



Introduction

Wildfire is a hazard facing Whitehorse and communities across Canada and around the world. The risk grows the longer we are without wildfire, and there is much to be done to understand and reduce the risk. This planning, preparation, and adaptation is a collaborative and shared responsibility of the City, residents within and outside Whitehorse, risk managers, and decision makers of various agencies and governments.

While the way forward is organizationally and financially challenging, this Strategy identifies broad direction along with interim steps to creating a wildfire-resilient community. The Action Plan outlines specific tasks for the City of Whitehorse to undertake over the next four years. While some actions will directly affect risk, many are foundational, and set the framework for more measurable risk reduction.

What is the Risk

Wildfire risk in Whitehorse is as high as ever due to a number of factors. Local topography, weather, and boreal forest influence fire risk. Human factors also contribute to risk: changing climate, minimal woodcutting within and around the city, ongoing fire suppression that inhibits periodic burning and forest succession, and the increased number and value of homes within the wildland urban interface.

To better understand the wildfire risk, the City of Whitehorse contracted a team consisting of TransNorthern Consulting, Wildland Fire Risk Management Ltd., and Ember Research Services Ltd., who evaluated Whitehorse's risk from wildfire and recommended a 20-year strategy for wildfire risk reduction.

The consulting team assessed the severity and likelihood of fire, historical weather, forest fuel type, and topography. They also quantified the likely exposure of structures to wildfire. Needless to say, risk within the City of Whitehorse remains high.

Acronyms

FMB: Forest Management Branch, Government of Yukon

WFM: Wildland Fire Management, Government of Yukon

WUI: Wildland Urban Interface – Intermix: Any area where combustible forest fuel is found adjacent to homes, farm buildings or other outbuildings. This may occur at the interface, where development and forest fuel (vegetation) meet at a well-defined boundary, or in an intermix, where development and forest fuel intermingle with no clearly defined boundary; the zone where buildings meet forested areas and where wildland fires are most at risk of igniting structures.

The Strategy

The Wildfire Risk Reduction Strategy aims to move the City of Whitehorse towards four key strategic goals.

1. Organizational Preparedness

Effective risk management requires a shared understanding of impacts, objectives, and responsibilities within the City of Whitehorse. Wildfire risk reduction is a new area of work for the City. While the City has jurisdiction for actions that can mitigate some kinds of wildfire risks, management of hinterland areas to date has mainly focused on managing city growth into wilderness areas, as managing Yukon forests is not a clear City responsibility. Organizational preparedness, including developing common understandings with the other responsible governments that overlap with the City, is foundational to the strategy.

2. Encouraging and requiring FireSmart Canada principles on private property

Research has shown that the majority of home ignitions in a wildfire are caused by ember throw, rather than direct exposure to radiant heat. FireSmart principles are actions to be carried out on private property that increase a home's likelihood of surviving a fire, and that minimize the spread of fire through a neighbourhood. As a municipality, the City of Whitehorse has jurisdictional and regulatory tools well-suited to encouraging household and neighbourhood action.

3. Removal of forest fuels on public land

Conifer-dominated forests on public land near houses contribute greatly to the wildfire risk. The long-term objective is to convert coniferous forests to primarily deciduous in areas surrounding neighbourhoods by removing flammable conifers and encouraging re-growth of less flammable forest types. The consultant report recommends a 500-metre deciduous buffer in the 20-year time frame, while this Action Plan assumes an interim goal (e.g., 10-year) of 30 to 100 metres around neighbourhoods. Actions in the short term will be to initiate vegetation management through contracted tree removal while also setting the foundation for a more sustainable cost-neutral approach to tree removal.

4. Enabling biomass recovery of forest fuel

The volume of forest fuel removal needed to protect neighbourhoods from wildfire is beyond the current financial capacity of the City, and the availability of external funding is unknown. Enabling tree removal costs to be offset through the sale of forest resources will allow for faster, cheaper removal. Forest fuel can be recovered for use as a local supply of cordwood or biomass for high efficiency heating systems. Biomass recovery, though seemingly straightforward, require amending policies, meeting regulatory requirements, and partnerships with Yukon (FMB) and First Nation governments.

The 2021-2024 Action Plan

The Action Plan is a work plan to move the community incrementally towards these four strategic goals. The actions contained within this Action Plan will need to be confirmed by Council through budget appropriation. These actions will be reviewed against other City priorities during annual budget cycles. Identifying and securing operational and capital resources is the pre-requisite to further action.

Organizational Preparedness

Wildfire risk reduction and large-scale-scale removal of forest resource have not previously been areas of work for the City. In order to pursue a Wildfire Risk Reduction Strategy, the City must confirm its capacity by either reallocating resources or adding capacity to its staffing complement

Action 1

Identify City lead department and implementation staff

Wildfire risk management is a new area of work for the City, which has not previously identified a lead administrative department, or identified positions responsible for implementation. To date, Parks and Community Development, Planning and Sustainability Services, and the Fire Department have been active on this topic, but none is necessarily the best fit to lead a concerted action plan. The identified manager of the lead department will champion progress on this Action Plan. The lead department will be responsible for developing partnership agreements where needed and will lead or assist in City policy development and/or amendments to bylaws.

Action 2

Apply for external and internal funding

The lead department will research and apply for external funding based on this Action Plan, the consultant reports, and individual project proposals. The lead department will also be responsible for internal capital funding submissions and budget amendments.

FireSmart Actions

Reducing the vulnerability of structures on private land is as important as fuel management on public land. Actions promoted by FireSmart Canada are understood to be effective, and are critical to avoiding the spread of fire from wilderness areas to the urban areas.

FireSmart actions are implemented at the individual property level, and are most effective when carried out throughout a neighbourhood, with emphasis on areas adjacent to forests. Modelling conducted by the consulting team identifies neighbourhoods with the highest potential exposure to ember throw and radiant heat.

The following actions are within the City’s jurisdiction and control but their effectiveness depends in part on public acceptance. For the City to initiate bylaw and policy changes will require a concerted public communications strategy to achieve public readiness and support.

Action 3

Consider amending the Zoning Bylaw to require Firesmart landscaping requirements in WUI areas

Landscaping and removal of conifers is a key element of FireSmart principles. The Zoning Bylaw is the City’s primary tool for setting landscaping standards on new developments.

FireSmart requirements in the Zoning Bylaw could include:

- Providing a 1.5 m non-combustible zone around the perimeter of structures (non-combustible means not vegetated or FireSmart recommended species only, and non-flammable materials such as gravel mulch or hard surfacing).
- Removal of conifers within 10 metres of dwelling.
- Use of non-combustible materials for fences and decks in defined WUI areas (cross-referenced to Building and Plumbing Bylaw—see Action 10).

If approved, these requirements would apply to new construction in identified WUI areas. Other tasks associated with the Zoning Bylaw include:

- Defining a landscaping prescription.
- Outlining a compliance and enforcement path.
- Harmonizing FireSmart requirements with other elements of the Bylaw, such as vegetative buffer requirements.

Tasks for the City include conducting an interdepartmental and public review of the Zoning Bylaw, and creating resources to assist homeowners in accomplishing this requirement.

Action 4

Consider amendments to the Maintenance Bylaw to require FireSmarting of properties within the WUI (existing properties)

The Maintenance Bylaw is the City’s tool for requiring safe, clean private property. The bylaw currently contains wording pertaining to fire risk:

- *13(3) No person shall park or store outside on any property: solid fuels such as wood, where the amount of solid fuel so stored is in excess of two winter seasons' supply for consumption on site, unless permitted by the Zoning Bylaw.*
- *15. Every owner or occupier shall clear their property of brush, trees, or other growth that constitutes a fire or health hazard.*

The bylaw does not prescribe a compliance path. The clauses above are rarely enforced.

The Maintenance Bylaw is potentially a powerful and useful tool for bringing existing properties into compliance with FireSmart principles. However, its use is problematic because of the time and effort involved in education and enforcement. The City can only contemplate Maintenance Bylaw amendments and enforcement as part of a broader, phased program to encourage and require FireSmart actions.

Action 5

Consider amendments to the Building and Plumbing Bylaw or other relevant bylaws to restrict certain building materials used in the City

The Building and Plumbing Bylaw currently addresses new construction within Country Residential 1 and Country Residential 2 zones by requiring fuel modification in Fire Smart priority zones 1 and 2 within two years of obtaining occupancy, only for new lots purchased after July 1, 2007.

However, for greater effectiveness in mitigating wildfire risks, the City can consider regulating the use of building materials in the city, where they contribute to or reduce those risks. Consideration can be given to whether such modifications would apply only to new construction or include renovations; and whether they would apply to the entire city or only to certain areas.

Examples of these kinds of provisions could include:

- Allowing only ULC rated roofing materials (Class A, B, C).
- Not permitting open vents or soffit.
- Not permitting wood siding.
- Recommending ignition-resistant deck materials and requiring deck skirting.
- Recommending ignition-resistant fence materials and requiring non-combustible segments between fences and houses and FireSmart-recommended fence styles.

Consideration would also have to be given to how such regulations would be enforced, and to whether incentives might be available to encourage public support (e.g., reduction of homeowner insurance premiums).

The City's tasks in this action are to research, consider, and consult on modifications to the Building and Plumbing Bylaw and any other bylaws that may be found to be relevant.

Action 6

Review and consider amending the Tree Removal Policy and the Parks and Open Spaces Bylaw

The existing Tree Removal Policy was established in 1997 and is premised on the value of trees contributing to a park-like environment in the City of Whitehorse, rather than addressing them as a target of wildfire risk mitigation management. The Parks and Open Spaces Bylaw was adopted in 2015 and also addresses the protection of vegetation. The City can review these documents to ensure that they coordinate with and do not conflict with wildfire risk reduction efforts.

Neither document specifically addresses the larger practice of fuel management through FireSmarting. Consideration can also be given to whether the City should adopt a FireSmarting policy/bylaw that

provides guidance regarding management of vegetation and trees in the city as part of a fuel management initiative.

Action 7

Support participation in the FireSmart Community Recognition Program

FireSmart Canada has a comprehensive framework and program to encourage neighbourhoods and communities to implement firesmart actions. WFM has initiated participation in this program by training a group of Local FireSmart representatives. The City can assist this effort by providing FireSmart Canada training, doing outreach to neighbourhoods and communities, and approving funding to groups through the Environmental Grant Fund.

Fuel Management

An overriding objective in the WUI is to convert conifer-dominated forests to primarily deciduous forests. This requires removal of conifers (typically spruce) and re-growth of deciduous trees (typically aspen) through either natural growth or seeding. This Action Plan assumes an interim goal of 30- to 100-metre deciduous buffer in the next 10 years, with the goal of a 500-metre deciduous buffer in the 20-year and more time frame.

Whitehorse residents and forest users should be made aware that fuel management will change forested areas adjacent to neighbourhoods. The immediate effect might be stark, but is necessary to reduce risk, and will be mitigated as deciduous forests dominate.

Some uncertainty remains around how fuel management and biomass recovery is regarded under the Forest Resources Act and the Yukon Lands Act. The City will be required to work closely with FMB to clarify the regulatory process.

Action 8

Work with Government of Yukon, Kwanlin Dün First Nation, and Ta'an Kwach'an Council to clarify roles and responsibilities around forest and fuel management

Administration of forested areas within Whitehorse is a shared responsibility. While the City has taken the lead on protected areas, development control and fire prevention, Government of Yukon has primary responsibility for wildfire response, and for the Forest Resources Act. The responsibilities and priorities of First Nation governments with respect to fuel management also need to be clarified. Coordination among responsible governments is preferable. Understanding roles through an MOU or other agreement, will serve all parties in pursuing matters such as:

- Preparing priority projects adjacent to Whitehorse neighbourhoods.
- Preparing project submissions to YESAA, both for the comprehensive approach and for individual projects.
- Funding.
- Overseeing fuel management contracts.
- Public consultation on forest removal projects.

- Pilot projects such as a biomass fuel recovery project.

Action 9

Formalize personal fuelwood harvest MOU with FMB

The City and FMB previously drafted a Memorandum of Understanding to clarify roles around the personal fuelwood harvest process within Whitehorse. Reviewing and formalizing this agreement will define responsibilities and resources, streamline the process for the public, and enable a greater role for personal fuelwood harvest in fuel management.

Action 10

Evaluate the green personal fuelwood pilot project and take new action

The City and FMB have initiated a pilot project to allow green personal fuelwood harvest near Wolf Creek, Copper Haul Road, and the sewage lagoon. The project will help gauge whether:

- Personal use fuelwood harvest is effective at reducing fire risk.
- Residents are interested in harvesting green fuelwood.
- Impacts and issues can be adequately managed.

Depending on the pilot results, the City and FMB can consider follow up action, such as allowing cutting of green wood in all existing personal fuelwood areas, or identifying new areas for personal harvest.

Biomass Recovery

Action 11

Work with FMB to define the planning and permitting requirements under the Forest Resources Act for biomass recovery

Biomass recovery is a potential financial tool for fuel management. Yukon has made promising steps towards building the industry and the regulatory framework for biomass recovery, though much work remains. FMB has started the legal work to define the planning and process requirements for biomass recovery. City of Whitehorse will continue to collaborate with FMB on this topic and in particular, define the City's role will be in planning and permitting.

Action 12

Seek funding (internal or external) for biomass projects at Parks building and Operations building.

The City has identified candidate buildings for biomass heat conversion. Installation of biomass heating will require substantial capital funding, either through the City's own reserves, or more likely, external funding. The City's task will be to review the business case for biomass, examine the technical requirements, verify a secure fuel supply, and seek capital funding if a biomass project is found to be a viable option.