

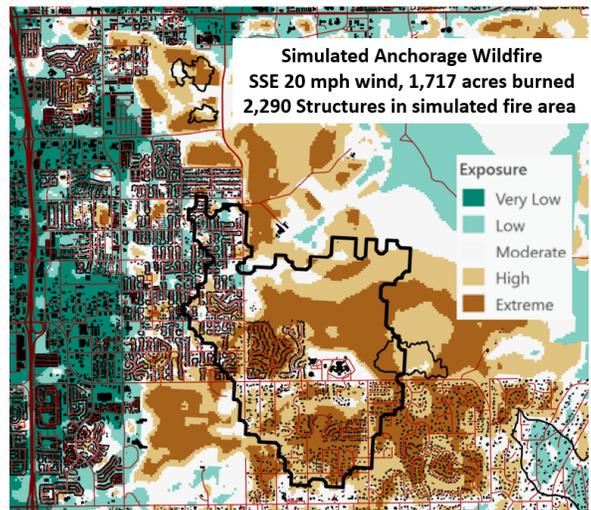
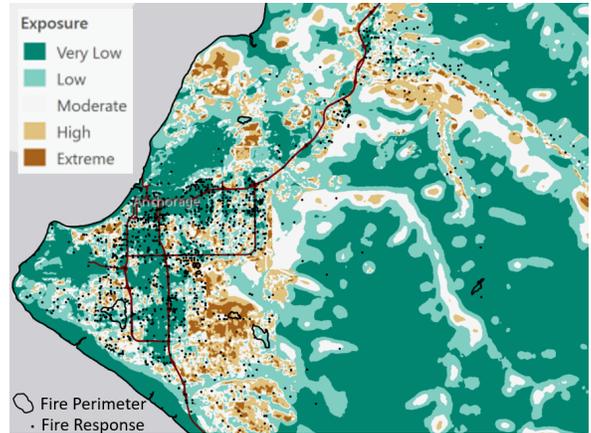


Summary of the Wildfire Threat

As the largest urban community above 60° North latitude in North America, Anchorage faces a unique challenge from its wildfire hazard. Over a recent 20-year period, an average of 90 responses per year have burned only just over 4000 acres across the Municipality. For a population this size, this modest wildfire statistic is due to community awareness and wildfire protection agencies' efforts (primarily from the Anchorage Fire Department) to inform and protect people and what they value from that hazard.

Wildfire Exposure classification in these images highlight where the community is exposed to wildfire hazard on a relative scale (green to brown shading). Reported fire responses (black dots) show the distribution of the threat, especially in areas of high and extreme exposure. And the simulated fire perimeter (black) poses a representative potential impact.

The 2008 Community Wildfire Protection Plan identified the need for expanded Firewise Education, increased hazard fuel reduction, improvements to wildfire response capabilities, and an emphasis on post-Incident recovery.



Uncertainties

The 2017 [Climate Change Vulnerability Assessment for the Chugach National Forest and the Kenai Peninsula](#) concluded that “climate factors will limit the extent to which fire will increase within the study area.” Despite that, a major drought in south-central Alaska during the summer of 2019 led to destructive wildfires surrounding the Anchorage Municipality. This was followed by an even more extreme early summer drought in 2022. Climate projections struggle to highlight specific events such as these and the increased wildfire hazard they could bring to the Wildland Urban Interface surrounding urban Anchorage, especially south and east of the urban center. Under these scenarios, human ignitions can threaten people and property and, under the worst scenarios, produce catastrophic impacts.

While the drought of 2019 produced an increased fire occurrence of 131 fires, they burned only 78 acres in total. However, daily mean PM2.5 levels exceeded the National Ambient Air Quality Standard (NAAQS) 8 times that summer, three times in early summer with smoke from the Swan Lake fire on the Kenai, and five times in late August with smoke from fires in the Susitna Valley. With records from 2000, only three other days before 2019 exceeded that standard (one each in 2004, 2005, and 2022). While smoke has been noticeable at other times, it is unclear how frequent or severe this problem may become in the future.

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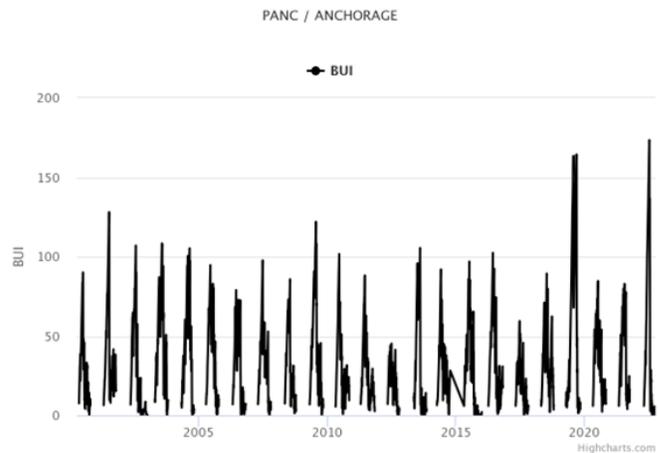


Wildfire Driver Interactions and Trends

Climatic Trends

Average ambient air temperature and annual precipitation accumulations are expected to rise over successive decades. However, the cumulation of high temperatures and precipitation deficits over days, weeks, and months produce irregular and episodic events that increase landscape flammability. Periodic drought exacerbates these events. Climate change models are not yet able to detect trends for these episodes.

This Buildup Index (BUI) graph for Anchorage represents day-to-day variations from 2000 through 2022. Though neither of the recent episodes of exceptional peaks in BUI during 2019 and 2022 produced important changes in wildfire activity for Anchorage, the potential elevated risk cannot be dismissed.



Landscape Trends

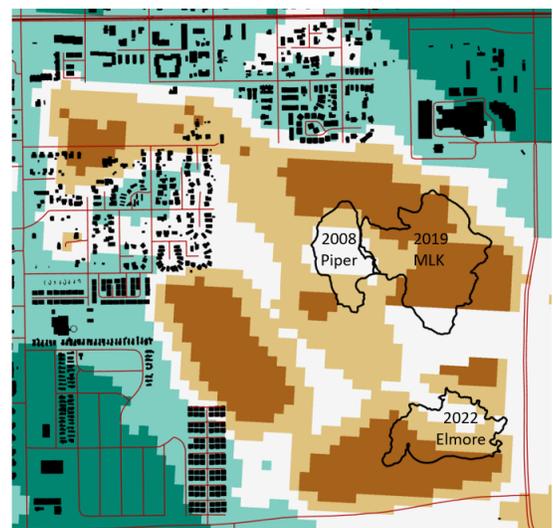
Concentrated development in highly urbanized areas reduces wildfire hazard dramatically. Surrounding areas of lower-density development retain more vegetative cover thereby retaining wildfire hazard. But there is evidence that the hazard declines as development concentrates further. The effect is variable, with wildfire impact limited by roads, neighborhoods with reduced vegetation/fuels and, fire-resistant building materials. Future development standards will increasingly call for these practices.

Spruce Beetle outbreaks have demonstrated their impact on White Spruce forests in south-central Alaska, including the Anchorage area. Over time, these have reduced the spruce component of the primarily mixed forests of the Municipality. In the near term, this will reduce the wildfire hazard by reducing the torching and spotting potential from the increasingly deciduous forests. There is a suggestion that Sitka Spruce could move into some of those areas, though the process likely would take decades.

Human-Caused Ignitions

The generally limited historical wildfire impact in Anchorage is due to much more than just climate factors. Human-caused fires are detected more quickly, fire response is ready and effective, and the population is well informed of the hazard.

But not all human-caused fires are of equal significance. This image demonstrated the role of exposure, where at least four recent starts on high and extreme exposure have grown rapidly and required a more significant response to protect the adjacent values. Even in these areas, weather and fuel conditions can enhance or deter the threat daily. Additionally, some wildland parks and undeveloped lands pose much more hazardous vegetation/fuels and values.



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