5.2.4 Structural Ignitability

Limiting the risk of structures catching fire during a wildfire event is one of the most important strategies for preventing loss from future fires. Structural fire during wildfires is most often caused by embers, which can travel three miles or more ahead of a large fire.[62] The embers (also called firebrands) can start structural fires on roofs, in gutters, under structures, or in closely surrounding vegetation, then leading to fire transmission from structure to structure.

It has been estimated that 90% of structural fires during wildfires are caused by embers. Although it is possible for a structure to catch fire just from the residual heat or flames as a wildfire moves through, wildfire will often pass through areas at lower intensity but still cause enormous structural damage. Risk can be reduced by making structures less likely to ignite from embers by managing the space around a structure and building or retrofitting buildings with wildfire-resistant building materials.[63]

Figure 41 - Aerial photo of damage from the 2018 Camp Fire in California. Structures have burned to the ground even as much of the adjacent vegetation has survived the fire. In some locations, trees suffered more damage from being in proximity to burning homes than from the main line of wildfire. Photo – Owen Bettis, Deer Creek Resources

Defensible space is the buffer created between a structure and vegetation. This space acts as a fuel break to slow the movement of fire around a structure, and prevent ember-driven ignition from being passed to the structure.[64]

[62] Why Defensible Space?, Insurance Institute for Business and Home Safety.
[63] According to the Institute for Business & Home Security, wildfire-resistant building materials do not cost more money.
[64] Defensible Space, Ready for Wildfire, Cal Fire.

The area around a structure is called the home ignition zone, and wildfire mitigation education uses a three-zone strategy to promote defensible space.[65]

- Zone 1: 0-5 feet from structure (Immediate Zone)
  - Reduce the chance of ignition from embers
    - Harden the home with ignition-resistant siding, roofs, decks, attic vents, eaves, and windows.
    - Regularly clean debris from roof and gutters.
    - Use noncombustible mulches and landscaping
    - Do not store combustible materials like firewood or lumber under the structure or under decks.
- Zone 2: 5-30 feet from structure (Intermediate Zone)
  - Create a landscape that will not transmit fire to the structure
    - Remove ladder fuels under trees and branches hanging over the structure
    - Create defensible space around outbuildings
- Zone 3: 30-100 feet from structure (Extended Zone)
  - Reduce the speed of wildfire as it moves through the area
    - Remove dead vegetation.
    - Eliminate ladder fuels under trees.
    - Potentially extend the zone if the structure is at the top of a steep slope

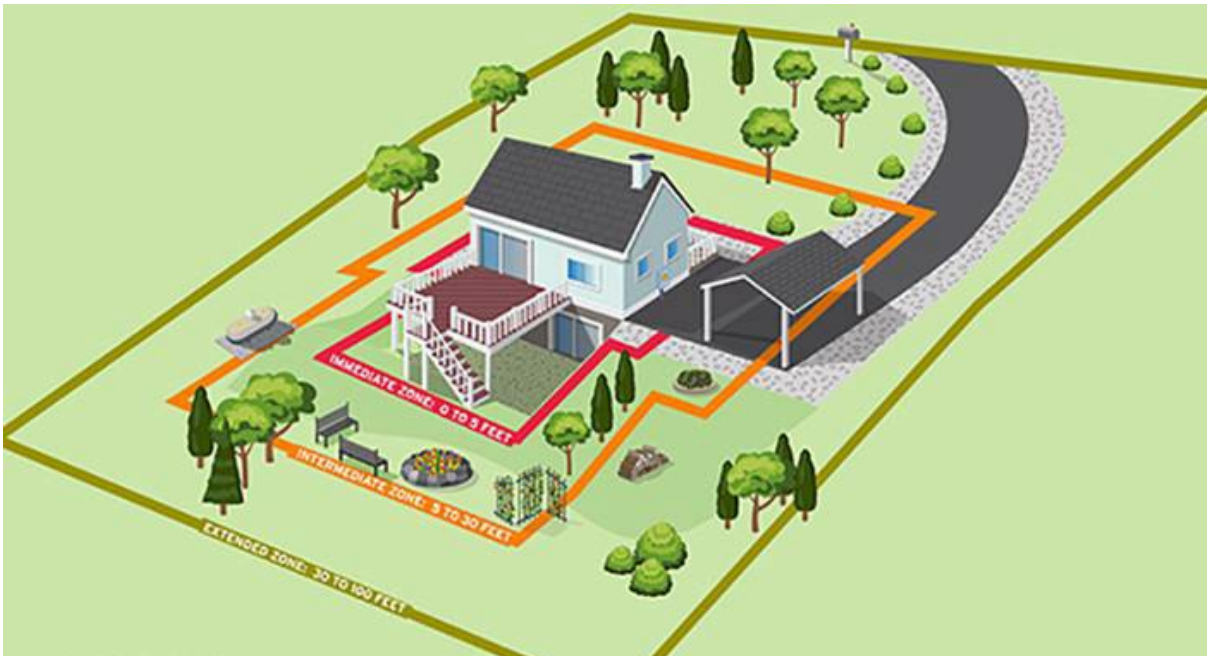

Figure 42 - Diagram showing the home ignition zone. National Fire Protection Association

[65] Zone descriptions from the Insurance Institute for Business & Home Security.

Home Defensible Space Resources:

- Ignition Resistant Homes, Wildfire Risk to Communities, US Forest Service
- Keeping Your Home and Property Safe from Wildfire: A Defensible Space and Fuel Reduction Guide for Homeowners and Landowners, Oregon State University Extension
- Oregon Defensible Space, Oregon State Fire Marshal
- Preparing Homes for Wildfire, National Fire Prevention Association
- Wildfire Defensible Space for the Farm and Ranch (Webinar), Oregon State University Extension

As noted in the case study of the Almeda Drive Fire, challenges can be increased when structures are located very close to each other. Defensible strategies for manufactured home parks are to essentially follow Zone 1 guidelines for clearing dry vegetation and flammable mulches from directly around the home and to consider the use of more fire resistant materials for decks, fences and exterior siding.[66] It is common for outreach materials explaining defensible space to show large houses on rural forested lots, so they may not be effective messaging tools for those living in denser neighborhoods.

Home Assessments

Many local fire districts are already successfully conducting home assessments to assist residents in identifying how they can improve defensible space on their properties. These programs increase risk awareness, develop effective site-specific mitigation strategies, identify residents with resource or ability limitations for maintaining defensible space, and build relationships with residents living in high-risk areas.

Planning and Building Codes

Some strategies for home defensible space may conflict with other goals, such as retaining trees and other vegetation on properties to support tree canopy goals, ecological values, and high-value view areas. An ongoing challenge is to create local codes that can best meet multiple goals, including structural safety.

Local stakeholders will need to coordinate with state partners to assess whether changes in state building code regulations can be used to require more fire-resistant building materials in new or rebuilt construction in WUI or other high-risk areas.

Equity Considerations

- County residents have differing resources and abilities for maintaining properties.
- Renters may not have the funds or authority to manage wildfire risk where they live.
- There is a greater difficulty in maintaining home ignition zones in densely built parts of the WUI, such as townhouses, manufactured home parks, or where Accessory Dwelling Units are common.
- Full awareness of structural ignition risk reduction requires multi-lingual communications and the use of varied communication strategies.

[66] Mobile Home Wildfire Safety, Fire Safe Marin

Mitigation Strategies	Lead Agency/Jurisdiction
Continue to develop programs to improve defensible space around homes by supporting Firewise programs and assisting residents with financial or mobility limitations for managing their properties.	Corbett Fire
Develop planning code amendments in the City of Gresham to support wildfire mitigation strategies, including consideration of a wildfire overlay.	Gresham Fire
Obtain structural ignitability data through structural triage data assessment collection for homes in strategic planning areas.	Gresham Fire
Seek and support grant funding and cost-share programs to support fuels reduction projects and the creation of defensible space around homes.	Gresham Fire
Develop a local wildfire prevention campaign to promote defensible space and reduce structural ignitability within the Home Ignition Zone.	Portland Fire & Rescue Public Education
Identify strategies to support under-represented populations (elderly, low income, disabled, BIPOC communities) with fuel mitigation to create defensible space around homes.	Portland Fire & Rescue Public Education
Coordinate fuel mitigation/management projects with established Firewise Communities and available resources	Portland Fire & Rescue Public Education
Become more familiar with the International Wildland Urban Interface Code and determine whether or not adoption would be beneficial and appropriate in Multnomah County.	Portland Fire & Rescue
Develop a program to offer no-cost wildland/urban interface evaluations for both new development and existing homeowners.	Portland Fire & Rescue Public Education
Maintain and expand home assessment programs, with increased collaboration between Fire Districts.	Portland Fire & Rescue Public Education
Provide assessments for commercial/industrial buildings and encourage creation of defensible space through fuel mitigation and hardening of structures.	Portland Fire & Rescue Public Education
Empower homeowners that live in a wildfire hazard zone to participate in educational sessions through the Firewise program, or other provided seminars, to learn how to effectively harden their homes, and create defensible space around their homes.	Portland Fire & Rescue Public Education
Develop strategies for property inspections for ignition risk at times of initial home occupation in a wildfire hazard zone.	Portland Fire & Rescue Public Education
Obtain structural ignitability intelligence by conducting wildland-urban interface home assessments and data collection (including GIS points) for homes in wildfire hazard zones.	Portland Fire & Rescue Public Education
Develop more fire-resilient landscaping standards, such as recommending fire-resistant plants instead of like-for-like replacements. Use Firewise resources and the International Wildland-Urban Interface code to guide city codes and standards.	Portland Fire & Rescue Public Education
Maintain defensible space around Portland Bureau of Environmental Services critical infrastructure.	Portland Bureau of Environmental Services
Review planning and zoning codes to clarify and identify opportunities to address vegetative fuel management around structures.	Portland Bureau of Planning & Sustainability
Evaluate and create defensible space of at-risk Water Bureau infrastructure in high-risk fire zones throughout the city	Portland Water Bureau
Use Firewise defensible space principles around buildings and infrastructure in the Bull Run Watershed Closure Area	Portland Water Bureau

Mitigation Strategies	Lead Agency/Jurisdiction
Incorporate new construction best practices when designing or renovating buildings in the Bull Run Watershed Closure Area	Portland Water Bureau
Support defensible space projects identified through home assessments.	Sauvie Island Fire
Designate staff time to continue defensible space assessments in the Holbrook community and support defensible space grants.	Scappoose Fire
Determine a method to review defensible space around new development and maintain evaluation and permitting of established fuel breaks,	Multnomah County Land Use
Coordinate with fire districts to review and update zoning codes. Consider expanding wildfire codes into non-resource zones, and align programs with Senate Bill 762 land use programs.	Multnomah County Land Use
Maintain engagement with fire districts to ensure planning codes meet wildfire safety needs.	Multnomah County Land Use