

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

Recommendation

That Community and Public Services Committee recommend to City Council:

1. That the application to the Forest Resource Improvement Association of Alberta in support of City of Edmonton's WUI Wildfire Risk Public Education Pilot as outlined in Attachment 4 the April 20, 2026, Urban Planning and Economy report UPE03254, be approved.
2. That Attachment 6 of the April 20, 2026, Urban Planning and Economy report UPE03254, remain private pursuant to sections 29 (advice from officials) and 32 (privileged information) of the *Access to Information Act*.

Requested Action	Decision
ConnectEdmonton's Guiding Principle	ConnectEdmonton Strategic Goals
CONNECTED This unifies our work to achieve our strategic goals.	Climate Resilience
City Plan Values	PRESERVE
Corporate Business Plan	Transforming for the future
Council Policy, Program or Project Relationships	<ul style="list-style-type: none"> • Climate Resilience Planning and Development (CRPD) Action Plan • Edmonton Community Energy Transition Strategy • Climate Resilient Edmonton: Adaptation Strategy and Action Plan • Urban Forest Management Plan
Related Council Discussions	<ul style="list-style-type: none"> • October 29, 2024, Urban Planning and Economy report UPE02206, Climate Resilience Planning and Development Action Plan

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

Executive Summary

- The expanding Wildland-Urban Interface (WUI), combined with climate change and accumulated fuel loads in Edmonton's extensive urban parkland, increases the risk and potential severity of wildfires.
- The WUI Wildfire Risk Strategy (the "Strategy") provides a comprehensive, cross-departmental roadmap to proactively mitigate wildfire risks in alignment with the Alberta Wildfire Mitigation Strategy, the FireSmart Alberta framework and industry best practices.
- Wildfire risk mitigation is structured under four key pillars: Reduce (minimize ignition/spread), Educate (increase awareness/preparedness), Respond (strengthen emergency capacity) and Coordinate (regional collaboration and partnership).
- The Strategy utilizes a priority-ranked action plan for annual implementation, which is central to its emphasis on adaptive management and continuous improvement.

REPORT

The Wildland-Urban Interface (WUI), defined as the area where human development meets undeveloped wildland vegetation, is expanding with the growth of Canadian municipalities. This ongoing expansion into natural areas elevates the risk and potential severity of wildfires in urban settings. Edmonton, characterized by its extensive urban parkland system, faces wildfire risks in the WUI exacerbated by climate change and accumulated fuel loads, necessitating a comprehensive, cross-departmental strategy to proactively address these risks. This risk is underscored by recent public engagement, where 70 per cent of survey respondents expressed concern about a wildfire event in Edmonton (see Attachments 1 and 2).

The WUI Wildfire Risk Strategy (the "Strategy") provides a roadmap for embedding resilient wildfire risk management into operations and long-term urban planning by aligning with FireSmart Alberta, the Alberta Wildfire Mitigation Strategy and industry best practices (Attachment 3). The overarching goal of the Strategy is to increase community resilience to wildfires while protecting people, property and the environment.

Strategy Overview

The Strategy employs wildfire exposure modeling and mapping as a foundational long-term planning tool to identify and reduce the potential impact of wildfire. By integrating local environmental data into a fire exposure model, the Strategy identifies the location of available fuel types that support wildfire ignition and spread. This modelling output enables the City to assess wildfire vulnerability by overlaying wildfire exposure with values-at-risk, such as residential buildings and key infrastructure, providing a foundation for informed risk prioritization.

Wildfire risk mitigation is structured under four pillars:

- **Reduce:** Minimize the potential for wildfire ignition and spread through proactive vegetation management, planning and regulatory frameworks.
- **Educate:** Increase wildfire awareness and preparedness by engaging the community, providing accessible information and supporting local initiatives.

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

- **Respond:** Strengthen integrated emergency response capacities across City departments, support rapid and coordinated action during wildfire events.
- **Coordinate:** Collaborate with neighbouring jurisdictions and external agencies to build regional resilience.

Recognizing the dynamic nature of wildfire risk, the Strategy emphasizes continual improvement and adaptive management. This iterative approach supports Edmonton in remaining resilient in the face of evolving wildfire threats and changing climate conditions. Continued engagement with Indigenous partners and the integration of Indigenous knowledge and fire stewardship is also a key element of the Strategy.

Proposed Actions

The Strategy outlines integrated risk mitigation and adaptation recommendations designed to reduce wildfire risk, protect our natural assets and enhance community resilience as they relate to the seven FireSmart disciplines:

Vegetation Management (VM)

The main goal of the vegetation management action plan is to reduce fuel loads in an ecologically-sensitive way to mitigate potential wildfire behavior and spread. To support this goal, an external grant is available through the Green Municipal Fund's Climate Adaptation program. This one-year fuel reduction pilot program utilizes existing City funds to satisfy the program's matching funds requirement. The actions focus on reducing wildfire fuel loads through three primary strategies: expanding site-specific fuel treatments, incentivizing FireSmart practices on private property and establishing wildfire resilient landscaping standards. Specific initiatives include developing trailside and grassland fuel treatment programs to remove combustible debris and create fuel breaks, offering grants to encourage residents to adopt fire-resilient vegetation and updating formal design and construction standards for public parks and environmental reserves. For a detailed description, please see section 5.1.1.1 in Attachment 3.

Legislation and Development (LD)

This discipline focuses on embedding wildfire resilience into regulatory and land use planning frameworks. Recommendations include exploring how land use and open space policy, Zoning Bylaw regulations and design and construction standards can mitigate wildfire risk, increase resiliency and safety in the event of a wildfire. For a detailed description, please see section 5.1.1.2 on page 58 in Attachment 3.

Education (ED)

The education action plan aims to foster a culture of shared responsibility through widespread public outreach. Key recommendations include establishing a FireSmart public engagement and education pilot program, improving the availability of online resources and participating in public education events. Expansion of the public education pilot program is supported through a \$32,000 external grant through the Forest Resource Improvement Association of Alberta's (FRIAA) FireSmart Program, which requires in-kind City resources to lead the program. It also includes the continued championing of the FireSmart Neighbourhood Recognition Program to empower

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

community-led wildfire mitigation and the use of periodic surveys to measure the effectiveness of outreach efforts. For a detailed description, please see section 5.1.2 on page 60 in Attachment 3.

Emergency Planning (EP)

This discipline continues to improve upon the City's WUI wildfire response and rapid recovery. Actions include developing detailed structure protection plans for critical infrastructure, launching a data collection and monitoring program utilizing drones, dual-use city and traffic cameras, GIS mapping and expanding current tactical emergency response planning through increased staffing and specialized equipment standards. The action plan also calls for a formal risk review of city-owned facilities to ensure secondary backup resources and structural improvements are in place to maintain operations during an emergency. For a detailed description, please see section 5.1.3.1 on page 63 in Attachment 3.

Cross Training (CT)

Cross-training focusing on enhancing organizational capacity through specialized technical training. The primary focus is expanding the tactical emergency wildland response training program to provide municipal staff and emergency responders with accreditation in wildfire standards and the Incident Command System methodology (as the prescribed coordination methodology from the Local Emergency Management Regulation). Furthermore, the plan encourages continued participation in external training opportunities with provincial partners like Alberta Wildfire to ensure local teams remain aligned with best practices and are prepared for joint large-scale responses. For a detailed description, please see section 5.1.3.2 on page 68 in Attachment 3.

Interagency Cooperation (IC)

Regional collaboration is central to this discipline, emphasizing partnerships with external organizations and neighbouring jurisdictions. Recommended actions include the creation of a dedicated cross-departmental FireSmart Committee to oversee the implementation of the Strategy and the continued collaboration with external partners. The action plan also recommends collaborating on cultural and prescribed burns with Indigenous communities and research partners, as well as the ongoing update of Mutual Aid Agreements with neighbouring municipalities to ensure seamless resource sharing during emergency events. For a detailed description, please see section 5.1.4 on page 71 in Attachment 3.

The Strategy outlines the following resource pathways for implementation, noting that any increased service levels (i.e. Options 2 or 3) are subject to future Council approval of a formal service package:

Option	Scope
Option 1 - Foundational Implementation (Existing Resource Alignment)	Maintains current operational levels, focusing on specific actions as they relate to vegetation management, land-use planning, public education and mutual aid agreement reviews that are tied to active external funding applications and/or are fully resourced on a one-time basis.

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

Option 2 - Scaled Implementation (Highest Priority Actions Only)	Focuses resources specifically on the highest priority actions across six of the seven FireSmart disciplines.
Option 3 - Full Implementation (All 14 Actions)	Addresses all recommended actions across the seven FireSmart disciplines, including dedicated staffing and specialized equipment.

Subject to the approval of the FRIAA program grant (Attachment 4) Administration will implement **ED1**, FireSmart Engagement and Education Program, that includes distributing educational resources, delivering FireSmart presentations at public events, and promoting the FireSmart Neighbourhood Recognition Program. Administration will proceed with Option 1 (current resource alignment), unless otherwise directed by Council to pursue Options 2 or 3.

Proactively investing in wildfire risk reduction serves as a critical form of cost avoidance, as the long-term savings from preventing catastrophic wildfire damage significantly outweigh the initial expenditures required for mitigation. Several recommended actions, specifically **ED1** (FireSmart Engagement and Education), **LD1** (Implementing Wildfire Resilience Measures into the Zoning Bylaw) and **IC3** (Review and Update Mutual Aid Agreements), are expected to be implementable through the realignment of existing staff resources, one-time budget reallocations and/or active external funding opportunities. While Green Municipal Fund grant funding in 2026 would enable the implementation of **VM1** (Wildland Fuel Treatment Program), it is limited to establishing the programs and prioritizing treatment areas on a one-time basis, with 12 hectares (approximately two to three per cent of total wildland fuels on public lands) being mitigated. To review the full action plan in detail, please see Attachment 5.

Ongoing implementation of the Strategy is integrated into the upcoming Climate Action Plan Update which is scheduled for presentation in June. This will provide a platform for further Council discussion regarding their long-term integration and funding.

Budget/Financial Implications

Should Council decide to proceed with Option 2 or 3, Council may direct Administration to bring forward an unfunded service package as part of the 2027-2030 operating budget package for Council's consideration and approval.

Alternatively, should Council decide not to proceed with Option 2 or 3, Administration will proceed with Option 1, which will have no tax levy impact, as the action can be completed within the approved existing operating budget.

Beyond these aforementioned actions, the remaining actions in the strategy are currently being developed and the implementation costs will be estimated depending on the scope and technical requirements.

Legal Implications

Please see Private Attachment 6 for detailed legal implications.

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

Community Insight

Insights gained through public engagement were key to the development of the Strategy. Administration engaged the public at the “Advise” and “Refine” levels of the Public Engagement Spectrum, where participants shared their perspectives and suggestions on the Strategy development and direction. Engagement was conducted in two phases:

- Phase 1 (May–September 2025) focused on gathering preliminary input and gauging risk perception to inform the Strategy development
- Phase 2 (November–December 2025) sought direct feedback on the draft Strategy

To ensure broad awareness, Administration contacted 367 organizations to advertise engagement opportunities, utilized social media channels to reach 609 engagements on social media posts and reached out to the approximately 23,000 members of the Edmonton Insight Community.

Administration used the public engagement process to achieve several goals, including prioritizing concerns, identifying initial shortcomings in the Strategy's first draft and refining the recommended actions. This work helped ensure the Strategy's implementation employs a whole-of-society approach.

The full What We Heard and Did Report and its appendices can be found in Attachments 1 and 2.

GBA+

The Gender-Based Analysis Plus (GBA+) process for the Wildland-Urban Interface (WUI) Wildfire Risk Strategy identified that while wildfire risk is a city-wide concern, marginalized and equity-deserving groups may face unique barriers to accessing wildfire preparedness information and resources or the ability to take direction action to reduce wildfire risk.

The Strategy's development involved targeted engagement to reach marginalized and equity-deserving groups, ensuring their unique needs were heard and considered. Over 50 community organizations were contacted to promote engagement opportunities, including virtual info sessions, online surveys and in-person pop-up events at recreation centres and libraries.

Specific targeted efforts included:

- **Accessibility Advisory Committee:** The project team presented to the Accessibility Advisory Committee twice in 2025 and heard that a variety of formats, including both audio and visual-based materials, would be a more inclusive way to share key wildfire preparedness information in addition to the published Strategy.
- **Indigenous Engagement:** In June 2025, a pop-up tent at the Indigenous People's Day celebration in Borden Park engaged 219 attendees on the project (and two other climate projects). In September 2025, two in-person Indigenous engagement events, aligned with two other climate projects, provided opportunities to discuss wildfire risks, traditional fire stewardship and future collaboration. Administration heard about the importance of Indigenous-led solutions to wildfire management, including traditional cultural burns that reduce fuel loads while regenerating ecosystems.

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

- Virtual Info Session: A virtual community-focused info session was held in August 2025 with representatives from the South East Edmonton Seniors Association, Boyle Street Community Services and Habitat for Humanity Edmonton. Administration heard that printed materials, in-person events or telephone outreach may be more successful than digital-only methods. Administration also heard that continued engagement and collaboration with community-serving organizations would be preferred.

Findings from the engagement with equity-deserving groups resulted in the following Strategy recommendations:

- Targeted Education Program: Developing outreach strategies and educational materials specifically designed for marginalized and/or equity-deserving groups to ensure equitable access to wildfire preparedness resources.
- Inclusive Collaboration: Formalizing roles for community and/or social representatives within the recommended FireSmart Committee to provide ongoing inclusivity guidance.
- Indigenous Fire Stewardship Integration: Continuing the collaborative path established during 2025 engagement events to incorporate traditional fire stewardship practices.

Ongoing public and partner engagement is essential for the successful, collaborative implementation of this Strategy. Edmontonians will be informed of further engagement opportunities as they are identified during the implementation phase.

Environment and Climate Review

As noted in *Understanding Edmonton's Changing Climate 2025: Observed Climate Trends*, climate change is likely to lead to hotter drier conditions, increasing the risk of wildfires in and around the City of Edmonton.¹ Wildfires have the potential to cause damage to infrastructure and ecosystems, impact human health and release greenhouse gases into the atmosphere. A 2018 Johnston and Flannigan mapping study estimated that sixty percent of all cities, towns, settlements and remote communities in Canada have a WUI risk.² The City's corporate risk register indicates that changing climate conditions and more frequent severe weather events, like wildfires, are likely to put additional strains on City assets and services. The WUI Wildfire Risk Strategy will help Edmonton to prepare for increasing wildfire risk in a manner that also supports climate resiliency and ecological integrity.

The proposed WUI Wildfire Risk Strategy and prioritized action plan provide an integrated, all-of-community roadmap for mitigating wildfire risk by including a number of stakeholders across City Administration and the community to reduce potential impacts. Some of the key learnings of the Lytton, British Columbia fire in 2021³ point to the need to focus individual and collective community efforts, not only on how to fight fires but also pro-active mitigation activities to directly reduce the ignition vulnerability and exposure of homes, businesses and critical infrastructure. An integrated approach and FireSmart principles aligns with provincial and federal government approaches to wildfire mitigation in municipalities and is also aligned with traditional

¹ City of Edmonton. *Understanding Edmonton's Changing Climate 2025: Observed Climate Trends*. June 2025.

² Johnston L.M, Flannigan M.D. "Mapping Canadian wildland fire interface areas." *International Journal of Wildland Fire* 27, 1-14 (January 2018). <https://doi.org/10.1071/WF16221>.

³ British Columbia FireSmart. An examination of the Lytton, British Columbia wildland-urban fire destruction. 2022.

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

or cultural burning practices.⁴ The annual continual improvement and adaptive management review and update to the implementation plan will support ongoing learning from doing and incorporating new research as it becomes available.

WUI wildfires go beyond the combustion of natural material; they involve the combustion of synthetic materials from cars, plastics, electrical equipment, underground infrastructure, treated wood and other toxic material, which creates an additional set of ecological stressors. Impacts include:

- **Toxic Chemical Release:** Research indicates that smoke from urban-interface fires can contain significantly more toxic compounds (like lead, arsenic and dioxins) than smoke from burning only vegetation. The ash from burned homes and vehicles often contains heavy metals and polycyclic aromatic hydrocarbons, which can persist in the soil for years, affecting the health of local plants and soil microorganisms.
- **Disrupted Urban Wildlife:** Wildfires force wildlife into unburned urban neighborhoods, significantly increasing the risk of vehicle collisions and human-wildlife conflict. Impacted urban habitat such as the loss of shrubs and other understory eliminates nesting sites for urban birds and cover for small mammals like squirrels and mice, leading to impacts on local biodiversity.
- **Water Systems:** Intense heat creates a waxy coating on the ground that repels water. In cities, this leads to increased surface runoff and flash flooding, as the water cannot soak into the ground. Further, impacts to water systems occur when it rains after a fire. Toxic ash and high levels of nitrogen and phosphorus are washed into urban stormwater management facilities, wetlands and rivers. This can trigger harmful algal blooms that deplete oxygen, leading to fish kills in local waterways.
- **Heat Island Effect;** The loss of the urban canopy can raise local temperatures. Without the shading and the cooling effect of transpiration from leaves, impacted urban neighborhoods may experience an increase in the urban heat island effect until significant replanting and growth occurs.

Going forward, updates to the WUI Wildfire Risk Strategy and annual review could consider:

1. Inclusion of additional traditional and cultural perspectives in vegetation management and wildfire mitigation. In alignment with Edmonton's Indigenous Framework, action IC2 proposes to collaborate with local Indigenous communities to incorporate cultural protocols and practices into vegetation management and wildfire mitigation efforts. In future, there could also be consideration of prioritizing traditional/medicinal fire resistant species for improved wildfire resilience. This may also align with the Ecological Monitoring and Management Framework (funding request forthcoming through the 2027-2030 budget process). There may be an opportunity to align the two efforts.
2. Modelling the impacts of vegetation management, including prescriptive burning, versus unabated wildfire impacts. The City's climate strategies and carbon budget currently includes carbon sequestration from nature-based solutions. It may be helpful

⁴ FireSmart Canada. Blazing the Trail: Celebrating Indigenous Fire Stewardship. 2024.

Wildland-Urban Interface (WUI) Wildfire Risk Strategy

to model the impact of proposed vegetation management practices on the City's carbon budget as an additional measure of the cost/benefit of these practices.

3. Inclusion of human health impacts in the integrated approach to WUI Wildfire Risk Strategy. Due to the exposure to particulate matter and other toxins, there is a significant health impact of wildfires in cities. The City could evaluate both preventative and recovery practices to limit health impacts particularly for those populations most vulnerable to the impacts of wildfire smoke. Community mental health can also be impacted for a prolonged period after a wildfire and could be considered in recovery planning.

Having a WUI Wildfire Risk Strategy and action plan also aligns with Climate Resilient Edmonton: Adaptation Strategy and Action Plan⁵ as well as the Climate Resilience Planning and Development Action Plan.⁶

Attachments

1. What We Heard and Did Report
2. What We Heard and Did Appendices
3. Wildland-Urban Interface Wildfire Risk Strategy
4. Conditional Grant Approval Letter
5. Wildland-Urban Interface Wildfire Risk Strategy Action Plan
6. PRIVATE - WUI Wildfire Risk Strategy - Legal Risk Mitigation

⁵ Action 14 of Climate Resilient Edmonton states: Integrate changing climate extremes into coordinated emergency management programs including preparedness, prevention, response and recovery.

⁶ Action 6 of the Climate Resilience Planning and Development Action Plan states: Introduce new regulations for wildfire risk areas in the Zoning Bylaw.