

DEFENSIBLE SPACE AS A WILDLAND FIRE MITIGATION STRATEGY IN JASPER, ALBERTA, CANADA

Executive Summary

A variety of climactic, ecological, and anthropogenic factors over the past century have contributed to Jasper being at an increased risk of wildland fires. Jasper has a unique array of factors including its environmental sensitivity, municipal governance structure, and largely tourism dependent economy that introduce additional complexities relative to other Alberta municipalities when considering wildland fire mitigation strategies. The municipality currently has no provisions for the enforcement of defensible space type wildland fire mitigation measures to be taken at the individual property level. The inclusion of defensible space type provisions into the *Town of Jasper Zoning Regulations* could serve to increase the community's resilience towards wildland fires, while having minimal impact on the area's sensitive and protected environment.

Traditional wildland fire mitigation strategies have relied primarily on landscape scale vegetation treatments such as prescribed burns, firebreaks, and vegetation thinning, oftentimes with the treatment areas being spatially removed from the structural assets they are trying to protect (Syphard et al., 2014). While extensive vegetation treatments have been conducted in the area immediately surrounding the Jasper townsite, the community remains vulnerable; particularly to embers which are capable of travelling long distances and are responsible for the majority of buildings destroyed in wildland urban interface fires. Defensible space is a wildland fire mitigation strategy applied at the scale of individual properties and buildings that relies on the selection, location, and maintenance of vegetation and all other residential fuels (Warziniack

et al., 2019). The creation of defensible space serves to reduce a building's vulnerability to damage by wildland fire, while also providing firefighters a safer area to work in during an active wildland fire and reduces the probability of a structural fire becoming a wildland fire (Syphard et al., 2014). By targeting vegetation treatments specifically to the buildings intended to be protected, the area required to be treated is also reduced and concentrated to an area that is already heavily impacted in terms of its ecological function.

This paper analyzed the land use bylaws of 54 Alberta municipalities to assess for their inclusion of defensible space provisions, of which 21 were found to have one included. Of the 21 municipalities that had defensible space provisions, three primary variables were found to differ between municipalities, with an assessment of these variables used to evaluate the strength of each municipality's provisions. The three factors used to assess the strength of each municipality's provisions were the type of operative words used, what properties the provision applied to, and the level of detail within the provision.

The inclusion of a defensible space provision into the *Town of Jasper Zoning Regulations* would serve to increase Jasper's resilience towards the threat of wildland fires, while reducing the amount of impact to the surrounding sensitive and protected areas required by traditional wildland fire mitigation measures. As Jasper is an urban municipality with the entirety of the community within the wildland urban interface, any defensible space provision that is implemented should be strong as assessed by the operative words used, what properties it applies to, and the level of detail provided. The enactment and enforcement of strong defensible space provisions is one way Jasper and other Alberta municipalities can increase their resilience towards wildland fires.