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Title: **County and Municipal Ordinances to Protect Wildland Urban Interface Communities**

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Abstract: The growth of residential communities within and adjacent to high-fire risk forests in the past several decades, has increased the danger to life, property and natural assets from wildfire. Under the police powers granted by the Constitution, state and local governments have the power to pass laws to protect the health, safety and welfare of their citizens. As this relates to land use, the states have delegated this power to cities and counties. Consequently, most laws for reducing wildfire vulnerability have been enacted by local governments.

Research of local wildfire mitigation efforts found that many high-fire risk communities have adopted regulations in zoning, subdivision, fire, and building codes as part of a broader portfolio of wildfire mitigation efforts that include public outreach and homeowner assistance. Ordinances most often address subdivision design, defensible space, and fire-resistant structural safeguards. The poster will present examples of regulatory requirements and implementation mechanisms for several local governments across the U.S.

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County and Municipal Ordinances to Protect Wildland-Urban Interface Communities

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Wildfire risk in the wildland-urban interface

The wildland–urban interface (WUI), where human development adjoins or intermingles with undeveloped wildlands, has seen escalating losses to property, infrastructure, and natural resources in the past several decades. The WUI also presents one the most dangerous and complicated situations firefighters face (Society of American Foresters 2004).

Compared to the mid 1900's, the area of forest burned each year has increased, and particularly bad fire years are occurring more frequently (Dombeck 2004).

Potential wildfire risk however, has not deterred development in fire-prone areas. About

38% of all homes and 60% of homes built between 1990 and 2000 in the U.S. are located in the WUI (Stewart et al. 2003).

There is consensus that the nation is losing ground to rising wildfire hazards in both wildlands and communities (National Association of Public Administrators 2004). Furthermore, an audit conducted by the USDA Office of Inspector General attributed the greatest cost in firefighting to protecting homes and communities near federal forests. The audit recommended that landowners and communities take greater responsibility for their vulnerability to wildfire and make better decisions about where and how property is developed (Tresemer 2008).

Local governments wildfire risk reduction efforts

Beginning in the 1990's, local governments across the U.S. stepped up efforts to protect their communities from wildfire through educational, incentive, and regulatory wildfire mitigation programs. These efforts have been aimed at multiple players with a role in reducing wildfire risk – the general public, homeowners, developers, builders, fire officials, and natural resource managers. Non-regulatory programs include: public outreach to citizens; home hazard assessments, demonstration projects, cost-share assistance, and fuel disposal programs for homeowners; and training and funding to enable wildland fire managers to map community wildfire risk and implement fuels reduction programs.

While many localities have not embraced regulatory programs in their suite of mitigation programs, others, primarily in the Western states have done so. Ordinances related to wildfire risk are the focus of the current study. Sixty county and municipal ordinances were reviewed

using information collected in the *National Database of State and Local Wildfire Mitigation Programs* (www.wildfireprograms.usda.gov).

Wildfire protection ordinances

Goals for reducing wildfire vulnerability, expressed in local governments’

Comprehensive Plans provide a basis for wildfire protection ordinances in many communities.

Ordinances are the vehicle for implementing Plan goals and are codified in a broad portfolio of regulatory tools including zoning, subdivision regulations, and building and fire codes. The provisions of these wildfire mitigation enactments can be categorized into three broad purposes – firesafe subdivision design, vegetation management, and firewise construction. In addition to reducing the likelihood of home ignition and wildfire spread, firefighters are exposed to less risk and can more effectively suppress wildfire when these ordinances are implemented. A generalized synthesis of the key provisions of the wildfire mitigation ordinances analyzed is presented in the following sections.

Subdivision development provisions

Developers may be required to conduct wildfire risk assessments and submit vegetation management plans to local officials prior to obtaining building permits. In addition, some ordinances stipulate that deed restrictions or CC&R’s must be established by the developer for maintenance of defensible space. Specific subdivision design standards may include:

Road design specifications to adequately accommodate access for firefighting equipment and residents’ evacuation;

Water supply and storage requirements;

Specifications for fuelbreaks and setbacks;
Parameters for housing density and spacing; and
Standards for signage, bridges, gates, and driveways.

Vegetation management

Vegetation management requirements may apply to all high risk properties in a community, including established subdivisions, but are more frequently aimed at new construction. Vegetation management standards may include:

Fuel reduction along subdivision roads and in common areas;

Vegetation management within a designated distance of structures (30 to 200 feet) may include;

- Increased distance of fuels treatment as a function of increasing slope,
- A zone configuration with treatment intensity decreasing as distance from structures increases,
- Specified distances between individual trees and shrubs and pruning requirements
- Removal of downed woody material within the designated area;
- Use of fire resistant plant species in new landscaping; and
- Removal of highly flammable plant materials.

Building construction standards

Builders may be required to use fire resistant construction materials and take other measures to reduce a home's flammability; some building materials, such as untreated shake shingles are often prohibited. Specifications for fire-resistant construction may include:

- Class A or Class B fire-rated roofing materials

- Residential sprinkler systems
- Chimneys with spark arresters
- Fire resistant siding and decking materials
- Double pane or tempered glass windows
- Covering of vents, chimneys, and other outside openings with ¼ non-combustible mesh

Conclusion

On the 14% of developed private forestland adjacent to public forests in the West, expenditures for firefighting to protect structures were between \$630 and \$1.2 billion/year in 2000-2005. Furthermore, estimates of fire suppression cost in a scenario where 50% of potential WUI is developed, range from \$2.3 to 4.3 billion; a pricetag that would largely consume the current Forest Service's annual budget of about \$4.5 billion (Gude et al. 2008).

Through enactment of regulatory programs at the outset of development, county and municipal governments can exert greater control over wildfire risk and potential future suppression costs. Ordinances that require developers to incorporate wildfire protection in their subdivision plans, regulations requiring vegetation management to reduce fuel hazards, and standards for construction that include fire-resistant materials and other safeguards to reduce structural ignitability may be critical to slowing the escalating losses in the WUI.

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