

Wildland Urban Interface Land Use Policy Workshop

--- FOR THE COLORADO FRONT RANGE ---

Friday, 17 May 2013

9:00 am – 4:00 pm

Denver Art Museum

Schlessman Hall (North Bldg), 100 West 14th Ave Pkwy, Denver CO



Workshop Goals

- * Increase dialogue among local policymakers on opportunities and barriers to implementing local wildland urban interface land use policies and regulations.
- * Equip practitioners with information and resources to assist in implementation of land use plans, policies and regulations to reduce the threat of wildfire across the Colorado Front Range
- * Produce a report to synthesize workshop highlights and outline potential next steps

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AGENDA

Welcome, Opening Remarks,
Agenda Review and Participant Introductions

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Panel Discussion: Understanding the Opportunity and
Challenges in Using Wildfire Regulations in Local
Development Codes

WUI Land Use Policy Workshop

Chris Mehl

406-570-8939

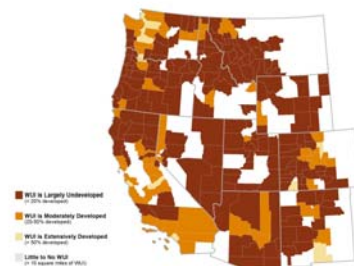
chris@headwaterseconomics.org

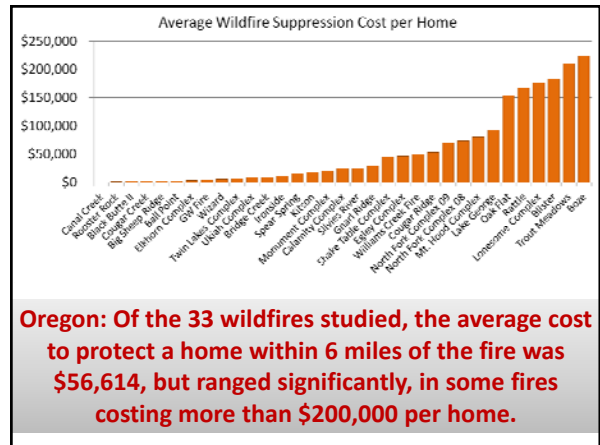
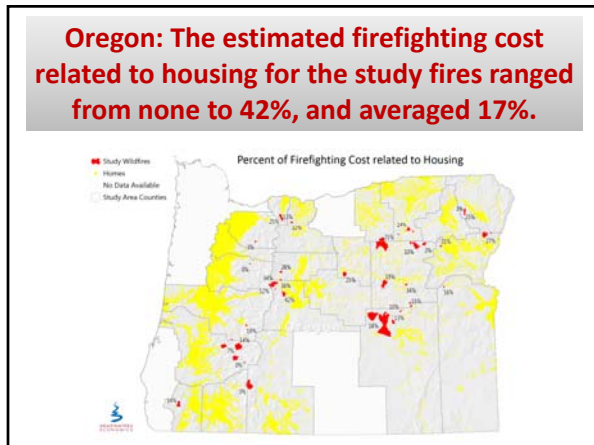
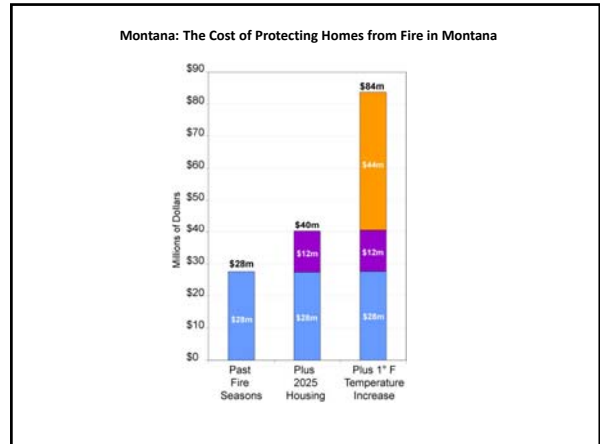
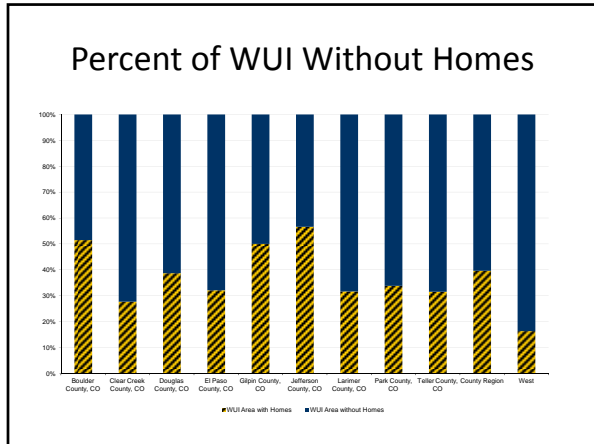
All wildfire research at <http://headwaterseconomics.org/wildfire>



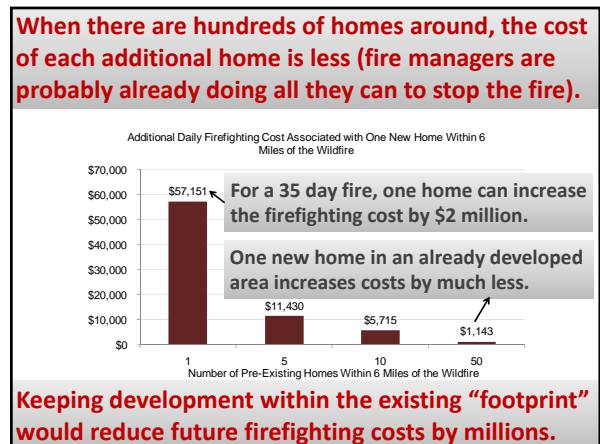
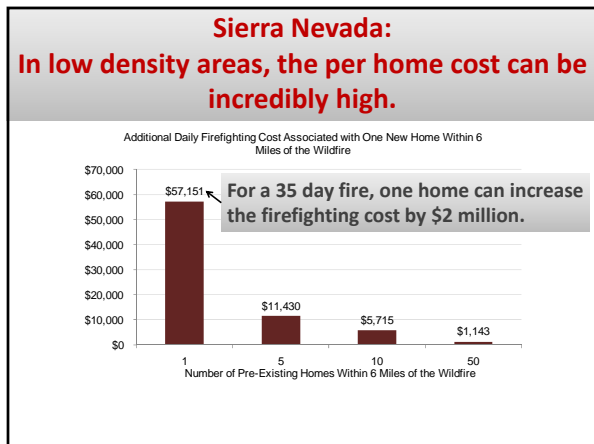
County View of WUI Development

2010 Census Data: 84% of the WUI Remains Undeveloped





Oregon: Of the 33 wildfires studied, the average cost to protect a home within 6 miles of the fire was \$56,614, but ranged significantly, in some fires costing more than \$200,000 per home.



Keeping development within the existing "footprint" would reduce future firefighting costs by millions.



View other wildfire studies & resources at <http://headwaterseconomics.org/wildfire>

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--- Break ---

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Case Study:
What's Been Done and Worked Elsewhere

Waldo Canyon Fire

June 26, 2012
Colorado Springs, CO

Brett Lacey, Fire Marshal
Amy Sylvester, Program Coordinator
Colorado Springs Fire Department

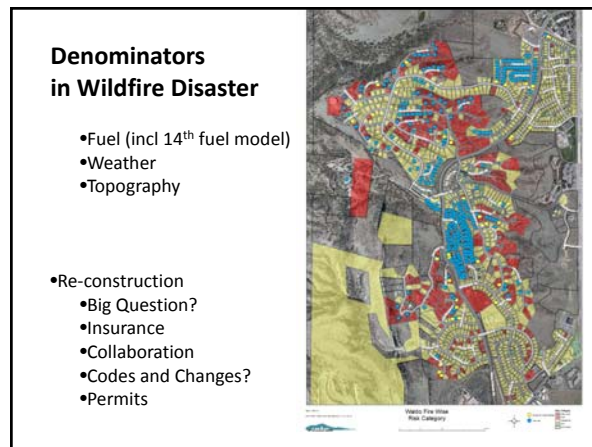
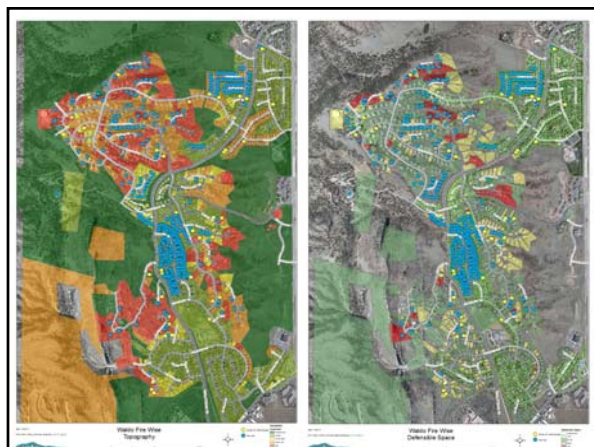
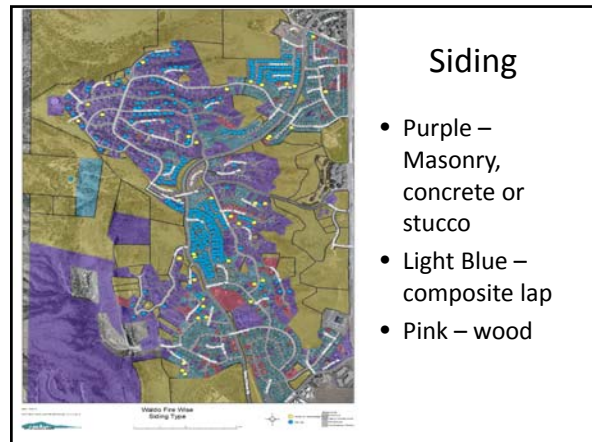
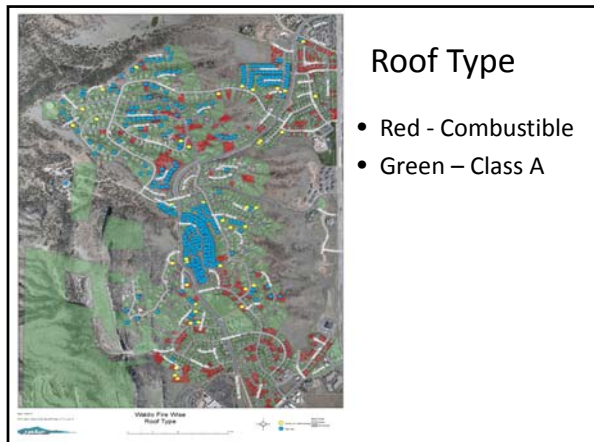
Photo: denverpost.com

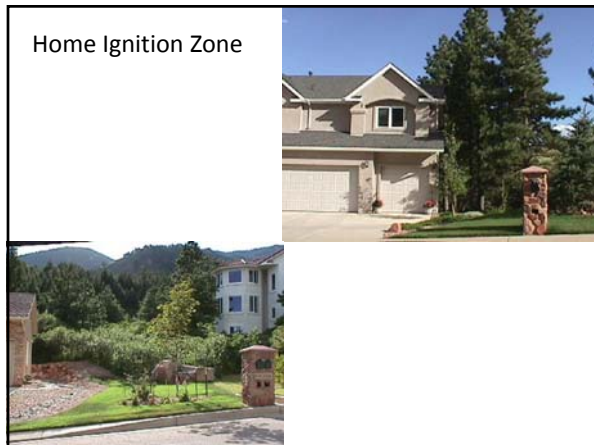
Waldo Canyon Wildfire

June 26, 2012

- Initial findings:
 - Fuel loading
 - Spotting/Branding
 - ✓ Cedar Fencing
 - ✓ Roofs
 - ✓ Decks
 - Exposures
 - Conflagration


The map shows the fire perimeter in red and areas of preliminary damage assessment in green. A legend at the bottom identifies the symbols for the fire perimeter, preliminary damage assessment, and other features.





Code Requirements for Urbanites

- **Class A roof covering 2003 (55K changed)**
- **Exterior walls non-combustible (fire resistive)**
 - Cementitious hardboard
 - Stucco
 - Soffits fire resistive
- **Solid core doors**
- **Double pane glazing**
- **1/8 inch attic screens**



Continuation of Code Requirements

- **Gutters**
 - Non combustible with drip cap fixed to protect overhang
 - Vinyl with 5' landing area
- **Decks**
 - Composite (Trek or similar)
 - More fire resistive...
- **Fuels Management**
 - 10' moved to 15' foot clearance from combustibles like decks or main structures

Continuation of Code Requirements

- **Trees**
 - No branches overhanging or under roof and 15' from decks
- **Dead Limbs**
 - 10' trim
- **Brush (Oak)**
 - No more than 100 sq. ft. and largest dimension is 15'
- **Safety Zone = 30 foot or property line**



Public Process

- **Community Cooperators**
 - HBA
 - AIA
 - Colorado Springs Together
- **Public Meetings**
- **City Council**

Your Questions?

lacey Fire Marshal lacey@springsgov.com 85-7355	Amy Sylvester Wildfire Mitigation ProgramCoordinator asylvester@springsgov.com 719-385-7342
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Small Group Discussion:
What Makes Sense for the Front Range?

Small group discussion questions:

- What was the most surprising or interesting thing you learned about the Colorado Springs case study?
- What are the potential opportunities for moving forward with a discussion about wildfire regulations in your jurisdiction?
- Who are the key people in your community that should be included in this discussion? If they are not here today, how would you share important information with them and bring them into the conversation?
- Putting aside political and financial obstacles for the time being, what steps would you take to address your community's WUI risk?

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Discussion Summary
and Preview of Afternoon Session

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--- Lunch ---

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Understanding the Nuts and Bolts of
Using Local Development Codes to Alleviate Wildfire Threats

Assessment of Wildfire Regulatory Tools



WUI Land Use Policy Workshop
Denver, CO
May 17, 2013

Don Elliott, FAICP

FRFP Regulatory Effectiveness Study

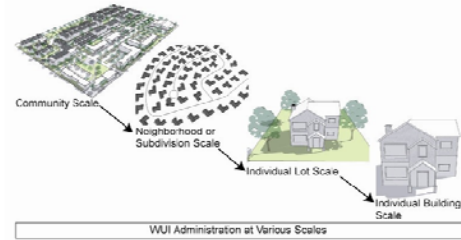
- Investigate how cities and counties are using local regulatory codes and ordinances to address wildfire risk.
- Identify how zoning, subdivision, and land use regulations can be integrated with fire and building codes to better address wildfire risk.



Clarion Associates

Categorization of WUI Tools

Categorization by Scale of Tool



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Categorization of WUI Tools

Categorization by Scale of Tool

- **Community Scale**
 - Hazard /Risk mapping
 - **Neighborhood Scale**
 - Site development -- Water supply – Access
- **Individual Lot Scale**
 - Vegetation choice and management – Defensible space
- **Structure Scale**
 - Primary structure: Roof, decks, siding, vents, soffits
 - Accessory structure: Sheds, gas tanks, wood piles, fences

Clarion Associates

Responses to 11 Interview Questions

1. Why did you adopt WUI standards?

- State mandate
- Major fire

4. What is your most effective WUI regulation?

- Defensible space
- Roof Standards (Class A/B)

5. Who administers WUI regulations?

- Fire Marshal
- Building Department
- Planning Department



Clarion Associates

Responses to Interview Questions

7. What is the most significant enforcement problem?

- Initially -- few problems
- Once adopted, standards are enforced
- Over time -- maintenance of defensible space
- Often have to rely on nuisance abatement, which is time consuming and expensive



Clarion Associates

Responses to Interview Questions

8. Is new or existing development more problematic?

- Existing development, by far
- More of it
- Built before standards adopted
- Lack of political will to address



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The Planning Tool belt

Using Land Use tools to Reduce Fire Risk

- Zoning
- Subdivision
- Site Planning / Design Review
- Development Agreements



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Land Use Tools

Subdivision

The power to divide land for purposes of sale or development

- Much more important in suburbs and rural areas (including WUI areas) than mature cities
- Generally has strong language on public safety, access, utilities

Can (and increasingly does) include:

- Sensitive lands protection (could include fire risk)
- Steep slope avoidance / development standards
- Edge landscape buffers for new development
- Wildlife habitat protection

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Land Use Tools

Zoning

Overlay zone districts

- High fire risk areas can be mapped, and risk mitigation standards applied in those areas
- State level maps can be used, even if resolution is not as high as you want
- Add a process to question or change the map if you think it is wrong



Clarion Associates

Land Use Tools

Zoning

Fire Hazard Overlays can address

- Defensible space
- Roof materials, vents, building requirements
- Source of fire suppression water
- Wider access road standards / lower grades
- Membership in fire district



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Land Use Tools

Zoning

Development Standards can apply different development standards in fire risk areas (even without creating a new district or rezoning property).

- Different types and amounts of landscaping / defensible space
- Exceptions to tree preservation requirements
- Additional access requirements
- Higher duties to maintain and manage vegetation



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Land Use Tools

Zoning

While zoning has traditionally been more focused on initial project design, modern codes are placing increased emphasis on management and maintenance

Examples

- Landscaping / tree replacement
- Stormwater facility management
- Lighting / glare

Could easily include:

- Defensible space management
- Fire vehicle access management



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Land Use Tools

Site Planning / Design Review

Even when zoning is not being changed and land is not being divided, many communities require “site plan review”.

- Generally applies to development other than single- or two-family homes
- Review to ensure that circulation, parking, and access points are safe, landscaping actually buffers, lighting won't glare, etc.
- Could expand to cover fire risk



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Land Use Tools

Development Agreements

Cities and counties increasingly use development agreements to tie down issues of site design and site management that are not addressed in zoning or subdivision

Great opportunity to ensure that:

- Maintenance provisions address defensible space
- Existing accessory structures are relocated or roofs replaced within a fixed period of time
- Condition new structure approval on old structure removal

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Take-Aways

1. Focus on **Defensible Space** and **Roof Materials** Requirements
2. Get serious about using **Subdivision Regulations** and **Development Agreements** as the key land use tool to prevent new development in WUI fire risk areas
3. Get serious about using **Zoning Regulations** and **Site Plan Review** standards to reduce risks in already platted and already developed areas.

QUESTIONS ?

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Boulder County Wildfire Mitigation

With an increasing number of new structures being built in forested areas, Boulder County is attempting to minimize the loss of lives and property from wildfires by including wildfire mitigation measures in the Development Review and Building Permit processes.

Historically...

- Lefthand Fire, 1988 (no homes lost).
- Black Tiger Fire, 1989 (44 homes and other structures, worst wildland fire loss in Colorado history at that time – see NFPA report).
- (1st) Olde Stage Fire, 1990 (10 homes lost).
- And others, on up to the Fourmile Canyon Fire in 2010, with 162 homes and additional other buildings lost.

Evolution of Regulations...

- As building code amendments...
 - Class A Roofs
 - Protection of eaves, overhangs & vents
 - Noncombustible window screening

Site Plan Review...

- Early 1990s - Concerns and petitions from mountain residents questioning “carrying capacity” of mountainous areas of county:
 - Environment
 - Wells and septic
 - Views
 - Access and traffic
 - Wildfire hazards

Site Plan Review

- First administrative site plan review processes conducted in 1994
 - Site visits, referrals sent, determination letters
 - Appeals to Board of County Commissioners available
 - Review criteria include home size, visibility, site disturbance, etc., and wildfire hazard mitigation

Fire Sprinklers

- First applied in 1995 to new homes 3,600 sq. ft. and larger and additions to existing totalling 4,800 sq. ft. or larger.
- Seen as a “level of service issue” in addition to life safety.
- Also to prevent structure fires from spreading to the forest or other homes before the volunteer fire department can arrive.

Fire Sprinklers, cont’d.

- As of January 1, 2013, fire sprinklers required for all new homes (as per 2009 & 2012 editions of IRC). Excerpt from staff recommendation:
 - For life safety, to allow occupants time to escape the dwelling before being overcome by fire and smoke,
 - As a level of service measure, to extinguish or contain a fire until volunteer fire departments have time to respond and arrive on the scene, and
 - For wildfire hazard mitigation, to reduce the risk of structure fires spreading to the forest and other homes.

More building code amendments...

- Sometimes based upon components of ICC Wildland-Urban Interface Code, sometimes on emerging fire science.
- Ignition-resistant Construction
- Attempting to prevent flying embers from igniting dried out combustible deck surfaces
- “Best bang for the buck” 3-ft-wide gravel surface around structures

The Home Ignition Zone (HIZ)

- The area of the home and its immediate surroundings (typically 100 ft.).
- If everything within the HIZ, including the home, is ignition-resistant, the odds of losing the home in a wildland fire are greatly decreased.
- See *Fourmile Canyon Fire Findings*, USDA Forest Service, and other sources:
 - http://www.fs.fed.us/rm/pubs/rmrs_gtr289.html
 - http://www.wildfireoptions.com/what_is_a_home_ignition_zone.html
 - <http://www.applegatefd.com/images/pdfs/HIZ%20handout%20pages.pdf>
 - <http://dnr.wi.gov/files/pdf/pubs/fr/FR0474.pdf>

IRC SECTION R325
IGNITION-RESISTANT MATERIALS AND CONSTRUCTION

- R325.7.3 Exterior walls. Amend the moderate hazard exterior walls requirements to require the same ignition-resistant materials as are required for high hazard sites.
- Lessons learned from recent fires like the Fourmile Canyon Fire and the Waldo Canyon Fire show that homes are often lost even though green trees and other vegetation survive immediately around them.
- In the Fourmile Canyon Fire, 83% of the 168 homes destroyed were the result of surface fire, and not the more stereotypical image of a raging crown fire. Most homes are lost to low or moderate intensity fires from fire spotting or ember “blizzards” setting combustible materials on fire.
- The Fourmile Canyon Fire Findings discuss the concept of the Home Ignition Zone, or HIZ, extending for 100 feet around a home, and the increased likelihood that a home will survive if the HIZ includes only ignition-resistant materials.

IRC SECTION R325
IGNITION-RESISTANT MATERIALS AND CONSTRUCTION

- There are basically three (3) things that we can count on:
- There will be more fires in the wildland-urban interface, including extreme fire behavior.
 - There won't be nearly enough fire fighters or engines available to protect homes.
 - We can't guarantee (or regulate) the maintenance of defensible space by homeowners, whether it be trees, shrubs, grasses, storage of firewood, pine needles accumulating in gutters and valleys, or other features.

Our basic premise then is that, at the time of new construction, we should achieve the highest level of ignition-resistant construction that we're reasonably able to achieve and that this is one-near permanent feature that won't grow back or be greatly reduced in its effectiveness by a lack of maintenance or the passage of time.

Site Plan Review

- **Site Plan Review (SPR):** Administrative review procedure that considers impact on: environment, agricultural lands, surrounding land uses, neighborhoods and infrastructure.
- **SPR** process addresses wildfire risk and appropriate mitigation measures through referral comments from County Wildfire Mitigation Specialist and the applicable fire district.
- In most cases a **Wildfire Mitigation Plan (WMP)** is required to help mitigate the risk of wildfire to both property owner and neighbors.

Wildfire Mitigation Plan - Elements

Site Plan and Written Narrative

- Site Location
- Construction Design
- Building Materials
- Defensible Space
- Emergency Access
- Water Supply
- Maintenance



Wildfire Mitigation Enforcement

Prior to the Issuance of a Building Permit

- **WMP** must be submitted and approved
- Verification of tree marking

Prior to Foundation-Form Inspection

- Defensible Space cut and slash removed
- Emergency water supply for firefighting

Prior to Final Inspection

- 3 foot non-combustible strip over weed barrier
- Verify Ignition Resistant (IR) building materials
- Install address sign

Wildfire Mitigation Challenges

Finding Common Ground: Building and Fire Officials

- 14 FPDs in forested areas (WUI) of Boulder County
- Ethical responsibility to provide for life safety

Bridging the Gaps: Enforcement and Education

- Working with contractors -> homeowners
- An informed community makes educated decisions
- Continually stress the importance of maintenance

Douglas County Colorado Case Study

WUI Land Use Policy Workshop May 17, 2013

Jill Alexander, Senior Wildfire Mitigation Specialist, Douglas County
Government, Castle Rock, CO JAlexand@douglas.co.us

Program Intent

- Reduce the potential for catastrophic loss in the WUI
 - Raise awareness regarding hazards and risks associated with development in the WUI
 - Developing minimum standards for mitigating hazards and risk
 - Program is resource based
 - Staffed by one professional forester
 - Located in the Building Division of Community Planning and Sustainable Development

Accomplish Program Intent

Through the land Use process

Section 17 Douglas County Zoning Resolution, *Wildfire Hazard Overlay District*

Building permit process

Douglas County Wildfire Mitigation Standards
Standard for Water Supplies for Rural Fire Fighting

Program Components

- Regulation
- Outreach and Education
- Conservation and Stewardship
- Collaborative Partnerships

Education and Outreach

- Property assessment and mitigation prescriptions at no charge
- Educational materials through website
 - Publications, PSA
- Partner with communities to develop and implement local level CWPPs
- Assist communities to secure funding for CWPP projects

Wildfire Mitigation Home Page

<http://www.douglas.co.us/building/wildfire/index.html>



Stewardship



Collaborative Projects



Regulation /Program History



Code Development Process

- Define Scope
 - What are you trying to accomplish with propose regulation?
 - Maintain resource based approach
 - Maintain flexibility
- Stakeholder Input
 - Personal invitations to participate
 - Ownership of the process

Code Development Process

- Assess multiple model codes & regulations
 - What gaps are you trying to close?
- Maintain local applicability
- Limits of acceptable change
 - Know your constituents
 - Private property rights

Code Development

- Only adopt what you can enforce
- Compromise
- Support with an education campaign
- Political Will
- Transparency

Enforcement

- ❑ Everyone wants compliance, no one wants enforcement responsibility.
- ❑ Zoning resolution, Don't allow building permits to be issued until mitigation (hazardous fuels reduction) work is completed and accepted.
- ❑ Building permits, A final D-space inspection is required for a C.O.

Biggest accomplishment/Local success

- ❑ Adding mitigation into the land use/development process
- ❑ Raise awareness for hazards and risks associated with development in the WUI
- ❑ Tool for implementing development-wide mitigation
- ❑ Incorporates hazardous fuels reduction into the development infrastructure

Development-wide Mitigation



Overlay District (con' t)

- ❑ Puts more responsibility on the developer
- ❑ People do not miss trees they never knew were there.
- ❑ Mitigation is "value added"

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Small Group Discussion: How Might Wildfire Regulations Make a Difference in Your Communities?

Small group discussion questions:

- How would an effective regulatory program in your community look similar to the examples presented today? How would it look different?
- Currently, what is your most successful regulatory tool to address wildfire risk?
- Besides regulation, what other WUI programs (outreach, education, fuel management) does your community have in place?
- What are the key challenges that your community would face in adopting wildfire regulations? What strategies might you use to overcome these challenges?
- Who currently holds responsibility for regulations in your jurisdiction? Who else should be involved in some way?

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**Plenary Discussion:
Taking Stock and Determining Next Steps**

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Closing Remarks

www.nfpa.org/WildfireLandUseWorkshop



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