used to assess the expanded area (see maps on pages 16 -19).

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[1] Fuel Management In the Wildland Urban-Interface – Update. BC Forest Practices Board. 2015.

The wildfire probability, consequences and associated risks for the additional wildfire interface areas are very similar to the original project area. Although the analysis indicated the wildfire probability for the Greeley Creek watershed is moderate to high, the project team assigned a moderate to low probability because of it is a cold, north-facing slope (which is not accounted for in the analysis), with older hemlock forests. As well, a catastrophic wildfire in 1895 did not enter the watershed, indicating a lower wildfire probability.

Community Wildfire Protection Fuel Breaks

A network of fuel breaks around the developed areas of a community is an important tool for protecting community values from large scale wildfires. Each fuel break is a strategically located strip with no fuels (e.g. rivers and rock outcrops), low volume coniferous fuel or low flammability fuel (represented by deciduous dominated forests) where the intensity of an uncontrolled wildfire is lowered so that firefighters can safely take actions to suppress the fire and/or use the area as a safe zone from which to tactically burn off the area ahead of the oncoming wildfire.

The team found that Revelstoke and area is fortunate to be surrounded by many man-made and natural areas that meet the criteria for fuel breaks, including BC Hydro transmission lines, highways, wide ski runs, older forests, deciduous dominated forests, rock faces and recent wildfires (See map on page 23).There are three gaps:

- south of the developed area of RMR and east of Greeley Creek where property owners will need to be especially vigilant to FireSmart their properties, and
- Mount Revelstoke National Park – As a member of the City's Community Wildland Fire Protection Committee Parks Canada recognizes this gap and has drafted a Fire Management Plan that includes an assessment of wildfire risks and options by 2016, with fuel treatment decisions to follow.

The team recommends that the identified breaks be reviewed every 10 years to ensure they continue to be effective.

During the project the team explored the potential to establish 'shaded' fuel breaks through fuel management treatments to reduce the density of existing forests so they meet the requirements for fuel breaks. A separate report was prepared based on a literature review and expert interviews which recommends creating deciduous dominated fuel breaks to reduce the need for expensive, regular maintenance with conifer-dominated breaks.

The draft fuel break information was available for community, agency and tenure holder input during May 2015. The project team and the CWFP Committee jointly hosted three neighbourhood meetings that were attended by 13 residents.

Participants supported the draft fuel break design and provided many suggestions for expanding involvement of property owners in community wildfire protection. A list of these suggestions is included in Appendix 1.

Updated Priority Actions

The 2011 report contains detailed descriptions and prioritization of recommended

community wildfire protection actions for the Committee to implement. Since 2011, Committee members have worked together to complete many of the highest priority actions including:

- clarifying jurisdictions and strengthening working relationships and agreements between the City, BC Wildfire Management Branch, BC Hydro and Parks Canada;
- assessing the need for fuel reduction around the City's water treatment plant and reservoirs;
- fuel reduction around key economic infrastructure at RMR;
- explored fuel reduction in the reservoir drawdown zone;
- expanding the number of fuel management demonstration areas;
- adding wildfire prevention signage at recreation trailheads and at strategic locations on highways; and
- purchasing a mobile sprinkler unit.

As well, the City has strengthened its emergency preparedness generally and BC Wildfire Management Branch annually does school education programs on wildfire prevention.

The table below updates the priority actions from 2011, adding new actions from this project and highlighting those that are recommended for completion in the next two years.

In addition to continuing the ongoing activities, the team recommends the highest priorities are:

- ***Communication infrastructure*** - Confirm the location and ownership of communications infrastructure and encourage owners to implement wildfire protection practices./.:
- ***Homes and commercial buildings*** -
  1) Research and establish an interface management area as a natural hazard Development Permit Area with policies centred on incorporating FireSmart practices into the Official Community Plan (OCP). These policies would provide additional tools for Revelstoke Fire Rescue Services to control fuel loading on private property. The establishment of the interface management area boundaries should involve professional and public consultation.
  2) Develop new approaches to encourage property owners to adopt FireSmart practices.

- To learn more about *FireSmart* practices readers can pick up a pamphlet at the Fire Station or go to: http://bcwildfire.ca/Prevention/firesmart.htm.

- ***Fuel breaks*** - Parks Canada to complete assessments and define actions to create effective fuel breaks at the bottom of Mount Revelstoke.

The majority of these recommendations can be implemented by the Committee members during their day-to-day operations. It is recommended that the City allocate approximately $10,000 annually to implement the priority education/ awareness recommendations.

Highest priority recommendations for the next two years are in bold

Infrastructure protection	*Objective*: Reduce risk of interruption in services from essential community, provincial and national infrastructure.
	Communication infrastructure • **Confirm the location and ownership of communications infrastructure and encourage owners to implement wildfire protection practices.** ***Homes and commercial buildings*** • **Research and establish an interface management area as a natural hazard Development Permit Area with policies centred on incorporating FireSmart practices into the Official Community Plan (OCP). These policies would provide additional tools for Revelstoke Fire Rescue Services to control fuel loading on private property. The establishment of the interface management area boundaries should involve professional and public consultation.**
	• **Develop new approaches to encourage property owners to adopt FireSmart practices including:** - **Explore ways for property owners to access expertise for wildfire threat assessments and FireSmart action plans.** - **Explore options for property owners to do fuel management along streams that meets riparian management and wildfire protection objectives.** - **Continue to encourage property owners in interface areas to purchase sprinklers – develop an InfoSheet and hold demonstrations of the City/CSRD sprinkler unit.** - Explore incentives for property owners to adopt *FireSmart* practices. • **Review of subdivision application referrals by Revelstoke Fire Rescue Services for wildfire protection.** ***Transportation infrastructure*** • **Communicate wildfire risks to the CPR and the Ministry of Transportation and Infrastructure and encourage them to ensure their infrastructure is adequately protected from wildfire.** ***Revelstoke Mountain Resort*** • Continue to address wildfire risks to infrastructure that is essential to the continued operation of RMR. ***BC Hydro infrastructure*** • Manage *w*ildfire risks to monitoring equipment east of the dam.

Education & awareness	*Objectives:* • Expand resident and visitor knowledge and awareness of wildfire risks. • Encourage implementation of FireSmart practices to reduce wildfire risks.
	General • **Continue to annually agree to and implement an education and awareness plan to guide and coordinate the efforts of the CWFP Committee members including:** - **Creating an Info Sheet about home sprinkling.** - **Expanding FireSmart information distribution with the sprinkling info sheet.** - **Creating community wildfire protection pages on the City and CSRD websites.** - **Consider having displays with the sprinkler unit at the annual spring sidewalk sale, Canada Day and Timber Day.** - **Continue media stories during high and extreme fire danger.** • Continue to maintain fuel management demonstration areas. • Enforce forest closures. • Educate forest users about the hazards of being too close to transmission lines during smoky conditions.
	Property and building owners • **Seek out neighbourhood champions to facilitate FireSmart awareness and education neighbourhood events, focusing on Johnson Heights, Clearview Heights, Arrow Heights, Columbia Park, Begbie Bench/MacPherson and Airport Way.** • **Create a FireSmart model-size show home.** • **Explore ways to recognize owners who implement FireSmart practices.** ***Residents*** • **Continue school education programs.** ***Visitors*** • **Continue to post the fire danger rating and fire restrictions at the Visitors Centre.** ***Recreation users*** • **Continue to place wildfire prevention signage at all recreation sites and trail heads.** • Work with the tourism sector and local recreation groups to develop education/awareness materials such as a brochure describing safe fire use in the backcountry. ***Businesses*** • Educate businesses about wildfire preparedness.

Fire preparedness	*Objectives: A*gencies, businesses and private land owners are prepared to respond swiftly to suppress wildfires.
	• **Continue wildfire training for Fire Rescue Services staff, and cross-training with wildfire suppression crews.** • **Continue the annual pre-organization reviews and wildfire status communications.** • **Businesses with agreements and contracts for operations on Crown land must meet the wildfire preparedness requirements of the BC Wildfire Act.** • **City to explore establishing a bylaw that does not permit un-screened outdoor storage of materials in commercial and industrial zoning districts. This would assist in preventing pallets being set out by businesses where they can be picked up and used for bonfires in the drawdown zone..** • Learn from recent interface wildfires elsewhere.
Fuel management	*Objectives* • Minimize debris to reduce wildfire fuels, particularly near infrastructure and developed areas. • Reduce wildfire fuels in forest types with significant continuous ladder fuels near infrastructure and development to achieve low or moderate wildfire probability ratings. • Establish effective landscape level fuel modification breaks to protect areas where uncontrolled wildfires would have high consequences.
	Debris • **Continue active debris management to reduce wildfire risks.** ***High priority fuel types and fuel modification breaks*** • **Parks Canada to complete assessments and define actions to create effective fuel breaks at the bottom of Mount Revelstoke.** • Review fuel break effectiveness in 2025. ***Private property*** • Work with private land owners to identify funding supports and insurance incentives to expand FireSmart implementation. ***BC Hydro*** • Continue to explore options for fuel reduction in the grasslands in the drawdown zone. **Forested City-owned properties** • Continue to maintain fuel reduction where needed based on wildfire threat assessments. No additional areas require treatment currently. • Review the need for fuel management on forested City properties in 2020.

Emergency response & evacuation	*Objectives:* Ensure community and household capacity and preparedness is adequate to respond to a wildfire emergency, including community evacuation.
	• **A wildfire emergency exercise should be hosted by the Emergency Management Program.** • The Emergency Management Plan should contemplate alternative Command Posts in case smoke from wildfires eliminates lower elevation locations. • Electricity supply during a wildfire should be reviewed.
Fire suppression	***Objectives***: Remove limitations to swift, effective initial attack.
	Fuel break action plans • **BC Wildfire Management Branch to prepare action plans for suppression within the identified fuel breaks.** ***Access*** • **Continue to inform CSRD property owners of driveway width requirements for City fire pumper trucks and consider bylaw revisions to require adequate widths.** • Build new trails to standards that permit access by wildfire suppression crews. ***Adequate water sources*** • Agencies should ensure they are prepared for ground based wildfire suppression in areas where water is limited. ***Initial attack capacity*** • **Continue agency cooperation.** • **The City and BC Wildfire Management Branch should consider arranging for local firefighting resources prior to provincial scale extreme wildfire conditions, such as logging crew readiness and community wildfire suppression training.**
Post-fire response – Rehabilitation planning	*Objectives*: Be prepared to swiftly implement rehabilitation treatments in ecologically sensitive areas if needed after a wildfire.
	• Agencies should prepare a rehabilitation plan in case there is a wildfire in the community watersheds.

The climate, fuel types, ecosystems, terrain, jurisdictional complexity and extensive forest uses in the Revelstoke area create unique wildfire probabilities and consequences and overall risks to the community. Local innovative solutions will continue to be needed to effectively reduce wildfire risks.

By continuing to work together the CWFP Committee collectively has the capacity to imagine, plan and implement effective solutions. Continued communication, goodwill and collaboration will be needed.

1.0 Background

Since the Firestorm of 2003 when many homes in BC were burnt in uncontrollable wildfires, communities across the province have been preparing Community Wildfire Protection Plans to improve their preparedness for high and extreme fire seasons.

Revelstoke is located in BC's interior cedar-hemlock forests – an area renowned for its wet climate. Even in this wet environment, wildfires are a natural process in these forest ecosystems. In 2003 and again in 2006, lightning strikes on the mountains adjacent to the City started fires that were too steep for fire crews to work safely on, and that could not be put out with helicopter and air tankers, so they burned for several weeks during hot, dry summer conditions. These fires illustrate the potential for wildfires near the community.

The Revelstoke and Area Emergency Management Program recognizes wildfire as one of the greatest risks to the community and surrounding area:

> 'Wildfire is identified as one of the major hazards Revelstoke might face in the City's Emergency Response and Recovery Plan (ERRP). In fact, this hazard is much more likely to occur than many of the other possible hazards noted.'
>
> *Revelstoke Interface Wildfire Tactical Plan, 2009*

Since 2006 the City-appointed Community Wildland Fire Protection (CWFP) Committee, which includes representatives of provincial agencies, National Parks, Revelstoke Mountain Resort (RMR), community groups and a citizen, has guided the City's wildland interface fire activities. The members of the CWFP Committee are listed in the Acknowledgements at the front of this report.

In 2011 the *Wildfire Risk Mapping Enhancement for the Revelstoke and Area Community Wildfire Protection Plan* was completed under the Committee's guidance. This report assessed the wildfire probability, consequences and overall risk (the combination of probability and consequence), and recommended actions to reduce identified risks. Designing community wildfire protection fuel breaks was one of the highest priority actions recommended in this report.

The purposes of this project are to design a network of effective community wildfire protection fuel breaks and to update the priority community wildfire protection actions for the community. It was initiated by Revelstoke Fire Rescue Services and was jointly funded by the Union of BC Municipalities, the Ministry of Forests, Lands and Natural Resources Operations, the City, Columbia Basin and with the generous in-kind contributions of the CWFP Committee members.

Community wildfire protection has become even more critical as recent experience in BC shows that catastrophic wildfires near communities sometimes cannot be suppressed immediately. BC Wildfire Management Branch has warned that, in the event of a mega fire, residents cannot rely on BC's suppression resources to protect communities and resources[2]. This is especially relevant in the Revelstoke area because high and extreme wildfire danger ratings, when catastrophic fires occur, develop later in the summer than in other areas of BC. By that time, fire suppression resources are usually already deployed to wildfires in other areas and are not available to Revelstoke and area. The community's wildfire preparedness will be tested in these situations.

1.1 Project Area

The project area is illustrated in Figure 1 (see next page). As in the 2011 project, it includes the City of Revelstoke Protection Area, a two kilometer 'spotting' distance around the Protection Area, and a portion of the Controlled Recreation Area for Revelstoke Mountain Resort. For this project the area was expanded to include wildfire urban interface areas identified by the BC Wildfire Management Branch and the Greeley Creek watershed which is the City's primary water source. Private lands, federal National Park lands and provincial Crown forest lands – some with uses such as gravel extraction, recreation and forestry - are within this area, creating an unusually complex set of wildfire jurisdictions and responsibilities. The 2011 report describes these jurisdictions and responsibilities.

[2] Fuel Management In the Wildland Urban-Interface – Update. BC Forest Practices Board. 2015.

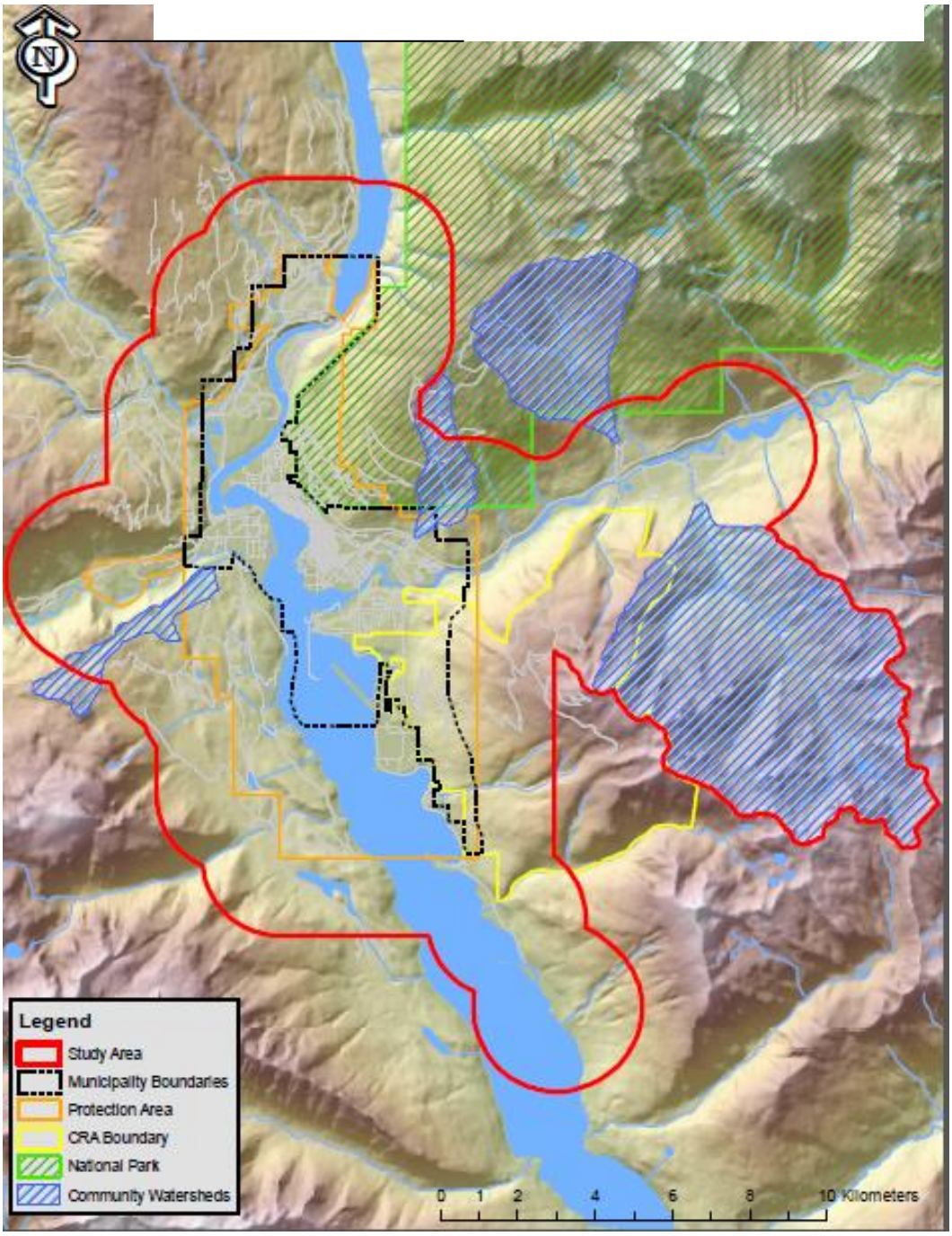


Figure 1: Revelstoke and Area fuel break design project area

1.2 Project Overview

The project included the following activities:

- preliminary fuel break location through geo-spatial mapping, field review with local wildfire experts and discussion with tenure holders;
- expand the Wildfire Risk Management System assessment to spatially quantify the probability, consequence and resulting risk of wildfires for the revised project area;
- research approaches to create 'shaded' fuel breaks in the highly productive forests in the Revelstoke area;
- refine and field review fuel break locations in collaboration with local wildfire management experts and tenure holders;
- review and approval of the draft fuel break design from the CWFP Committee followed by public review and comment;
- preparation of the final report for the Committee's approval.

The public review and comment included inviting comments from all agencies and tenure holders, widely advertising the opportunity for review and comment and holding neighbourhood meetings for Columbia Park/Clearview Heights/Johnson Heights, Begbie Bench/MacPherson and Arrow Heights/Airport Way. Members of the project team and the CWFP Committee made presentations and took input at the meetings.

Thirteen citizens attended the neighbourhood meetings. The fuel break design was consistently supported by these participants. Appendix 1 lists the suggestions that were made to increase implementation of FireSmart practices on private properties. These suggestions have been incorporated in the updated recommendations, or will be considered during the annual review of community wildfire protection awareness/education by the CWFP Committee.

2.0 Expanded Wildfire Risk Assessment

The Wildfire Risk Management System used to spatially assess the wildfire probabilities, consequences and resulting risks in the 2011 report was implemented for the expanded project area. The 2011 report contains a detailed description of the analysis system and data used.

Wildfire Risk Management System Terms	
Probability:	The likelihood of wildfire occurring within a defined area.
Consequence:	The impact of wildfire on identified values.
Wildfire Risk:	The combined probability and consequence of wildfire occurring within a defined area.

2.1 Wildfire Probability Ratings

Figure 2 (see next page) shows the wildfire probability ratings that result from the overlapping of the ignition probability, potential fire behaviour and suppression capability mapping. There are extensive areas rated as high probability in every direction around the community, with the exception of to the south west, where there are scattered patches of forests rated as high probability.

With the exception of the Greeley Creek watershed, the wildfire probability ratings are consistent with the perspective of Archie McConnachie, a project team member who was responsible for wildfire protection in this valley for several decades. In Archie's view, the probability of a wildfire threatening developed areas in Revelstoke is 'not if, it's when'.

In Archie's view, the wildfire probability for the Greeley Creek watershed is lower than the analysis indicates because the watershed is a cold, north-facing slope, which is not fully accounted for in the analysis, with older hemlock forests. As well, a catastrophic wildfire in 1895 did not enter the watershed, indicating a lower wildfire probability.

The project team also noted that the analysis may not have fully accounted for new wind patterns from the creation of Lake Revelstoke behind the Revelstoke dam. This new landscape feature has resulted in winds blowing down the valley more frequently than before the dam was built.

Finally, the reservoir drawdown zone, known locally as 'the flats', are rated as moderate in Figure 2. Local wildfire experts identify a high wildfire probability in the early spring, after the snow melts and before the grass greens up, when the grass from the previous year is tinder dry and recreational campfires have often started large fires in the past.

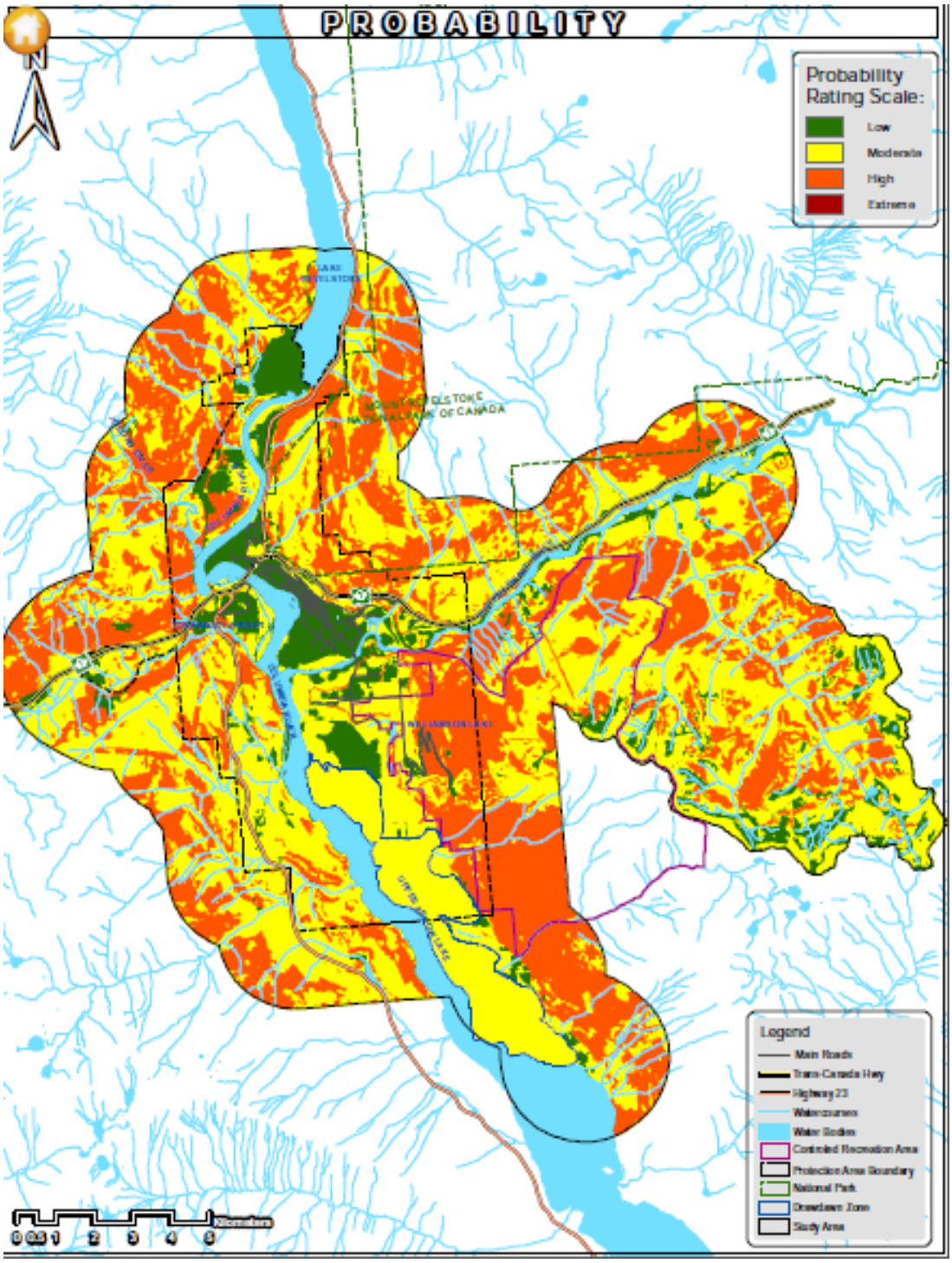


Figure 2. Wildfire probability ratings for Revelstoke and area.

2.2 Community Values and Wildfire Consequences

These components of the assessment evaluate potential wildfire consequences in the area based on community values including urban interface development, air quality, visual quality, water quality and ecosystem integrity.

The resulting wildfire consequence ratings for the project area are shown in Figure 3.

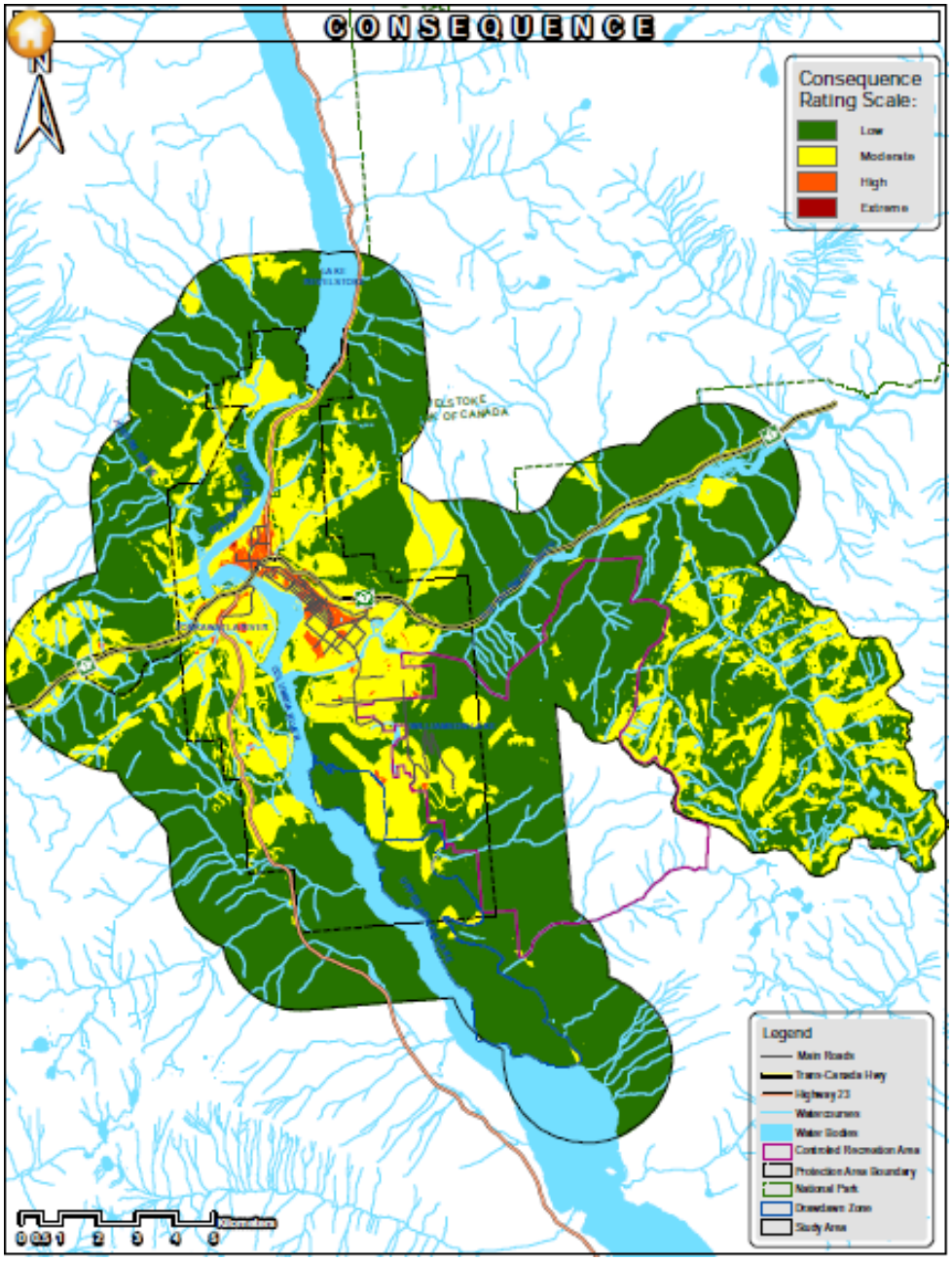


Figure 3. Wildfire Consequence ratings for Revelstoke and area.

2.3 Community Wildfire Risk Ratings

The community wildfire risk ratings were defined by overlaying the digital maps of wildfire probability and community consequences.

Figure 4 illustrates the community wildfire risk ratings for the project area. In the team's view the relatively high ratings for the Greeley Creek watershed would be lower because the team's on-site assessment of ther wildfire probabilities are lower than the analysis indicates..

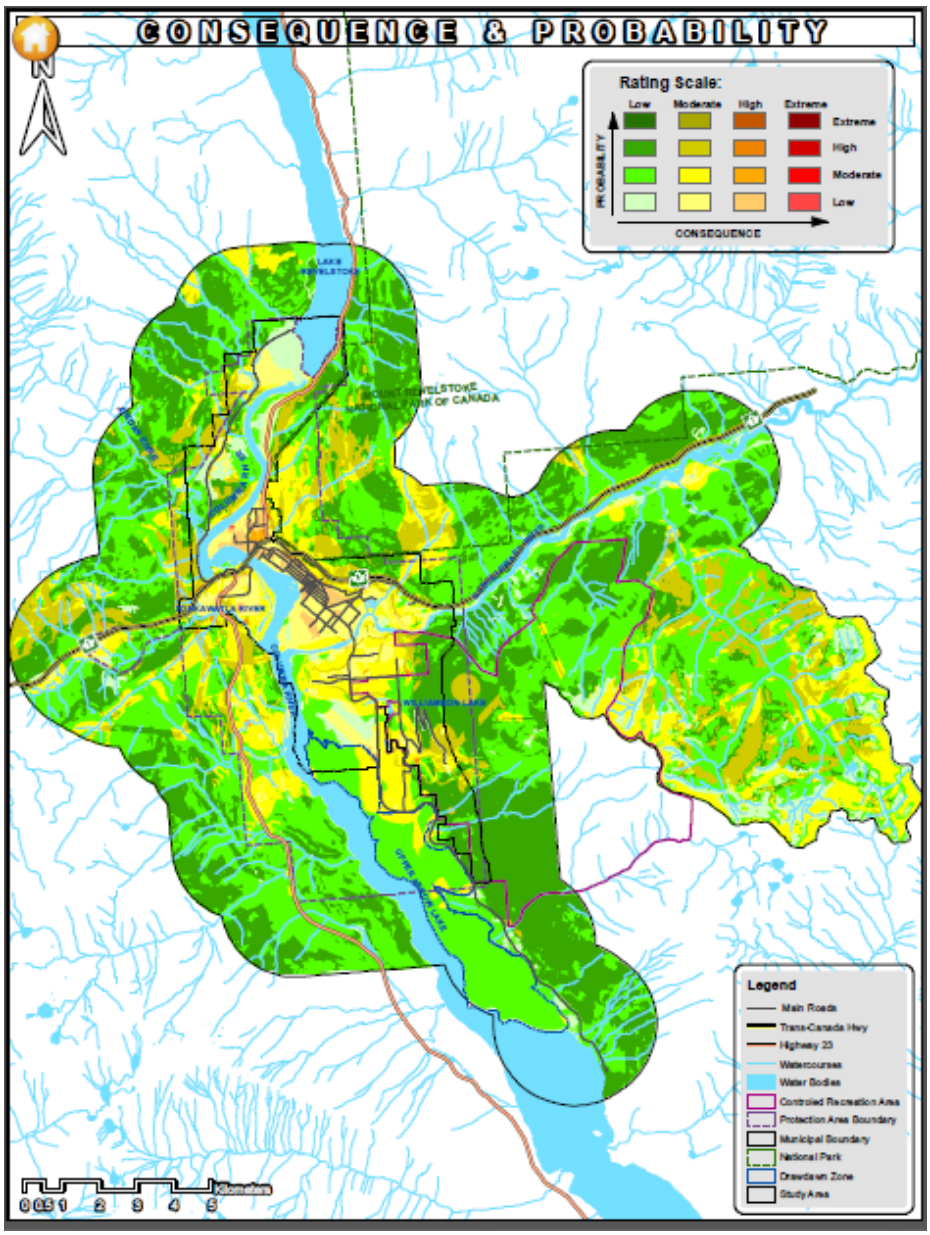
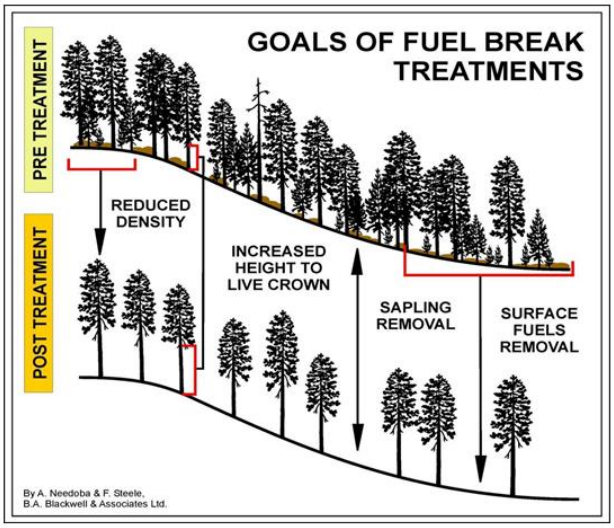


Figure 4. Wildfire risk ratings for Revelstoke and area.

3.0 Fuel Break Design

A network of fuel breaks around the developed areas of a community is an important tool for protecting community values from large scale wildfires. Each fuel break is a strategically located strip of low volume fuel and/or less flammable fuel (represented by deciduous dominated forests) where the intensity of an uncontrolled wildfire is lowered so that firefighters can safely take actions to suppress the fire and/or use the area as a safe zone from which to tactically burn off the area ahead of the oncoming wildfire.

Existing areas with no fuels (e.g. rivers and rock outcrops), low volume coniferous fuels or low flammability deciduous fuels can be effective fuel breaks. Around Revelstoke this includes natural spaces such as rivers and rock outcrops and man-made open areas within transmission lines, highway corridors and ski runs. Forests that are dominated by deciduous tree species (e.g. birch, aspen, cottonwood) or are older and have limited surface fuels can also be effective fuel breaks. Dense coniferous forests require fuel reduction by removing accumulations of surface fuels and dead materials, pruning trees and reducing tree density to be effective fuel breaks (see diagram below).



Fuel breaks act as staging areas where fire suppression crews can anchor their fire suppression efforts, thus increasing the likelihood that fires could be stopped, or subdued, so that the potential for a fire to move into inhabited areas is substantially reduced. For the most part, fuel-breaks are located on public lands to facilitate treatments if needed. As well effective fuel breaks must have road access so that fire crews can take fire control actions along the break.

Fuel breaks do not stop wildfires that start within the developed area of a community, nor do they stop embers from large wildfires outside the community from drifting into developed areas. Home owners and businesses need to FireSmart their properties to protect from these risks. For information about FireSmart see http://bcwildfire.ca/Prevention/firesmart.html.

For more information about fuel breaks see: http://www.cityofrevelstoke.com/DocumentCenter/Home/View/398 Appendix 7.

3.1 Fuel Break Design Methods

Fuel breaks are located where they will protect areas with the highest probability of a wildfire occurring and the greatest community values (consequence). In this project information about wildfire probabilities and consequences to community values was provided by the Wildfire Risk Management Assessment described above.

The project team and local wildfire experts first considered the location of historical wildfires, prevailing winds, existing forest conditions and fire suppression challenges to pinpoint likely wildfire start locations and direction of spread. In addition to historical winds from the south west, the team also considered potential impacts from winds coming from the north along the Columbia River since Lake Revelstoke was created in the 1970's.

Natural and man-made areas that might provide effective fuel breaks were first identified using a combination of aerial photographs, resource inventories, topographic maps, and personal field experience. Potential fuel break locations were field checked by the project team and local wildfire experts and then reviewed with agency representatives and tenure holders. Discovery of additional private lands that were not included in the publicly available dataset prompted reconsideration of several breaks at this early stage.

Two of the preliminary breaks were BC Hydro transmission lines. The project team confirmed fuel treatment schedules and requirements for these lines and found that areas are treated every 10 years or less and they include grinding debris, which creates effective fuel breaks.

Several of the preliminary break locations were in dense forests where fuel management treatments would be required. Local forest professionals and wildfire experts were concerned that 'shaded' breaks in the productive local ecosystems would require frequent, expensive maintenance. To better understand these concerns and to explore alternatives, the team engaged an intern to conduct a literature review and interview ecological, wildfire management and forestry specialists. The full report from this research is available at: http://www.cityofrevelstoke.com/index.aspx?nid=89.

This research confirmed the concerns about rapid regrowth of shrubs and conifers after fuel management treatments, particularly shade tolerant western red cedar and western hemlock, and consequently the need for regular, expensive maintenance. Establishing deciduous-dominated shaded breaks was unanimously supported, with the understanding that site specific prescriptions, possibly with multiple entries would be needed.

Historical and recent wildfires were reviewed by Archie McConnachie, the local wildfire expert on the project team, to inform the project about wildfire behaviour in the mountainous, varied terrain and fuel conditions surrounding Revelstoke. This information was invaluable to clarify the wildfire risks and effective fuel break locations. The preliminary locations were revised to incorporate this additional perspective.

Archie McConnachie visited each proposed fuel break to confirm its effectiveness and verify adjacent wildfire fuel types and risks.

Very preliminary fire behaviour modelling was completed using the Prometheus computer model. The simulation results confirmed the team's view of the wildfire risks in the Begbie/MacPherson area and at the bottom of Mt. Revelstoke.

Refined fuel break locations and descriptions were prepared and reviewed with local wildfire experts, relevant land management agencies and any potentially impacted tenure holders.

3.2 Fuel Break Locations and Descriptions

The team found that Revelstoke and area is fortunate to be surrounded by many natural and man-made areas meet the criteria for fuel breaks, creating the foundation for an effective fuel break network. These include:

- the main BC Hydro transmission line from Revelstoke dam, across Highway 1 and west of Begbie Bench and the line to the Downie substation where vegetation management is done regularly;
- the Highway 23S and transmission line corridor;
- old forests along Begbie Creek and Greeley Creek;
- cleared runs on Revelstoke Mountain Resort (RMR), especially the Devils' Club and North Bowl runs;
- recent wildfires in rocky, steep areas to the east and west of the community;
- deciduous forests to the west of the City and between Highway 1 and Mount Revelstoke National Park.

There are three gaps in this network:

- south of the developed area of RMR and east of Greeley Creek where property owners will need to be especially vigilant to FireSmart their properties, and
- Mount Revelstoke National Park – As a member of the City's Community Wildland Fire Protection Committee Parks Canada recognizes this gap and has drafted a Fire Management Plan that includes an assessment of wildfire risks and options by 2016, with fuel treatment decisions to follow.

Figure 5 illustrates the recommended fuel break locations.

Detailed descriptions of each fuel break, including wildfire probabilities, values at risk and any specific considerations from the project team are included in Appendix 2.

The team recommends that these breaks be reviewed every 10 years to ensure they continue to be effective.

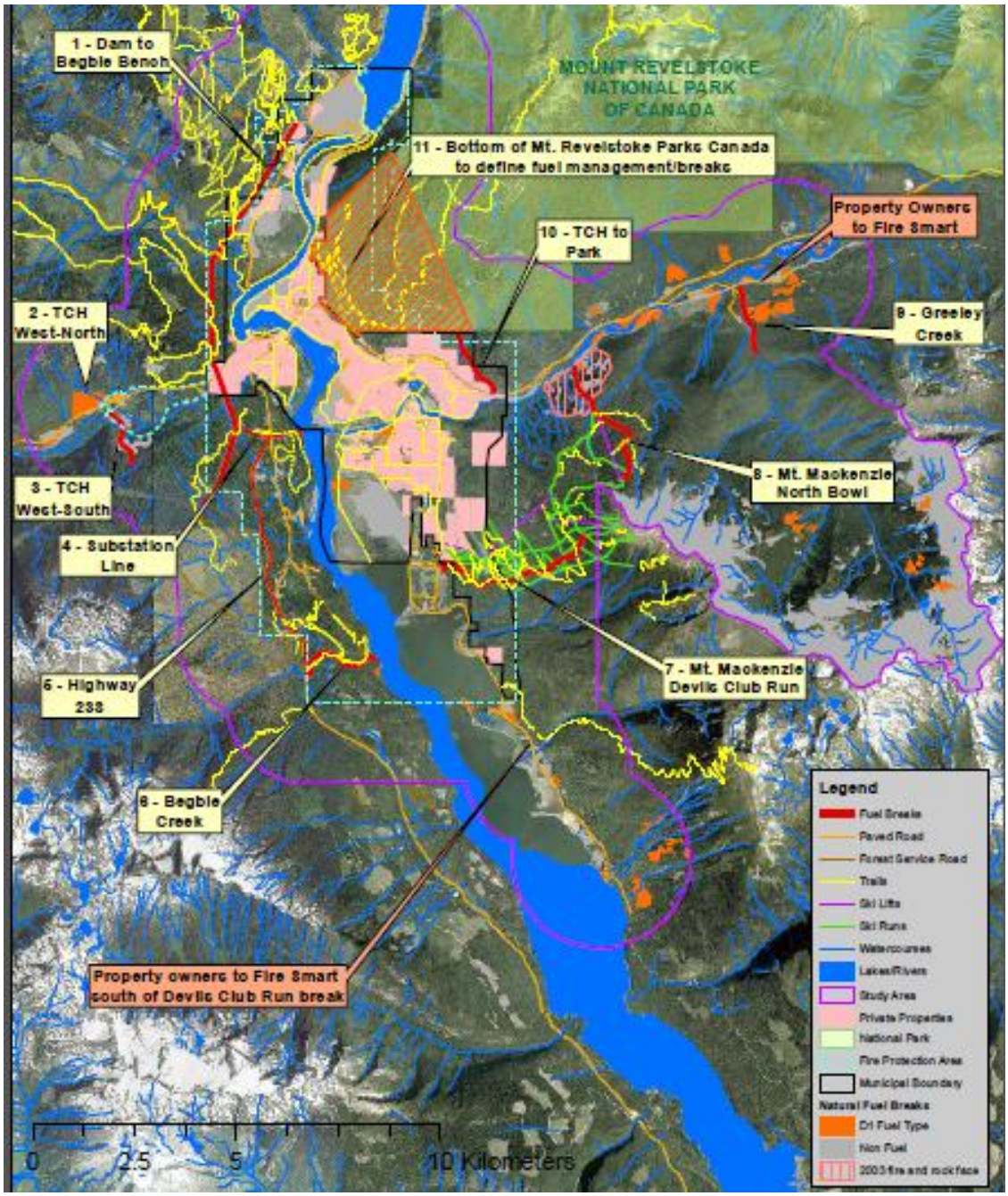


Figure 5: Recommended community wildfire protection fuel break locations

4.0 Updated Priority Actions

The 2011 report contains detailed descriptions of current conditions and recommended actions as well as priorities for two years. Since 2011, Committee members have worked together to complete many of the highest priority community wildfire protection actions including:

- clarifying jurisdictions and strengthening working relationships and agreements between the City, BC Wildfire Management Branch, BC Hydro and Parks Canada;
- assessing the need for fuel reduction around the City's water treatment plant and reservoirs;
- fuel reduction around key economic infrastructure at RMR;
- explored fuel reduction in the reservoir drawdown zone;
- expanding the number of fuel management demonstration areas;
- adding wildfire prevention signage at recreation trailheads and at strategic locations on highways; and
- purchasing a mobile sprinkler unit.

As well, the City has strengthened its emergency preparedness generally and BC Wildfire Management Branch annually does school education programs on wildfire prevention.

The table below updates the priority actions, highlighting those that are recommended for completion in the next two years.

In addition to continuing the ongoing activities, the team recommends the highest priorities are:

- ***Communication infrastructure*** - Confirm the location and ownership of communications infrastructure and encourage owners to implement wildfire protection practices./.:
- ***Homes and commercial buildings*** -
  1) Research and establish an interface management area as a natural hazard Development Permit Area with policies centred on incorporating FireSmart practices into the Official Community Plan (OCP). These policies would provide additional tools for Revelstoke Fire Rescue Services to control fuel loading on private property. The establishment of the interface management area boundaries should involve professional and public consultation.
  2) Develop new approaches to encourage property owners to adopt FireSmart practices.
- ***Fuel breaks*** - Parks Canada to complete assessments and define actions to create effective fuel breaks at the bottom of Mount Revelstoke.

The majority of these recommendations can be implemented by the Committee members during their day-to-day operations. It is recommended that the City allocate approximately $10,000 annually to implement the priority education/ awareness recommendations.

Highest priority recommendations for the next two years are in bold

Infrastructure protection	*Objective*: Reduce risk of interruption in services from essential community, provincial and national infrastructure.
	Communication infrastructure • **Confirm the location and ownership of communications infrastructure and encourage owners to implement wildfire protection practices.** ***Homes and commercial buildings*** • **Research and establish an interface management area as a natural hazard Development Permit Area with policies centred on incorporating FireSmart practices into the Official Community Plan (OCP). These policies would provide additional tools for Revelstoke Fire Rescue Services to control fuel loading on private property. The establishment of the interface management area boundaries should involve professional and public consultation.**
	• **Develop new approaches to encourage property owners to adopt FireSmart practices including:** - **Explore ways for property owners to access expertise for wildfire threat assessments and FireSmart action plans.** - **Explore options for property owners to do fuel management along streams that meets riparian management and wildfire protection objectives.** - **Continue to encourage property owners in interface areas to purchase sprinklers – develop an InfoSheet and hold demonstrations of the City/CSRD sprinkler unit.** - Explore incentives for property owners to adopt *FireSmart* practices. • **Review of subdivision application referrals by Revelstoke Fire Rescue Services for wildfire protection.** ***Transportation infrastructure*** • **Communicate wildfire risks to the CPR and the Ministry of Transportation and Infrastructure and encourage them to ensure their infrastructure is adequately protected from wildfire.** ***Revelstoke Mountain Resort*** • Continue to address wildfire risks to infrastructure that is essential to the continued operation of RMR. ***BC Hydro infrastructure*** • Manage *w*ildfire risks to monitoring equipment east of the dam.

Education & awareness	*Objectives:* • Expand resident and visitor knowledge and awareness of wildfire risks. • Encourage implementation of FireSmart practices to reduce wildfire risks.
	General • **Continue to annually agree to and implement an education and awareness plan to guide and coordinate the efforts of the CWFP Committee members including:** - **Creating an Info Sheet about home sprinkling.** - **Expanding FireSmart information distribution with the sprinkling info sheet.** - **Creating community wildfire protection pages on the City and CSRD websites.** - **Consider having displays with the sprinkler unit at the annual spring sidewalk sale, Canada Day and Timber Day.** - **Continue media stories during high and extreme fire danger.** • Continue to maintain fuel management demonstration areas. • Enforce forest closures. • Educate forest users about the hazards of being too close to transmission lines during smoky conditions.
	Property and building owners • **Seek out neighbourhood champions to facilitate FireSmart awareness and education neighbourhood events, focusing on Johnson Heights, Clearview Heights, Arrow Heights, Columbia Park, Begbie Bench/MacPherson and Airport Way.** • **Create a FireSmart model-size show home.** • **Explore ways to recognize owners who implement FireSmart practices.** ***Residents*** • **Continue school education programs.** ***Visitors*** • **Continue to post the fire danger rating and fire restrictions at the Visitors Centre.** ***Recreation users*** • **Continue to place wildfire prevention signage at all recreation sites and trail heads.** • Work with the tourism sector and local recreation groups to develop education/awareness materials such as a brochure describing safe fire use in the backcountry. ***Businesses*** • Educate businesses about wildfire preparedness.

Fire preparedness	*Objectives: A*gencies, businesses and private land owners are prepared to respond swiftly to suppress wildfires.
	• **Continue wildfire training for Fire Rescue Services staff, and cross-training with wildfire suppression crews.** • **Continue the annual pre-organization reviews and wildfire status communications.** • **Businesses with agreements and contracts for operations on Crown land must meet the wildfire preparedness requirements of the BC Wildfire Act.** • **City to explore establishing a bylaw that does not permit un-screened outdoor storage of materials in commercial and industrial zoning districts. This would assist in preventing pallets being set out by businesses where they can be picked up and used for bonfires in the drawdown zone..** • Learn from recent interface wildfires elsewhere.
Fuel management	*Objectives* • Minimize debris to reduce wildfire fuels, particularly near infrastructure and developed areas. • Reduce wildfire fuels in forest types with significant continuous ladder fuels near infrastructure and development to achieve low or moderate wildfire probability ratings. • Establish effective landscape level fuel modification breaks to protect areas where uncontrolled wildfires would have high consequences.
	Debris • **Continue active debris management to reduce wildfire risks.** ***High priority fuel types and fuel modification breaks*** • **Parks Canada to complete assessments and define actions to create effective fuel breaks at the bottom of Mount Revelstoke.** • Review fuel break effectiveness in 2025. ***Private property*** • Work with private land owners to identify funding supports and insurance incentives to expand FireSmart implementation. ***BC Hydro*** • Continue to explore options for fuel reduction in the grasslands in the drawdown zone. **Forested City-owned properties** • Continue to maintain fuel reduction where needed based on wildfire threat assessments. No additional areas require treatment currently. • Review the need for fuel management on forested City properties in 2020.

Emergency response & evacuation	*Objectives:* Ensure community and household capacity and preparedness is adequate to respond to a wildfire emergency, including community evacuation.
	• **A wildfire emergency exercise should be hosted by the Emergency Management Program.** • The Emergency Management Plan should contemplate alternative Command Posts in case smoke from wildfires eliminates lower elevation locations. • Electricity supply during a wildfire should be reviewed.
Fire suppression	***Objectives***: Remove limitations to swift, effective initial attack.
	Fuel break action plans • **BC Wildfire Management Branch to prepare action plans for suppression within the identified fuel breaks.** ***Access*** • **Continue to inform CSRD property owners of driveway width requirements for City fire pumper trucks and consider bylaw revisions to require adequate widths.** • Build new trails to standards that permit access by wildfire suppression crews. ***Adequate water sources*** • Agencies should ensure they are prepared for ground based wildfire suppression in areas where water is limited. ***Initial attack capacity*** • **Continue agency cooperation.** • **The City and BC Wildfire Management Branch should consider arranging for local firefighting resources prior to provincial scale extreme wildfire conditions, such as logging crew readiness and community wildfire suppression training.**
Post-fire response – Rehabilitation planning	*Objectives*: Be prepared to swiftly implement rehabilitation treatments in ecologically sensitive areas if needed after a wildfire.
	• Agencies should prepare a rehabilitation plan in case there is a wildfire in the community watersheds.

Appendix 4 contains a Communications and Awareness Plan for the CWFP Committee to review annually to agree on appropriate actions for the forecast wildfire conditions.

The climate, fuel types, ecosystems, terrain, jurisdictional complexity and extensive forest uses in the Revelstoke area create unique wildfire probabilities and consequences and associated risks to the community. Local innovative solutions will continue to be needed to effectively reduce wildfire risks.

By continuing to work together the CWFP Committee collectively has the capacity to

imagine, plan and implement effective solutions. Continued communication, goodwill and collaboration will be needed.

Appendix 1 – Summary Community Input During May 2015 Draft Fuel Break Design

Thirteen citizens attended the three neighbourhood meetings during the evenings on May 26, 27 and 28.

Participants suggested the following ideas to encourage their neighbours to implement FireSmart practices:

Neighbourhood events

- Neighbourhood ambassadors organize neighbourhood 'parties' with FireSmart discussions, a FireSmart property evaluation and sprinkler unit demonstration – ideally in the early spring.
- Train a homeowner in each neighbourhood to do FireSmart assessments with neighbours, as a volunteer.
- Provide a list of people who are willing to complete FireSmart assessments.

Information materials/events

- Prepare an information sheet explaining how to set up a sprinkling system.
- Create a model-size FireSmart demo home with a sprinkler system.
- Use sprinkler unit demonstrations and the model-size FireSmart demo home to draw people into discussions about FireSmart practices at community events such as the annual spring sidewalk sale, Canada Day and Timber Day.
- Communicate with landscaping and fencing companies about the risks of using of bark mulch and placement of wood fences in interface areas.
- Assist homeowners to find out how to reduce wildfire fuels around streams where riparian management requirements exist.

Incentives

- Provide discounted sprinkler systems, similar to composters.
- Remove the dumping fee for FireSmart debris.

Marketing/advertising

- Use the CSRD Facebook page to advertise events and importance of FireSmart practices.
- Put up posters at Southside, Coopers, Community Centre and businesses to advertise events and the importance of FireSmart practices.
- Place ads on Stoke FM, in addition to interviews and notices in the community calendar.
- Distribute event notices via the email list maintained at the Business Information Centre.

- Put event notices on the Ford dealership sign or the sign at Farwell Centre.

Participants from Airport Way expressed concerns about protection from grass fires originating in the reservoir drawdown zone. They were particularly concerned about debris that is left in the ditch after brushing along the transmission line.

Appendix 2 – Updated Wildfire Risk Management System

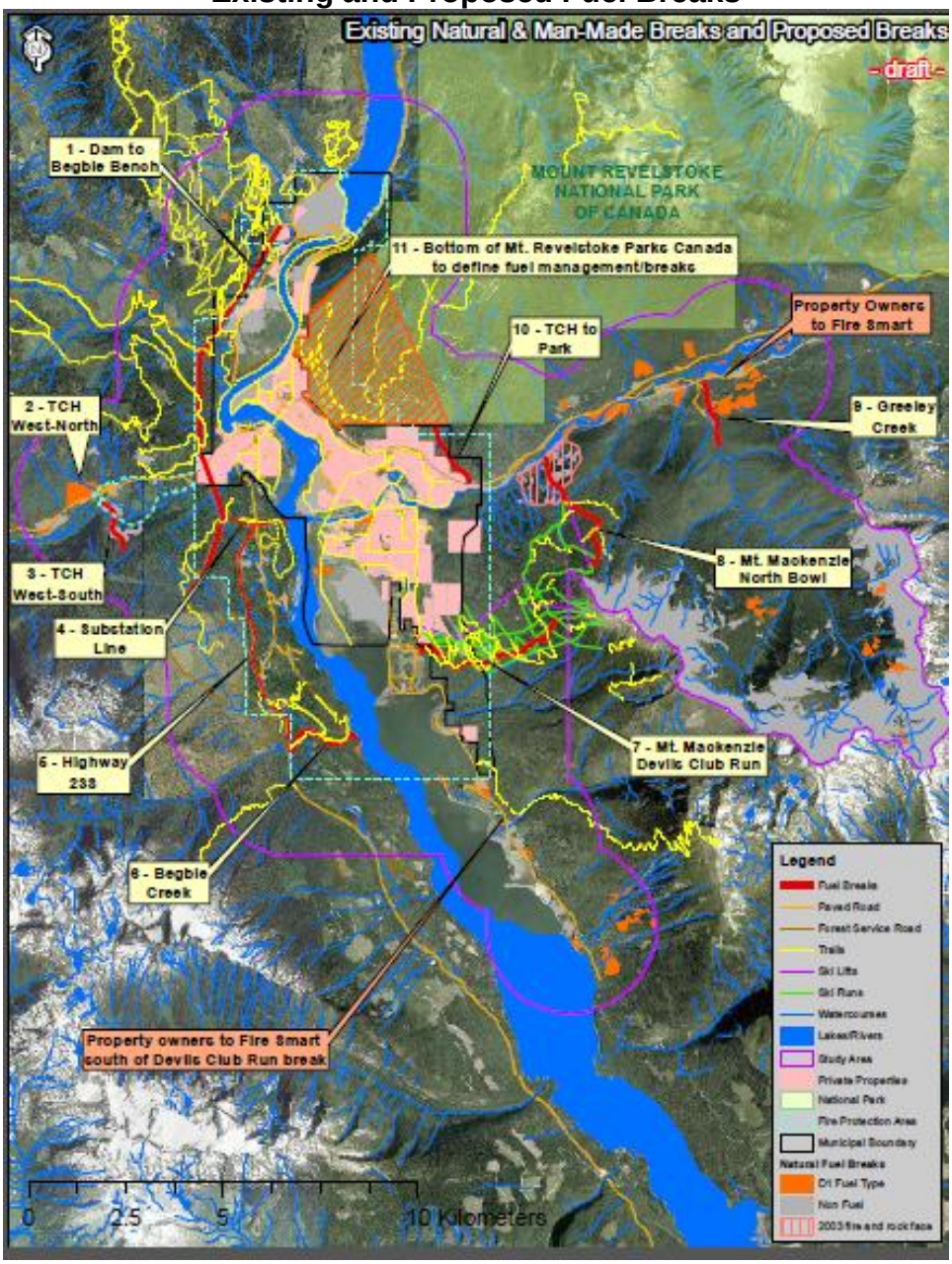
The results of this assessment can be accessed from the City of Revelstoke Fire Rescue Services Fire Prevention webpage at:
http://www.cityofrevelstoke.com/index.aspx?nid=89

Note: The maps can be viewed by clicking on the map titles on the first page. Return to the first page by clicking on the orange home icon in the top left corner of each map.

Appendix 3 – Fuel Break Descriptions

This Appendix provides detailed descriptions of each fuel break, including geographic location, any ongoing treatments, wildfire risks, community values and any special factors the team considered when recommending each break.

Existing and Proposed Fuel Breaks



A. Existing Natural and Man-Made Fuel Breaks

1. Dam to Begbie Bench – Main BC Hydro Transmission Line

The BC Hydro transmission line from the Revelstoke Dam southwards provides a man-made fuel break for the Westside road area, Big Eddy neighbourhood and the Begbie Bench neighbourhood for wildfires from the west. BC Hydro maintains the 300 metre wide corridor by brushing and mulching that meets BC wildfire fuel hazard abatement requirements. This portion of the transmission line is roaded.

Wildfire Probability – Mixed	Values at Risk
• Patches of high risk fuel types • High historical human & lightening ignitions • Potential for increased ignitions from recreation use	• Transmission line • Highway 1 • CPR line • Highway 23 South • Tum Tum community watershed • Big Eddy neighbourhood • Begbie Bench neighbourhood • West side road businesses

2. Trans – Canada Highway (TCH) West - North

The steep, unroaded hillsides in this area make it impossible to create a roaded fuel break. If the properties to the west of the BC Hydro main transmission line were threatened by a wildfire from the west, the deciduous forests at this location would provide the anchor for a fuel break that could be created with a prescribed fire to burn-off the upslope forests.

Wildfire Probability - Mixed	Values at Risk
• Small area of high risk fuel types; extensive deciduous/mixed forest • Few historical ignitions • Three fuel concentrations at mill yards	• Highway 1 • CPR line • Tourism businesses • Few homes • Stella Jones Pole yard

3. Trans – Canada Highway (TCH) West - South

The steep, unroaded hillsides in this area make it impossible to create a roaded fuel break. The 2006 wildfire now creates a natural fuel break for properties west of the main BC Hydro transmission line.

Wildfire Probability - Low	Values at Risk
• Small area of high risk fuel types; extensive deciduous/mixed forest • Steep, rocky hillsides • Few historical ignitions • Three fuel concentrations at mill yards	• Highway 1 • CPR line • Tum Tum community watershed • Tourism businesses • Few homes • Stella Jones Pole yard

4. Substation Transmission Line

The BC Hydro transmission line from the main transmission corridor to the Downie sub-station across the River provides a man-made fuel break within the Begbie Bench area. This 30 metre wide corridor is regularly maintained by BC Hydro with brushing and mulching that meet BC wildfire fuel hazard abatement requirements.

Wildfire Probability - Mixed	Values at Risk
• Patches of high risk fuel types • High historical human & lightening ignitions • Potential foriIncreased ignitions from recreation use	• Highway 23 South • Highway 1 • CPR line • Tum Tum community watershed • Big Eddy neighbourhood • Begbie Bench

5. Highway 23 South Corridor

The Highway 23 South right-of-way and the adjacent transmission line create a man-made fuel break for the Begbie Bench and MacPherson areas for wildfire coming downslope. This 30 metre wide corridor is adequate to protect community values in the area given the relatively low wildfire probability on this east facing, cold slope.

BC Timber Sales and Stella Jones Inc. have forest harvesting operating areas in this area. Timber harvesting adjacent to the corridor should be designed to create primarily deciduous shaded breaks adjacent to the corridor for up to a total of 150 metres wide (including the highway/transmission corridor). If resources are available for fuel management treatments, the corridor could be widened in the few patches of high risk fuel types on the west side of the corridor with primarily deciduous shaded breaks adjacent to the corridor for up to a total of 150 metres wide (including the highway/transmission corridor).

Wildfire Probability - Low	Values at Risk
• East facing, cold slope • Few patches of high risk fuel types • High historical human ignitions with potential for increase with expanding summer recreation use • Primary winds toward community	• Highway 23 South • Households • Businesses • Nordic Ski Lodge

6. Begbie Creek

The Begbie Creek draw is an old-growth management area with open forests that create a natural fuel break for wildfires coming from the south of the MacPherson/Begbie Bench area. Road access is in place from both sides of the creek.

Wildfire Probability - Low	Values at Risk
• Few patches of high risk fuel types • High historical lightening ignitions • Primary winds toward residential area	• Few homes

7. Mt. MacKenzie Devils Club Run

The 70 metre wide Devils Club Run of Revelstoke Mountain Resort (RMR) on Mt. MacKenzie creates a man-made fuel break for the resort and the Arrow Heights neighbourhood for wildfires from the south. Glading and additional runs to the north of Devils Club strengthen this fuel break. The entire run is roaded, and regularly maintained.

The team explored options to establish a fuel break along the bottom of Mt. Mackenzie but the large parcels of private property make that unfeasible. However, most of the private properties along Camozzi Road have been cleared, and these wet, roaded areas create a man-made fuel break, until they are developed. If RMR develops access along the lower elevations of the mountain within Crown land in the future, this may create an opportunity for a fuel break to be created through fuel management treatments.

There is no opportunity to establish a roaded fuel break to protect the private properties to the south of this break. These property owners will need to be especially vigilant to FireSmart their properties to reduce wildfire risks – see http://bcwildfire.ca/Prevention/firesmart.html.

Wildfire Probability – High to Moderate	Values at Risk
• Concentrated high risk fuel types at mid –elevation/mixed at lower elevation • Moderate historical ignitions • 1930's catastrophic fire from the north	• RMR infrastructure • Arrow Heights neighbourhood – many homes with treed properties • Airport • Hospital

8. Mt. MacKenzie North Bowl

The two ski runs, gladed areas and chairlift in the North Bowl of RMR on Mt. MacKenzie, along with the 2003 wildfire and rock face just below create a man-made/natural fuel break for Arrow Heights neighbourhood for wildfires from the east. This area is has road access via RMR's operational road system.

Wildfire Probability – High to Moderate	Values at Risk
• Concentrated high risk fuel types at mid-elevation/mixed at lower elevations • Moderate historical ignitions • Winds down the Illecillewaet River valley • 1930's catastrophic fire from the east • 2003 persistent wildfire west of Greeley Creek	• Hospital • Airport • Water reservoir • Arrow Heights neighbourhood – many homes with treed properties

9. Greeley

The old-growth management area along the lower portion of Greeley Creek as well as the young plantation and primarily deciduous forests adjacent to this area create a natural fuel break protecting the City water treatment plant and houses/developments to the west of the Creek from wildfires coming from the east. There is road access from both sides of the creek through the road to the plant and a forestry road on the east side of the creek.

There is no road access above the water treatment plant. The team has not recommended the creation of a fuel break along the remainder of the watershed because of the team's assessment that the wildfire probability is moderate-low.

The owners of the two private properties located to the east of this break will need to be especially vigilant to FireSmart their properties to reduce wildfire risks – see http://bcwildfire.ca/Prevention/firesmart.html.

Wildfire Probability – Moderate to Low*	Values at Risk
• North facing cold slope • Patches of high risk fuel types at mid-elevation • Moderate ignition probability	• Water treatment plant • Community watershed • Private land

*The Wildfire Hazard Management System rates the wildfire probability in Greeley Creek as Moderate to High however this system does not take aspect (e.g. north or south facing) into account. As this watershed is a cold north facing slope, the team assesses the wildfire probability as Moderate to Low.

10.Trans-Canada Highway (TCH) to Park

The primarily deciduous forests between the Trans-Canada Highway and Mt. Revelstoke National Park provide a natural fuel break for the Clearview Heights Heights and Downtown neighbourhoods for wildfires coming from the east. There is no established road access, however there are trails on private land that could be rehabilitated to create access if needed.

Wildfire Probability - Moderate to High	Values at Risk
• South facing slope • Primarily deciduous with high risk fuel types at low elevation/private lands • Historical human ignitions	• Highway 1 • CPR line • Water reservoir • Clearview Heights and Downtown neighbourhoods • Bridge Creek community watershed (alternate City water supply)

11. Bottom of Mt. Revelstoke

The project team has identified a high priority to reduce wildfire risks to community values from wildfires from within Mt. Revelstoke National Park. Parks Canada is completing a Wildfire Management Plan that will include commitments to assess the need and options to create a fuel break, with fuel management treatment decisions to follow. The project team recognizes the challenges of balancing Park management objectives with community wildfire protection.

Wildfire Probability – To be defined	Values at Risk
• Patches of high risk fuel types • Winds down Illecillewaet River valley • 1895 catastrophic fire from the east • Winds from Lake Revelstoke	• Highway 1 and Highway 23 North • City water reservoir • CPR line • Downtown neighbourhood • Log yard • Endangered species (mountain caribou) habitat

Appendix 4 – Communications and Awareness Plan

Note: The content of this plan is based on the City of Revelstoke's 2010 Communications Planning policy

A. Plan description

Why? – An updated Community Wildfire Protection Plan has been prepared for the City's Protection Area, which includes areas outside the municipal boundaries. It identifies wildfire risks originating within 2 kilometers (potential spotting distance of wildfires) of the Protection Area boundary and wildfire urban interface areas identified by BC Wildfire Management Branch;, in the developed portions of RMR's Controlled Recreation Area; and the Greeley Creek community watershed.

Wildfire risk levels have been mapped based on the probability of wildfire occurring and the consequences of wildfires in the community. Wildfire probability factors include historical wildfire ignitions, forest fuel types and suppression capability. Consequences include potential impacts on essential infrastructure, buildings, recreation areas, air quality, water quality, viewscapes and ecosystem integrity.

The plan includes a number of recommended actions for the City, the CSRD, property owners and others to reduce human ignitions, improve suppression capability, reduce wildfire risks to private buildings and homes and reduce wildfire fuels in nearby forests, as well as other actions.. Some of these recommendations will need the support of the community to implement, such as FireSmart bylaws and ongoing fuel reduction treatments.

What?

The plan identifies 6 key messages for communication and awareness to increase community knowledge about wildfire risks:

1. Wildfire risks in Revelstoke – why and where
2. Avoiding human fire starts
3. FireSmart practices for private lands
4. Fuel management treatment and wildfire fuel break purposes, practices and locations on public lands
5. Emergency preparedness and evacuations
6. Updates on implementation of the plan

How? The City's Community Wildland Fire Protection Committee (CWFP Committee) have been working together since 2007 to implement the Community Wildfire Protection Plans. This committee including representatives from the CSRD; Wildfire Protection, Stewardship and Resort Development Branches of the of the BC Ministry of Forests, Lands and Natural Resources; Ministry of Transportation and Infrastructure; BC Hydro; Parks Canada; RMR; Revelstoke Forest Workers Society; and CPR, as well as a citizen representative.

Where? This plan applies to the project area. (See report Figure 1)

***When*?** Communication and education about wildfire risks and fuel reduction treatments has been ongoing in the community for several years. BC Wildfire Management Branch does school programs annually and has done door-to-door information distribution. During 2009 and 2010 the City involved residents in the planning for fuel reduction treatments in Nichol Road Park and the area west of the cemetery in Columbia Park. In 2010 and 2015 community members have reviewed draft risk assessments and wildfire fuel break designs.

This plan recommends ongoing activities that should be conducted at a number of key points in time: 1) annually to maintain awareness, encourage FireSmart practices on private lands and update the community about implementation of the plan, 2) when the fire danger rating is above moderate and 3) when fuel reduction treatments are being planned and implemented.

The City's CWFP Committee should review the effectiveness of its communications activities each year and revise this communications plan annually before April, when the fire season starts. Innovative approaches to support FireSmart practices on private property are especially needed.

B. Communication and Awareness Action Plan

1. Annual awareness

Audiences	Key messages	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
All	All	Ongoing	CWP page on the City website with link from CSRD site[3]	Fire Chief and CSRD	N/A		
City Council and staff	1. Wildfire risks 6. Update on plan implementation	At start of fire season	Briefing report to Council	Fire Chief	Fire Chief		
CSRD and staff	1. Wildfire risks 6. Update on plan implementation	At start of fire season	Regional Director and and CSRD Fire Services Coordinator attendance at CWFP Committee meeting	CWFP Committee	Fire Chief		

[3] This website should include the CWP Plan (ideally for on-line viewing and as a PDF), links to following websites: BC Wildfire Management Branch fire danger rating (http://bcwildfire.ca/Weather/Maps/danger_rating.htm), Partners in Protection www.partnersinprotection.ab.ca (http://www.partnersinprotection.ab.ca/index.php) ,homeowner Firesmart manual (http://www.pssg.gov.bc.ca/firecom/pdf/homeowner-firesmart.pdf) and the joint BCWMT/Union of BC Municipalities fuel management (https://ground.hpr.for.gov.bc.ca/), Revelstoke and Areas Emergency Management Program (http://www.revemergency.com), /prescriptions and background information on fuel treatment projects, and an annual plan implementation summary.

Audiences	Key messages	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
City Environment Committee	1. Wildfire risks 6. Update on plan implementation	At start of fire season	Brief presentation at regular meeting	Fire Chief	Fire Chief		
All	1. Wildfire risks 6. Avoiding human ignitions	At the start of the fire season	School programs[4] Newspaper article Fire danger rating in regular spot in newspapers Keep prevention signs on TCH east Add preventions signs on Highway 23N, 23S, Airport Way and Westside Road Spring sidewalk sale	BCWMB Fire Chief Fire Chief BCWMB BCWMB??, Revelstoke Accommodation Association??Committee			

[4] Consider expanding programs to include high school students

Audiences	Key messages	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
Youth drawdown partiers	1. Wildfire risks 6. Avoiding human fire starts	At start of fire season	Discussion with high school student Council	BC Hydro			
Building owners in interface areas and owners of forested private property	1. Wildfire risks 2. Avoiding human fire starts 3. FireSmart 4. Emergency prep & evac	At start of fire season And After a fire season with high/extreme danger ratings	FireSmart demonstration areas Neighbourhood group meetings with sprinkler unit - Clearview/Johnson Heights, Begbie Bench, Columbia Park, Arrow Heights Newspaper notice Nichol Road video on Community TV FireSmart pamphlets at Fire Hall, City Hall, Community Centre, insurance companies, building supply stores FireSmart manuals at the library Door-to-door pamphlet delivery (Firesmart & emerg prep)	Fire Chief & BCWMB Fire Chief and BCWMB Fire Chief Fire Chief Fire Chief & BCWMB?? ?? ??			

Audiences	Key messages	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
Building owners in interface areas and owners of forested private property (continued)			Create a FireSmart model demo home FireSmart pamphlet distribution by insurance companies				
Realtors	Wildfire risks FireSmart	At start of fire season	??	Fire Chief			
Backcountry businesses	Wildfire risks Avoiding human fire starts FireSmart Emergency prep & evac	At start of fire season	??				
Forest Workers Society	All	At start of the fire season	Brief presentation at regular meeting	FWS rep on CWFP Committee and Fire Chief			

Audiences	Key messages	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
Business sector	All	At start of fire season	Presentation at Rotary and Chamber lunch meetings	Fire Chief & BCWMB			
Environmental interests (North Columbia Environmental Society, Rod and Gun Club, Friends of Mt. Rev & Glacier National Parks)	All	At start of fire season	Offer to make a brief presentation at a regular meeting	Fire Chief			
Outdoor Recreation users (Biking and ATV associations)	All	At start of fire season	Offer to make a brief presentation at a regular meeting				
Visitors	1. Wildfire risks 2. Avoiding human fire starts	Throughout summer	Fire danger rating sign at the Visitor Centres Campfire safety pamphlets at Visitor Centres (*do these exist*??)	Chamber ??			

2. When local fire danger rating is above moderate

Audiences	Key messages	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
All	1. Avoid human ignitions 2. Emergency prep & evac	Fire danger rating is above moderate	Website notice Community TV public service notice Newspaper article Radio/TV ads Rec Centre daily AM radio spot	Fire Chief Fire Chief Fire Chief & BCWMB BCWMB Fire Chief	Fire Chief Fire Chief Fire Chief & BCWMB BCWMB Fire Chief		
Outdoor recreation users	1. Avoid human ignitions 2. Emergency prep & evac	Fire danger is above moderate	Displays in recreation supply outlets				
Visitors	1. Avoid human ignitions 2. Emergency prep & evac	Fire danger rating is above moderate	Eye-catching notice at Visitor Centres	Chamber			
Campfire users	Avoid human ignitions	Fire danger rating is above moderate	Fire warden patrols	BCWMB	BCWMB		

3. Fuel management treatments (including fire breaks)

Audiences	Key messages/ Info needs	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
Proposals & prescriptions							
City Council and Engineering/Public Works staff (for projects near City infrastructure (&CSRD if outside municipal boundary)	To initiate prescription and treatment funding proposals – Location, why, how, financial impacts	Before proposals are initiated	Memo/background to Council meeting (and CSRD??)	Fire Chief	Fire Chief	N/A	
	To initiate treatment projects - Community support/ concerns and financial impacts	Before projects begin	Memo/background Council meetings (and CSRD??)	Fire Chief	Fire Chief	N/A	
BC Ministry of Forests, Lands and Natural Resource Operations	Stewardship Branch – for areas outside the RMR CRA Resort Development Branch – for areas within and adjacent to the RMR CRA - Location, process	Before proposals are initiated	Via CWFP Committee	Fire Chief	Fire Chief		
Parks Canada	For areas adjacent to the Park – Location, process	Before proposals are initiated	Via CWFP Committee	Fire Chief	Fire Chief		
BC Hydro	For areas adjacent to transmission lines and Hydro private lands – Location, process	Before proposals are initiated	Via CWFP Committee	Fire Chief	Fire Chief		

Audiences	Key messages/ Info needs	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
Adjacent property owners	Location, fuel management purposes and treatments, process	Before proposals are initiated	Letter of notification	Fire Chief	Fire Chief		
Tenure holders and users on Crown lands	Location, fuel management purposes and treatments, process	Before proposals are initiated	Letter of notification	Fire Chief	Fire Chief		
Agencies, adjacent property owners, tenure holders and users of Crown lands	Draft prescription	Before prescription is finalized	Personal contact with adjacent property owners and tenure holders	RPF[5]	Fire Chief		
General public	Draft prescription	Before prescription is finalized	Newspaper notice Draft on City website Meet with Neighbourhood Group/notice of prescription on group site Walk through on site if needed	Fire Chief	Fire Chief		

[5] Registered Professional Forester responsible for prescriptions

Audiences	Key messages/ Info needs	Timing	Methods/Materials	Who will do?	Spokes-person(s)	Internal review/ approval	STATUS
All	Final prescription approved by Stewardship Branch or Resort Development Branch	When finalized and approved	On City website	Fire Chief	Fire Chief		
Treatment projects							
Agencies, adjacent property owners, tenure holders and users of Crown lands	Start date, potential impacts on uses, noise, hours of work, safety, etc.	Before project starts	Letter of notification or door-to-door Field trip after first day if high interest	Fire Chief	Fire Chief		
Media	Purpose, prescription, on-site practices	First week of the project	Press release and site visit	Fire Chief	Fire Chief		
All	Purpose, prescription	End of project	Signs on highly visible projects	Part of project			

Possible methods that have not been included:

Displays at the Farmers' Market, Timber Days - labour intensive

Mayor's radio spot (are these happening anymore?)

Mailbox inserts - not recommended as many boxes are flagged for 'no junk mail', or notices are tossed out as junk mail

C. Desired Outcomes

Audiences	Outcomes hoped for	How to monitor	Outcomes achieved
City Council	Understanding of wildfire risks Support for Firesmart activities Approve fuel treatment projects Approve allocation of Fire Chief time and budget to communications tasks	Council statements Council approval Council approval Council approval	
CSRD	Understanding of wildfire risks Support for Firesmart activities Support fuel treatment projects	RD statements RD statements RD statements	
Senior City & CSRD staff	Support for Firesmart bylaws, covenants, etc. Support for fuel treatments near infrastructure	OCP, DPA and bylaws in place Staff statements	
City Environment Committee	Support for fuel treatments	Feedback from the Committee	
Land management agencies	Cooperative working relationship	Involvement in CWFP Committee; public support for projects	
Building owners in interface areas and owners of forested private property	Increasing area of private land and more buildings are Firesmart	Observations	

Audiences	Outcomes hoped for	How to monitor	Outcomes achieved
Youth partiers, backcountry businesses and outdoor recreation users	No increase in human fire starts	City and BCWMB ignition records	
Property owners adjacent to fuel management treatments	Agreement with fuel management projects They FireSmart their buildings and forested properties	Feedback to the Fire Chief Discussions at on-site events Public statements* Observations	
All	No increase in human fire starts Agreement with fuel management treatments Improved emergency preparedness	City and BCWMB ignition records Public statements* ??	

Public statements include media quotes, letters to the editor and comments received by word of mouth (these will be verified.