



Are decision makers ready for the next major forest fire in Alberta?

EVALUATION OF SELECTED MITIGATION STRATEGIES FOR REDUCING FOREST FIRE-INDUCED RISK

INTRODUCTION

Alberta Land Institute’s research "Evaluation of Selected Mitigation Strategies for Reducing Forest Fire-induced Risk" investigates fire risk in the wildland-urban interface (WUI). Ultimately, the research aims at understanding the post-fire perceptions of selected mitigation strategies for wildland fire-induced risks in the Regional Municipality of Wood Buffalo (RMWB).

Why is understanding forest fire risk important in Canadian municipalities?

Forest fire is one of the most critical hazards in Alberta and possesses a significant risk to the existence – and sustainable development of communities – in the vicinity of the forested/vegetated areas.

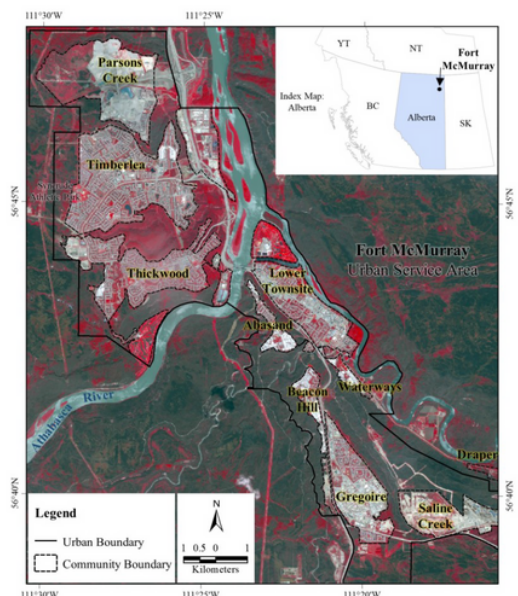
The overall objective of this research was to formulate a set of policy recommendations and alternative strategies for decision-makers to mitigate forest fire-induced risk. This was done by synthesizing existing scientific evidence and relevant policies and engaging stakeholders in the RMWB.

CASE STUDY COMMUNITY

The researchers selected Fort McMurray, an urban service area with a population of 66,573, in the RMWB, as a case study community. Fort McMurray's experience with the Horse River Fire in 2016, the costliest disaster in Canadian history, as well as its role as an economic hub in Alberta, made the municipality a critical case study for wildfire mitigation.

THE APPROACH

The study adopted a four-step – participatory – approach to understanding opinions on wildfire mitigation and management strategies in Fort McMurray. The team worked to develop models highlighting wildfire risk, identify key stakeholders involved in natural disaster management in RMWB, prepare an online survey, and analyze the subsequent survey results.



WILDFIRE MITIGATION MEASURES IN ALBERTA

Having little to no existence of forest vegetation can reduce the propagation of wildland fire into communities. The following mitigation measures, aimed at reducing forest vegetation, and lowering wildfire hazard risk, were proposed by the research team to surveyed stakeholders as potential policy options.

1 30 Metre Buffer Zone

The researchers proposed a 30 m buffer from the WUI. This strategy to reduce fuel – and reduce the ignitability of homes – is critical to limiting the spread of wildfire.

The research team found that the majority of participants agreed with this mitigation measure, specifically as a minimum buffer, as survey respondents suggested this may be inadequate given the characteristics of previous wildfires.

67%

of respondents agree or somewhat agree that there should be little to no existence of forest/vegetation in the 30 m buffer zone from the WUI

2 70 Metre Buffer Zone

The survey proposed a 70 m buffer from WUI to forest/fuel. This would mean extending the area with no vegetation from 30 to 70 m to better protect community structures. Research has shown that a vegetation-free zone of up to 70 m from the WUI would reduce the wildland fire-induced risk.

The research team found that the majority of participants agreed with introducing a 70 m buffer zone. Though, they noted potential challenges, including loss of wildlife habitat and the cost of land acquisition and maintenance.

76%

of respondents agree or strongly agree that there should be little to no existence of forest/vegetation in the 70 m buffer zone from the WUI

3 Construction of a Ring Road with a Width of 70 Metres

The research team proposed constructing a 70 m width ring road around the communities to reduce wildland fire-induced risks. This mitigation strategy would provide a buffer zone between communities and forested areas/vegetation. The survey found that **80%** of stakeholders agree or strongly agree with the construction of such a structure as it offers alternate evacuation routes and ensures better community access for emergency service vehicles.

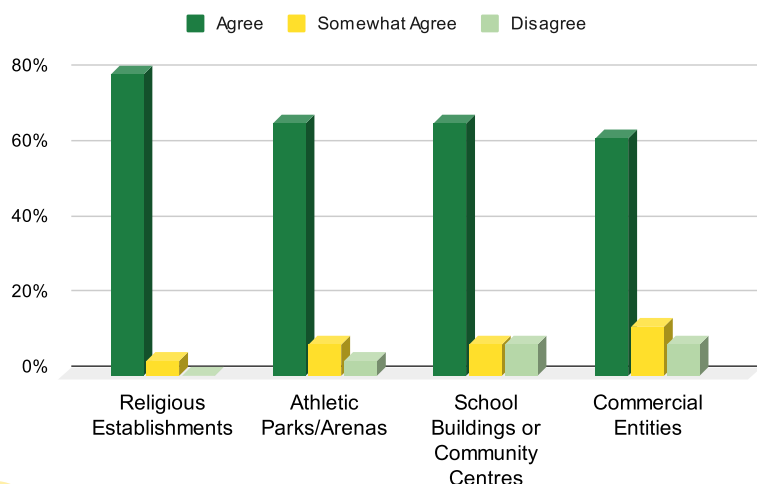
4 Social Infrastructure Placement

The research team examined social infrastructure placed on the outskirts of a community, with the parking lots acting as a buffer between the infrastructure and the forested area as a mitigation measure. The survey proposed multiple infrastructure projects as a potential buffer zone, including religious establishments, athletic parks, school buildings and community centres, and commercial entities.



The research team found that **63-80%** of stakeholders agreed with the concept of creating additional buffer zones. Though survey participants noted that there could be challenges with this proposal, as damaging social infrastructure could result in financial and social loss to the community.

Placement of Social Infrastructure as Wildfire Mitigation Strategy



5 Additional Proposed Measures

In undertaking the survey, research participants suggested alternative policy options and mitigation strategies to reduce wildfire risk in Fort McMurray and the surrounding communities.

The most common suggestions included considering standardizing the use of fire-resistant materials in constructing structures and homes and utilizing the vegetation-free buffer zone as recreational spaces. Participants also noted the importance of creating multiple exit routes in case of an emergency evacuation, adopting public education, and outreach for FireSmart practices, forest management, and increasing risk communication.

NEXT STEPS

Stakeholders in RMWB strongly agreed with the proposed wildfire-induced risk mitigation strategies. Moving forward, the research team suggests that these approaches for mitigating wildfire risk could be applied to other urban and rural communities in forested regions in Canada with further investigation.

Evaluation of Selected Mitigation Strategies for Reducing Forest Fire-induced Risk was completed in December 2021.

Backgrounder V.01

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Alberta Land Institute

The Alberta Land Institute (ALI) is an independent research institute based at the University of Alberta. We are committed to research that supports and enhances land use policy in the province of Alberta and beyond. ALI's work focuses on the changing landscape and the ways that planning and policy design can ensure the long-term sustainability of Alberta's agricultural sector, its water and its natural areas.

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