The Honorable Jeff Golden
Chair, Senate Committee on Natural Resources
& Wildfire Recovery
Oregon Senate
900 Court St. NE
Salem, Oregon 97301

The Honorable Dallas Heard
Vice-Chair, Senate Committee on Natural Resources
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900 Court St. NE
Salem, Oregon 97301

April 8, 2021

Dear Chair Golden and Vice-Chair Heard:

The National Fire Protection Association (NFPA) is pleased for this opportunity to provide testimony on SB 762. Since 1896, NFPA has worked through codes, standards, information, and knowledge to improve fire and life safety around the world. These efforts helped to bring an end to the urban conflagrations that plagued the early part of the 20th Century, and ultimately have helped to bring fire deaths and injuries in the U.S. to their all-time low. Today, wildfires are increasingly sparking the destruction of entire neighborhoods and communities, becoming the urban conflagrations of this century. In response to this burgeoning fire crisis, NFPA launched Outthink Wildfire, an initiative to push for policies that can turn the tide against these losses.

As we noted in testimony to your Committee on March 16th, for wildfire prone areas, these policies broadly seek: 1) ignition resistance for all homes and buildings through retrofits and other mitigation actions; 2) reliance on the latest codes, standards, and best land use planning practices to reduce risk for new construction and entire communities; 3) equipping first responders with the tools, training, and resources they need to protect their communities; 4) increasing resources for land management to reduce risk of catastrophic wildfires; and 5) educating the public on their role in wildfire risk reduction. We applaud this Committee for drawing from these tenets to champion wildfire preparedness for Oregonians.

Both SB 287 and the amended version of SB 248—and now the amendments for SB 762—have provisions foundational to wildfire safety and resiliency, including: calling for comprehensive, statewide, property-ownership-level wildfire risk maps; establishing defensible space requirements; undertaking reviews and recommendations for land use planning practices; and prioritizing land management activities. As discussed below, strong action on these fronts will save lives and property.

Maps

NFPA applauds both SB 287's and SB 248's directive to develop and maintain comprehensive, statewide, property-ownership-level wildfire risk maps. The Governor's Council on Wildfire Response (GCWR) 2019

report repeatedly stressed the need for this information to guide land use planning and land management prioritization across the state. This foundational step will enable the most targeted risk reduction actions.

Defensible space

Laboratory experiments, modeling, and field research over several decades support a growing body of evidence that reducing fuels and ignitable materials from around a home is critical to its survivability in a wildfire event.[1] In fact, in its analysis of Cal Fire data from the devastating fires 2017 and 2018 fires, the Insurance Institute for Business and Home Safety (IBHS) concluded that defensible space was the second most important factor in home survivability, after topography.[2] Preparing property can mitigate the risk of ignition from either radiant heat, direct flame contact, or indirect contact (i.e., embers/firebrands).

Scientists with the U.S. Forest Service (USFS), the National Institute of Standards and Technology (NIST), and others have researched home ignition from radiant wildfire heat. Their work has shown that home ignition is unlikely at distances over approximately 120-feet. In some cases, that safe separation distance has actually found to be less. [3] Thus, with sufficient distance between a home and forest fuels, ignition via radiant heat from an active wildfire can be prevented or significantly reduced.

Of greater threat to homes in wildfires is the propagation of small flames through parcel vegetation, debris, or other flammable materials (woodpiles, fencing, etc.). Direct flame contact from a wildfire front to this fuel on the property can carry flames to a home, but studies have also closely focused on the role of embers in igniting homes. Embers have been recorded traveling several miles ahead of an active wildfire, igniting homes well before the arrival of the wildfire front.[4] Both field observations that report green, untouched vegetation adjacent to completely burned down structures,[5] and experimental results,[6] support the assertion that "most homes ignite as a result of firebrands igniting lower-intensity surface fires adjacent to and/or spreading to contact the home, as well as firebrand ignitions directly on the home."[7] Also, from the community perspective, those burning homes generate more heat and embers which spread fire to surrounding properties—a cause of home loss in many fires.[8]

Given the multiple paths for ignition described above, both NFPA 1144 *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, and the ICC WUI code divide property around a home into zones in a method designed to decrease the likelihood and consequences of ignition and flame spread as one

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[1] For a summary of relevant research, see: Gollner, Michael J., *et al*. (2015) Pathways for Building Fire Spread at the Wildland Urban Interface, Fire Protection Research Foundation (https://www.nfpa.org/News-and-Research/Data-research-and-tools/Wildland-Urban-Interface/Pathways-for-Building-Fire-Spread-at-the-Wildland-Urban-Interface).

[2] Insurance Institute for Business and Home Safety, Why we need to adapt our built environment to wildfire (https://tinyurl.com/ys2s5na8).

[3] Gollner, *supra* note 1, pp. 27-28; *See also*: Cohen, Jack D. 2000. Preventing disaster: Home ignitability in the wildland-urban interface. Journal of Forestry 98(3): 15-21. (https://www.fs.usda.gov/treesearch/pubs/4688).

[4] *See e.g.* Maranghides, A., *et al*. (2013) A case study of a community affected by the Witch and Guejito fires: report #2 - evaluating the effects of hazard mitigation actions on structure ignitions. National Institute of Standards and Technology, Gaithersburg, MD, pp. 76-77 (embers traveled 9 km from fire front, igniting properties at least an hour before the arrival of the fire front to the community).

[5] Calkin, D.E., *et al*. How risk management can prevent future wildfire disasters in the wildland-urban interface. PNAS January 14, 2014 111 (2) 746-751; https://doi.org/10.1073/pnas.1315088111.

[6] *See e.g.* Butler, K. , Johnsson, E. and Tang, W. (2020), Structure Vulnerability to Firebrands from Fences and Mulch, The Fire Continuum Conference, Missoula, MT (https://tsapps.nist.gov/publication/get_pdf.cfm?pub_id=926248).

[7] Calkin, *supra* note 5.

[8] *See e.g.* Cohen, Jack, Stratton, Richard D. Jack D. Cohen (2008) Home Destruction Examination Grass Valley Fire, Lake Arrowhead, CA, USDA, R5-TP-026b (https://www.srs.fs.usda.gov/pubs/31544); Maranghides A., et al. (2021) A Case Study of the Camp Fire – Fire Progression Timeline. NIST Technical Note 2135. National Institute of Standards and Technology, Gaithersburg, MD. https://doi.org/10.6028/NIST.TN.2135

moves closer and closer to the home.[9] The requirements for the first zone, the area extending 30-feet from the edge of the structure, include branches trimmed back from the roof by at least 10-feet, well-mowed lawns, no storage of woodpiles, and a 'non-combustible' area within 5-feet of the home. In the 5-foot zone, landscaping materials and plants must be non-combustible and/or high moisture. The second zone, 30 to 100-feet from the structure, the standards recommend fuel breaks, like gravel pathways, trees pruned at least 6-feet from the ground, and 20-feet between individual trees. The third zone, 100 to 200-feet from the home, should be thinned, though not as extensively as in zone two.

Treated properties fare better in wildfires. Investigations after the 2007 Witch Creek and Guejitos fires showed that 67 percent of the homes that had not removed excess vegetation from the area 30-feet around the home were destroyed, compared to only 32 percent of those that had removed this vegetation.[10] In contract, most of the 235 homes destroyed in the 2000 Cerro Grande fire were ignited through pine needles, flammable shrubs, woods piles, and similar fuel adjacent to or on homes.[11] During California's devastating Camp Fire, first responders reported witnessing this type of ignition again and again—"fence to wall of building," "woodpile to house," "bark mulch to wall of house." In that fire, structure-to-structure spread of the fire was a significant factor in the destruction or damage of nearly 14,000 single-family homes.[12]

Defensible space reduces the risk of home ignition. Oregon should have statewide requirements based on NFPA[13] or ICC standards. Those requirements should extend to the area within five feet of the home, where the ignition of any combustible material has the quickest path to igniting the home. In keeping with the previous bills before the Committee, NFPA would urge not only the development and promulgation of these rules, but it also provisions for enforcement, monitoring, and technical assistance to disadvantaged communities. Enforcement—*and education*—are needed to properly benefit from any new rules. Furthermore, as noted in the GCWR, entrusting the SFM with enforcement responsibilities will necessitate extra resources for that office.[14] NFPA therefore strongly encourages the Oregon Legislature to ensure adequate resources are available to the SFM for these activities.

Building Codes

While SB 287 did not address building codes for wildfire safety, the amendment to SB 248 did. Even if a home has followed defensible space guidelines and removed fuel from around the home, the home itself is still vulnerable to ignition. Structural elements like roofs, eaves, and decks are highly vulnerable to embers, either generated from the wildfire or through the combustion of neighboring properties. NFPA recommends statewide use and enforcement of wildfire building safety standards, like those found in NFPA 1144. Constructing new homes and other buildings with ignition resistant materials and other safety features will reduce the need for retrofitting in the future. In the absence of statewide code

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[9] Gollner, *supra* note 1, pp 77-80.
[10] Maranghides, A., *supra* note 4.
[11] Cohen, J.D. (2000) Preventing Disaster: Home Ignitability in the Wildland-Urban Interface. J. For. 98(3), 15–21. http://www.treesearch.fs.fed.us/pubs/4688
[12] Maranghides A., et al. (2021), *supra* note 8.
[13] NFPA codes and standards applicable to wildfire and defensible space include: Chapter 17 of the NFPA 1 *Fire Code*; Chapter 6 of NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*; and NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas. **Note, current drafts of SB 762 direct the SFM to "periodically reexamine the [defensible space] standards set forth in the International Wildland-Urban Interface Code (2020 ed.) and update the State Fire Marshal's standards to reflect current best practices." Because codes and standards are updated regularly to reflect the latest research, we suggest striking any reference to the edition date or adding "2020 ed. Or subsequent editions."**
[14] Governor's Council on Wildfire Response (GCWR) Report (2019), p 30-34 (https://www.oregon.gov/gov/policy/Pages/wildfirecouncil.aspx).

provisions, NFPA would urge the legislature to act upon the GCWR's recommendations to create an interagency group to work on building code issues and direct the Department of Land Conservation and Development to educate and guide local jurisdictions toward building codes for wildfire safety.[15]

Land Use

In addition to building codes, other land use planning tools can help improve community resilience to wildfire. NPFA would urge the Committee to include in SB 762 the GCWR's recommendation to require local planning processes include wildfire risk mitigation.[16]

Fire Department Needs

The third policy need identified by NFPA is around providing resources for local fire departments to help them protect their communities. While we do not have Oregon specific statistics, NFPA's national 2016 survey, *Fourth Needs Assessment of the U.S. Fire Service*,[17] paints a troubling picture for local fire departments faced with increased fire in WUI areas. Eighty-eight percent of U.S. fire departments—some 23,000 departments—provide wildland and/or WUI firefighting services, but 63 percent of those have not formally trained all of their personnel involved in wildland firefighting on these skills. Only 32 percent have all of their responders equipped with appropriate personal protection equipment (PPE), and 26 percent do not have any of the necessary PPE at all. Only 27 percent of departments have a health and fitness program. For the years 2011 to 2015, wildfires caused an average of 1,330 fireground injuries[18] to local fire department personnel each year, with over one quarter of those severe enough to result in lost time from work.

Fire departments themselves acknowledge how quickly their capacity to respond to wildfires would likely be overwhelmed. Sixty-four percent of U.S. fire departments reported they could manage structure protection for a maximum of two to five structures during a single wildfire incident. More than half, 52 percent, reported they could manage, at a maximum, responding to a wildfire event of just 1 to 10 acres.

Recognizing these numbers are national, and not state specific, they do illustrate how citizen expectations that firefighters can successfully protect all lives and property in the community during a wildfire event may be misguided. SB 287 contains provisions that will help Oregon's local fire departments meet the challenge—assessments of the adequacy of mutual aid and creating new authorities for the SFD to support local entities in acquiring training and equipment. As the Committee moves forward with SB 762, NFPA would again encourage the legislature to review the recommendations provided by the GWCR regarding defining and assessing baseline-levels of protection for all jurisdictions within the state.

Land Management

The GCWR identified a number of land management needs to help restore Oregon's forest and rangelands and reduce the wildfire risk they pose—including the ambitious recommendation to quickly

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[15] *Id*, p 20.
[16] *Id,* p. 41-43.
[17] National Fire Protection Association (2016) Fourth National Needs Assessment (https://www.nfpa.org/News-and-Research/Data-research-and-tools/Emergency-Responders/Needs-assessment).
[18] Ahrens, Marty (2018) Bush, Grass, and Forest Fires, National Fire Protection Association (https://www.nfpa.org/News-and-Research/Data-research-and-tools/Wildland-Urban-Interface/Brush-grass-and-forest-fires)

reach a steady state of 300,000 acres per year of treatment activity in the state. Neither SB 287 nor SB 248 identify a specific path toward that goal, both direct the State Forestry Department to carry out its fuel reduction treatment activities according to the prioritization scheme in the Pacific NW Quantitative WF Risk Assessment and to coordinate with federal counterparts and private and non-governmental landowners. Oregon's overall task of restoring and treating 5.6 million acres in the state cannot happen without significant coordination, support, and action from those other landholders and stakeholders. It also cannot happen without consistent performance measures and metrics, as provided for in SB 287 and SB 248. Overall though, we would encourage the legislature to tackle some of the other needs, both funding and programmatic, identified in the GCWR, including those related to building project pipelines and capacity.

Public Education

Finally, NFPA applauds SB 287's Task Force on Wildfire Education Coordination. Developing strategies to improve coordination and performance of state public wildfire education endeavors will help build public support for the actions needed to reduce wildfire risk. Through maintaining ignition resistant property, heeding evacuation orders from emergency officials, and being safe on fire prone landscapes, the public's participation in lowering risk is crucial. As the Committee crafts SB 762, members should consider including SB 287's task force or similar provisions.

The work of this Committee to create a comprehensive approach to addressing the wildfire risk in Oregon should be applauded. With provisions focused on the issues above, NFPA would urge the passage of SN 762. Please feel free to reach out to me or NFPA Regional Operations Director Ray Bizal if we can be of assistance. He can be reached at rbizal@nfpa.org.

Sincerely,

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