WILDLAND-URBAN INTERFACE CODE ADOPTION

How to avoid the agony

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Summary: Adoption and enforcement of a new code is often challenging and divisive to a community. Flagstaff AZ had the exact opposite experience when they recently adopted the International Fire Code (IFC) and the 2006 Wildland Urban Interface (WUI) Code. Their approach and success can serve as an example to others.

Flagstaff AZ, located approximately 120 miles north of Phoenix, sits at 7,000 foot elevation at the base of the 12,000 foot San Francisco Peaks, nestled in the midst of the largest continuous ponderosa pine stand in the world. Serviced by the 100 member career Flagstaff Fire Department (FFD), the community, with a population of 65,000, is the largest in northern Arizona.

Societal demands and resulting management practices during the past century have created a forest that is now severely overcrowded. Unnatural fuel accumulations, exacerbated by insect, disease, and drought, have resulted in an alarming increase in both the size and severity of wildfires. Growth has resulted in homes, businesses, and infrastructure being built in fire-prone areas and now at risk to damage or loss.

The past 120 years have seen significant changes to the Flagstaff environment: Increasing trees and other forest fuels, impacts from insect, disease, and drought, and homes, businesses, and infrastructure built into the forest

Ponderosa pine forests are extremely well adapted to, and dependent upon, frequent low-intensity wildfires, but they are extremely vulnerable to high intensity fire events. Wildfire is the #1 fire threat to the greater Flagstaff community: roughly 300 ignitions per year occur in-and-adjacent to the community, split fairly evenly between lightning and human-caused. These fires endanger structures, but also other associated resource values such as trees, wildlife habitat, scenic quality, and watershed capacity. In addition to serious ecosystem damage, a single large-scale fire moving into the city will most-assuredly affect lives and properties and also inflict serious, and long-term economic harm.

Exposed to a severe fire season in 1996, and recognizing the potential loss from future events, city leaders in Flagstaff began work towards addressing the issues. After many discussions as to where best to "house" the effort (Planning or Fire), the Fuel Management program was added to the traditional service-delivery of the Fire Department.

In the decade prior to adoption of the WUI code, several initiatives began that helped shape public perception and lay the foundation of public and political support. They included:

- Outreach to the city's Community Development (CD) Dept resulted in an administrative procedure requiring Hazard Mitigation activities on all properties prior to development.

- Independent studies confirmed Flagstaff's wildfire threat, and numerous large fires have periodically raged in the area. The 2006 Woody Fire was successfully suppressed when it encountered an area previously treated by forest thinning and prescribed fire.

The 1996 Woody Fire burned 120 acres under severe conditions
without property damage or infrastructure loss

- Key partnerships with community groups were initiated, and each remains engaged in the overall effort.

- Engagement of political leaders. "The Fire Department has taken Council members and other community leaders on field trips, providing an opportunity to view the magnitude of wildfires, as well as the benefits of forest health treatments", said Mayor Joe Donaldson. "This brings clarity and political will to change the status quo to better protect our home town."

- Completion of the Community Wildfire Protection Plan (CWPP). The Healthy Forests Restoration Act, passed by Congress in November 2003, authorizes development of CWPP's to identify priorities for protecting communities from wildfire.

- Partnership with our Citizens. We not only advised and directed actions, we assisted where possible. This included planning, forest treatments, and debris disposal. "Collaboration and public education has been the key to our success" said Paul Summerfelt, Fire Management Officer for Flagstaff Fire Department.

- The Fire Department hired professional foresters and trained others as Certified Arborists. This professional expertise, along with experienced wildland firefighters, provides undisputed credibility for the effort. When needed, additional academic expertise is available at nearby Northern Arizona University's School of Forestry and the Ecological Restoration Institute. The entire program is based in science and practical experience.

- Leadership & Accomplishment – The Flagstaff Fire Department positioned itself both as a spokesperson for the effort and as a "doer". This permitted the program to grow from treating only one-acre in 1996 to today's production of roughly 1,500 acres per year. In 2007, we were awarded the national FireWise Leadership Award by the National Wildfire Coordinating Group (NWCG).

All this lead to the successful adoption and enforcement of the WUI Code that we now enjoy – one that occurred with virtually no opposition and was viewed as the logical outcome of prior efforts. Several points are noteworthy:

1. It was not "new"; we had been successfully practicing prevention (using the Hazardous Vegetation section of the Uniform Fire Code) in full view of the public for the previous decade. We were the first community in Arizona to require hazard mitigation work on properties undergoing development.

Forest treatments occur immediately adjacent to homes,
providing residents a first-hand view of the effort and resulting benefit

2. The WUI Code was adopted in conjunction with our adoption of the 2006 IFC, which replaced the UFC. Two local amendments to the IFC complement the WUI Code:

    a) Prohibition against wood roofs, and
    b) Cancellation of community-sponsored firework displays when Fire Danger reaches Very High or above.

3. The adoption process occurred over an 18-month period, during which we made extensive outreach to stakeholders, including the Homebuilders Association, Real Estate and Insurance agents, community leaders, engineering firms, developers, and others. These efforts included group meetings and one-on-one discussions.

4. We incorporated almost all input received into local amendments (over that in the model ICC WUI Code) that better fit the community environment and needs. These included:

    a) Development of an interface map depicting where the code applied. The resulting map shows that almost the entire community, minus the downtown business district, the commercial corridor immediately adjacent to our main state highway, and the airport, are within the "interface".

    b) A refinement of Table 502.1 (Fire Hazard Severity) – both Critical Fire Weather Days and Slope. This drives the type of Ignition Resistant construction materials that are allowed in specific areas. Local material costs show that these FireWise building components are largely "cost-neutral" and add little, if any, cost to construction.

c) For the past several years, we have had an on-going ad-hoc test process for deck materials that become available in our market area: our results confirm that flammable materials that later accumulate or are stored under the deck determine its flammability. We feel this is better managed via education and enforcement than by requiring stem walls or other barriers between the deck and the ground. Certain deck material is prohibited.

d) A tightening of allowable wire mesh opening size from 1/4" to 1/8".

e) The use of "Flame Spread Rating" of exterior building materials instead of the "Fire Resistance Rating" currently prescribed in the model codes. Our experience with wildland and structural firefighting points to fire spreading to attic spaces as the primary problem . . . <u>not</u> fire penetration through walls.

f) Revision of definitions as follows:

(1) Defensible Space to include the <u>entire property</u>, not simply a set distance from a structure.

Defensible properties are the key to <u>neighborhood</u> survival.

(2) Hazardous Vegetation to include single trees that pose a threat due to their location, condition, and where they will fall/what they will likely hit.

These trees pose significant safety hazards

g) Adjustment of Appendix C (Rating Form) to include:

(1) Appendix C-1: Building Construction requirements for non-developed properties, and
(2) Appendix C-2: Property Maintenance.

5. Taken together, widespread community support drove political change permitting the program to grow into and incorporate all phases of the traditional "Three-E" approach as depicted below:

Education	**Engineering**	**Enforcement**
Public Preparedness	Land Use Planning FireWise Construction Hazard Mitigation	WUI Code

Our goal is creation and maintenance of a healthy forest ecosystem and a FireWise community. Adoption of the Flagstaff WUI Code is one more step in that direction, one more tool in our toolbox. "Our knowledge of wildland fire science has enabled us to amend our code to better fit the situations found in our community" says Jim Wheeler, Deputy Fire Chief and Fire Marshal with the Flagstaff Fire Department. The willing acceptance of the Code is testament to the progress made and community responsiveness to this important issue.