

An aerial photograph of a suburban neighborhood. In the foreground, there's a large, dark blue pond surrounded by green grass and some trees. To the left of the pond, there's a residential area with several houses and a road. To the right, there's a larger area with more houses, some trees, and a road. In the background, there's a highway with multiple lanes and some trees. The overall scene is a typical suburban landscape.

PLANNING A FIRE ADAPTED COMMUNITY

Molly Mowery, FAC Learning Network
April 17, 2014

Land Use Planning Decisions Related to Wildfire

1) Does it alter fire behavior and reduce likelihood of ignitions?

- Fire behavior depends on fuel amount and arrangement, topography, weather

2) Does it increase public, fire fighter and emergency responder safety and improve response time?

Concepts Apply To:

- NEW Development
- EXISTING Development
- POST-DISASTER Redevelopment

A classic wildland-urban
interface example



Community Design Features: Fuel & Fire Breaks



Create Fuel & Fire Breaks: Utilities



Create Fuel & Fire Breaks: Greenbelts, Golf Courses & Water Features



Create Fuel & Fire breaks: Multi-Use, Off Road or Recreational Trails



What else increases the likelihood
of structural ignition?

Fuels! (Landscaping)



Fuels! (Building Materials)



Fuels! (Homes)



Fuels! (Homes)

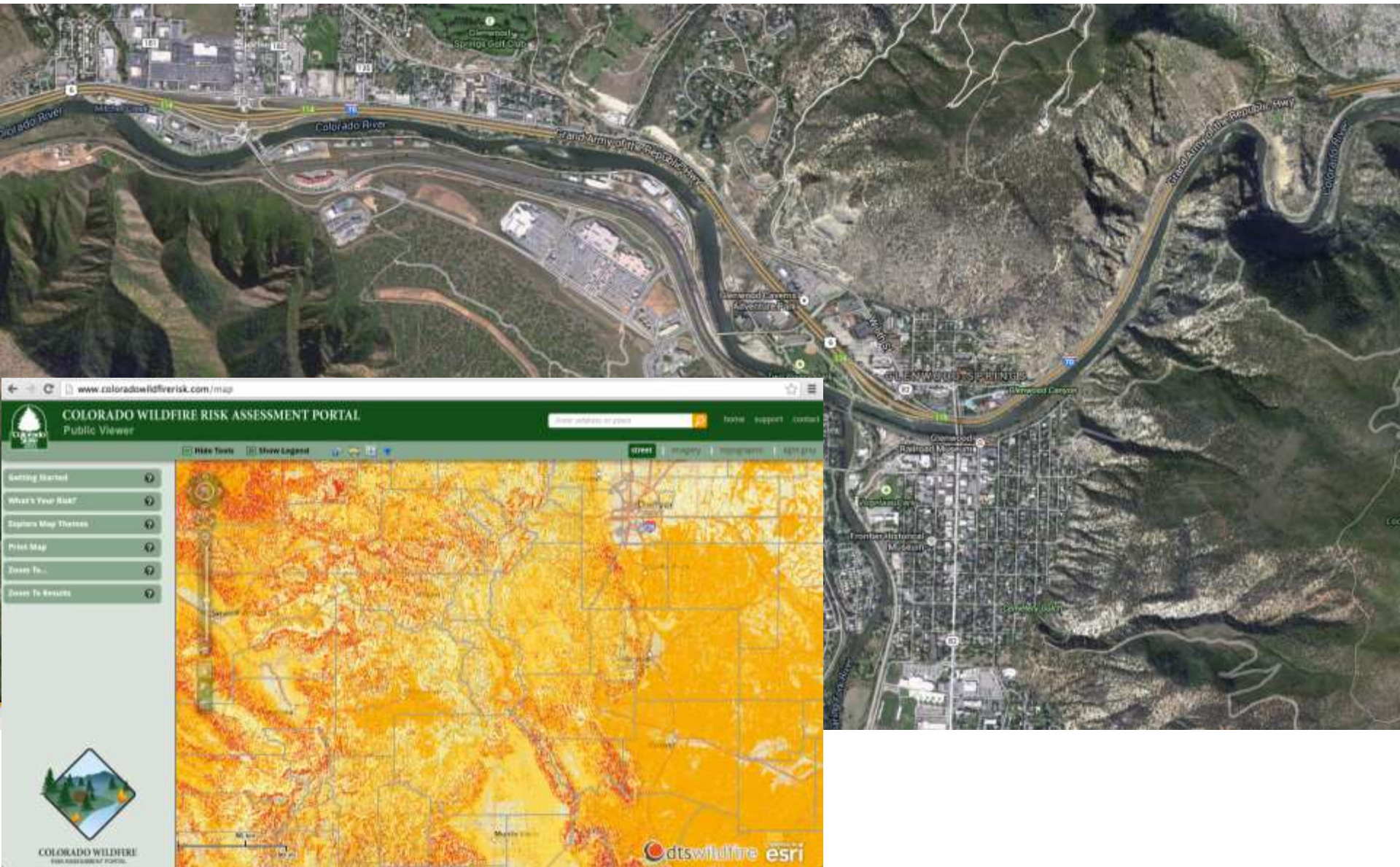


Topography! Fuels! (Natural Areas)



How can we address these features
(and ultimately influence fire
behavior)?

Consider Location of Development



Consider Density Implications



Create Setbacks



Manage Landscapes for Fire



Require Fire-resistant Building Materials



What about Access and Water
Supply?

Access: Important for evacuation and response



Ingress and egress



Driveway Clearance & Turnarounds



Signage/ Address



Summary: Decide the type of impact you want to make!

Does it alter fire behavior and reduce likelihood of ignitions?

- ✓ Make community, neighborhood, and lot fuel modifications: Fire breaks, vegetation management, utilize natural and man-made features
- ✓ Increase setbacks from slopes, homes
- ✓ Alter densities of structures to reduce home-to-home ignitions
- ✓ Utilize fire-resistant materials for structures
- ✓ Locate development away from high hazard areas

Summary: Decide the type of impact you want to make!

Does it increase public, fire fighter and emergency responder safety and improve response?

- ✓ See changes to fire behavior from previous list
- ✓ Improve access, signage, turnarounds, driveway clearance
- ✓ Make water supply available

Additional Key Steps

- ✓ Identify and create partnerships
- ✓ Identify plan and code opportunities
 - ✓ Community Wildfire Protection Plan
 - ✓ Land Use Development Code
 - ✓ Comprehensive/Master Plan
 - ✓ Local Hazard Mitigation Plan
 - ✓ Emergency Management Plan

An aerial photograph of a wildfire. A large, billowing plume of white and grey smoke rises from a valley filled with dense evergreen trees. The smoke spreads across the upper right portion of the image. In the background, rolling hills and mountains are visible under a clear blue sky. The foreground shows a mix of green forest and brown, dry-looking slopes.

THANK YOU

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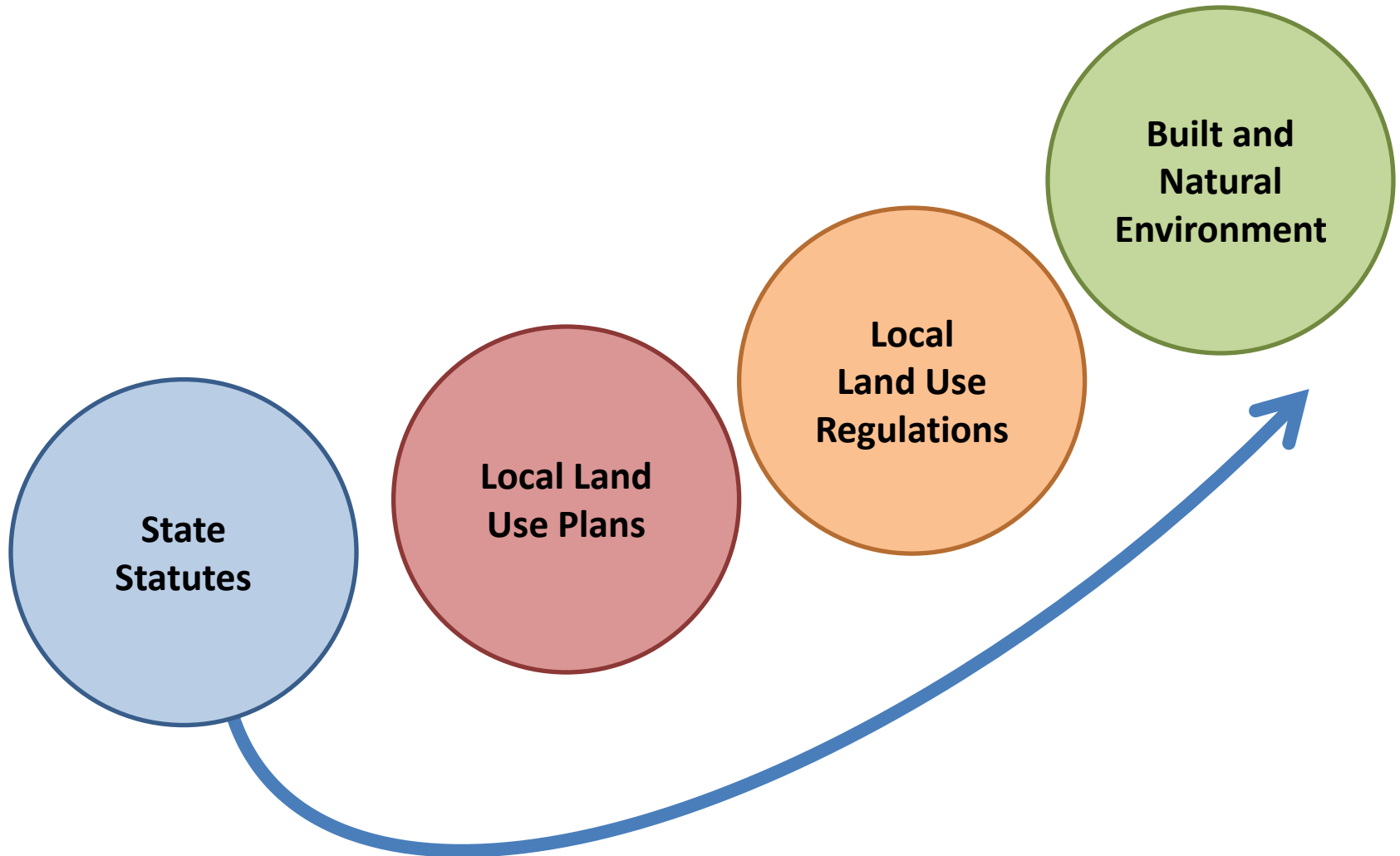


The Planner and the Wildfire: Land Use Policies and Regulations

Tareq Wafaie, AICP

C L A R I O N

Planning Framework

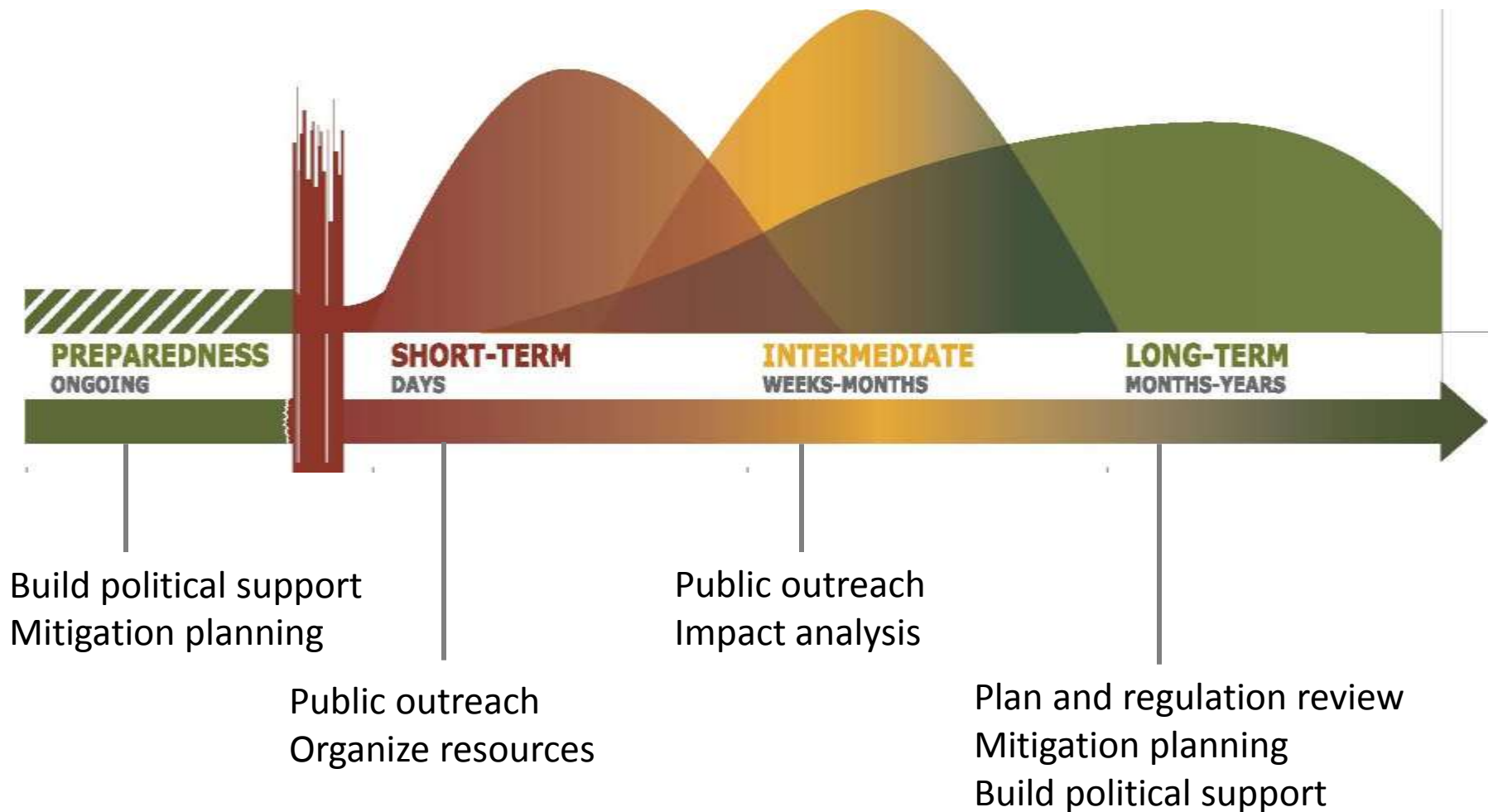


Hazards...A Planner Out of Place?

- Future Development
- Existing Development
- Strengthening Existing Development
- **Communicate Synergies!**



The Planner and The Emergency Management Cycle



Trends to Consider

- Warmer, drier climate
- Hazards at greater frequency
- Hazards at greater intensity
- Increasing population
- Aging population
- Demand for housing with scenic vistas and nature
- Demand for diverse housing stock
- Infill and redevelopment



The Planner's Quiver

- Plan Policies (as a foundation)
- Subdivision
- Zoning
- CIP
- Overlay Zoning
- Development & Design Standards
- Incentives
- Site Plan Review
- Growth Management
- Transfers of Development Rights/Credits
- Maintenance and Operating Standards
- Development Agreements
- **Enforcement**



Rules Will Enforce Themselves

☐ True

☐ False

HINT: FALSE



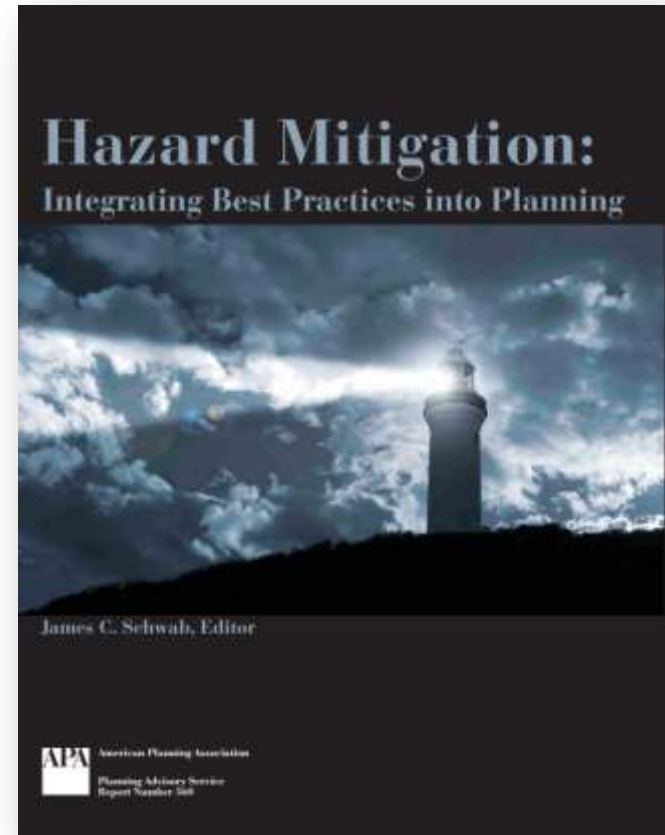
Local Wildfire Policy Mechanisms

- CWPP
- Comprehensive Plan
 - **Future Land Use**
- Climate Action Plan
- Neighborhood Plans
- Hazard Mitigation Plans
- Growth Management Plans
- Sustainability Plans



Planning Policies

- Act before a disaster
- Mitigation requires patience, monitoring, and evaluation
- Be strategic and opportunistic
- Champions are vital
- Implementation depends on political will
- Planners must account for stakeholder values in light of hazard mitigation

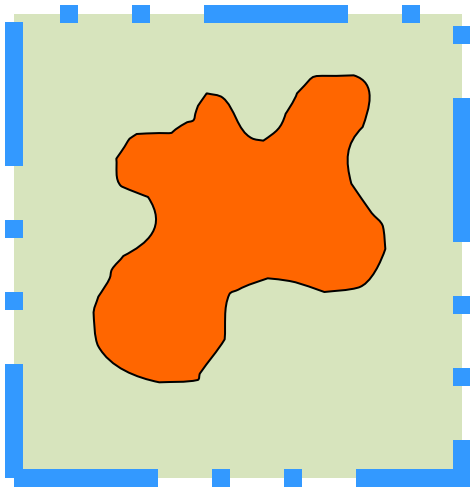


Planning Policies – PAS 560 (con't)

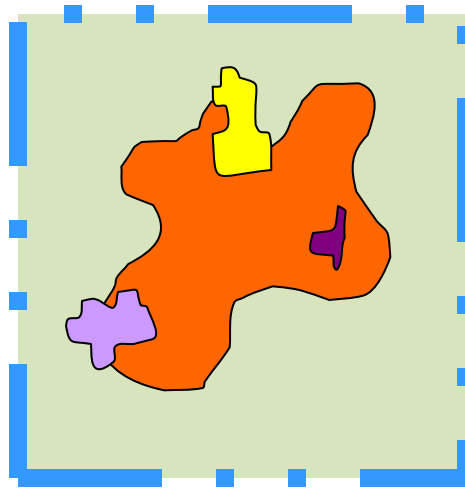
- Emphasize multiple-objective planning
- Evaluate opportunities in the comprehensive plan for density relocation
- Emulate the green building trend
- Communicate risks for hazards
- Mitigation pays
- Above all, aim for resilience



Development Review - Simplified



**Define hazard
areas**



**Review existing
and future
land uses**



**Develop
regulations &
mitigation
actions**

Subdivision

- Map risky areas
- Protect building envelopes
- Water supply and roads
- Clustering
- Buffers
- Density reduction

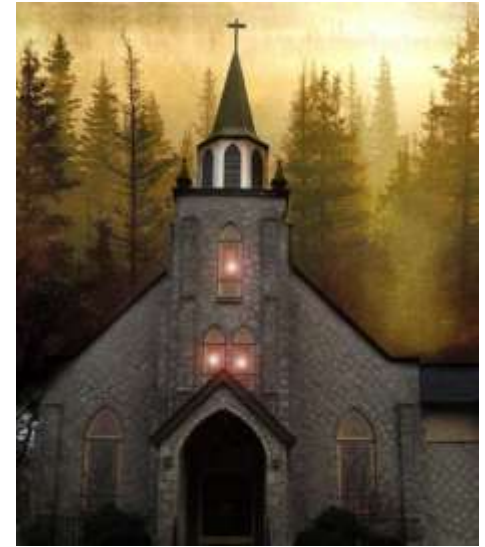
Summit County: Direct linkage to CWPP in approval criteria for new subdivisions.



Permitted Uses

- Dense populations
- Congregations
- Vulnerable populations
- Hazardous uses

Fire breaks – could a golf course ever be considered highest and best use?



Use-specific Standards

- **Residential uses**
 - High-density projects
 - Projects covering large area
- **Commercial and industrial uses**
 - Hazardous materials storage
 - Access and number of employees
- **Open space and other public uses**
 - Location of gathering areas
 - Campgrounds
- **Don't forget Temporary Uses!**



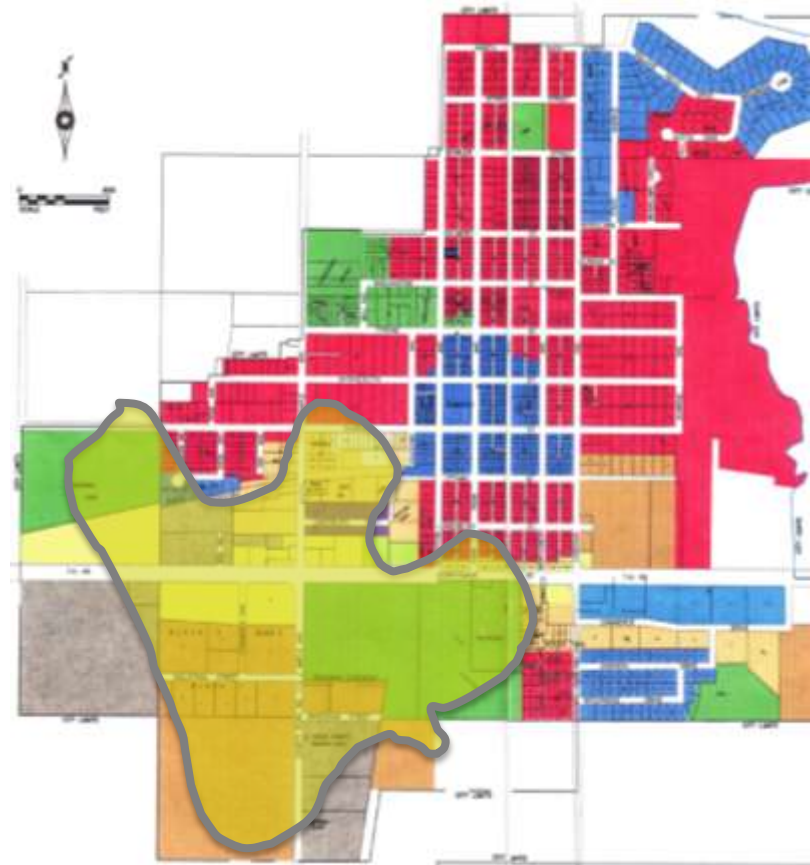
Development Standards

- Landscaping
- Buffering
- General wildfire provisions
- **Maintenance**



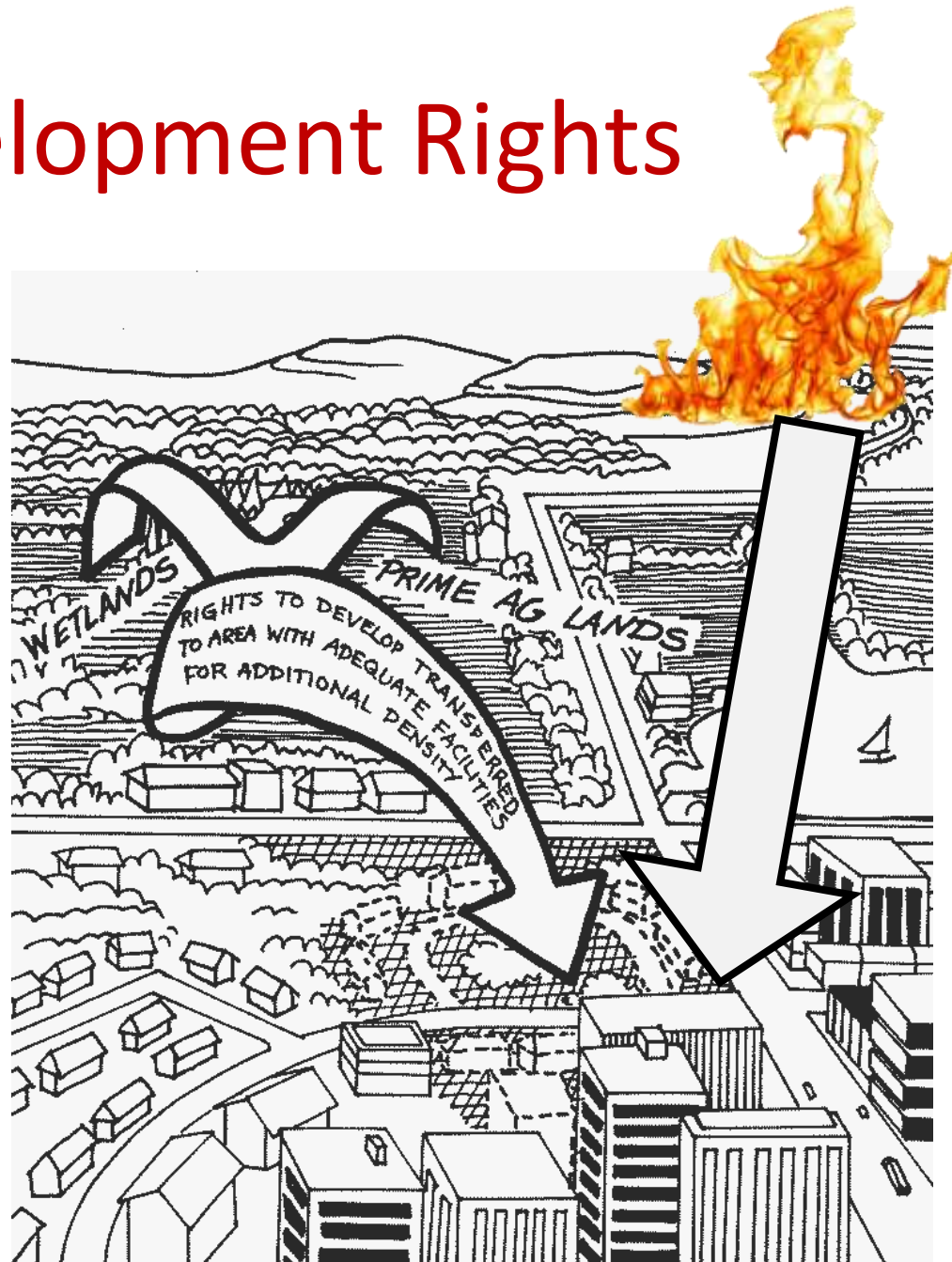
Overlay Zoning

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



Transfer of Development Rights

- Sending area where you want less development; receiving areas where you could accommodate more development
- Make high fire risk areas sending areas.



Procedures

- Pre-application meetings (WITH FIRE)
- Approval procedures
- Criteria for administrative adjustments
- Training for staff
- Training for decision-makers
- Follow the procedures!



Partners – New and Old

- Federal Agencies
- State Agencies
- Neighboring Jurisdictions
- Home builders
- Insurers
- Developers
- Institutions of Higher Learning
- Non-profits
- Interdepartmental Coordination
- Elected and Appointed Officials

Keys to Collaboration

- Become multi-lingual – learn to speak (or at least understand) “fire” and “plannerese”
- Clearly express priorities
- Meet regularly
- Host tours led by different stakeholders
- **LISTEN!**



Key Insights from Communities with Wildfire Safety Regulations

- Outreach to community and stakeholders is critical during adoption process
- Non-regulatory programs that aid homeowners are very effective (e.g., chipper days, free consultations) and build good public relations
- Consider using incentives to provide flexibility for landowners if mandatory requirements are not feasible
- Only adopt standards you are able and willing to enforce
- Incremental steps are sometimes necessary before more extensive WUI standards can be adopted
- Resolve all potential inconsistencies with other code requirements
- Identify one person or department to administer the WUI program if possible

Source: NFPA 2013, Community Wildfire Safety Through Regulation

Reasonable Expectations...

Thanks to local land use planners, there were no lives lost in this horrific conflagration!



Thank You

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C L A R I O N





Eagle County Wildfire Regulations

Eric Lovgren – Wildfire Mitigation Manager

Colorado Wildland Fire Conference
April 17, 2014

Recipe for WUI Fire Disaster



Purpose

- Provide standards to reduce or minimize potential impacts of wildfire hazards on properties, the occupants of properties and the occupants of adjacent properties, as well as to facilitate access to manmade structures by firefighters in the event of a wildfire.

Adoption Process

- **2002 (Jan)** - Eagle County Interface Evaluation Zone (ECIEZ) committee formed
- **2002 (May)** - Community Development department proposes changes to LUR's. Hearings held with planning commission(s) and BoCC
- **2003 (Jan)** – Wildfire Regulations adopted with amendments to LUR's and Building Resolution
- **2004 (April)** – Regulations become effective
- **2005** – Creation of E.C. Wildfire Hazard Map
- **2005** – Creation of first countywide CWPP

Wildfire Regulations – Land Use



Applicability – Land Use

- Any Special Use, Subdivision, or PUD
 - Vegetation Management Plan
 - Vegetation inventory with wildfire hazard analysis and mapping
 - Locations of fuel-breaks or over-lot vegetation clearing
 - Installation of hydrants, cisterns and/or dry hydrants
 - Building envelope locations
 - Communication and 911 capabilities during construction, including emergency action plan
 - ID entities responsible for implementing mitigation actions

Applicability – Road Improvement

- Roadway Standards
 - Provide for dual access = more than 3 structures
 - Roads laid out with consideration for creating fuel breaks and adequate emergency access
 - Provide regularly spaced emergency turnouts
 - Establish adequate grades and sight-distances for emergency vehicles and fire apparatus
 - Prohibit dead-end streets (not cul-de-sacs)
 - Establish variance process w/ BoCC

Case Study: Cedar Drive – Basalt, CO





2008 Fire Perimeter

Cedar Drive

Upper Cedar Drive Fuel-Break Map

Legend

- Parcels
- StreetPaved
- StreetUnpaved
- Cedar_Drive_Fuel_Reduction_2010
- Building_Footprints

Escape Route Fuel Reduction Area

Roadside Thinning

Secondary Egress

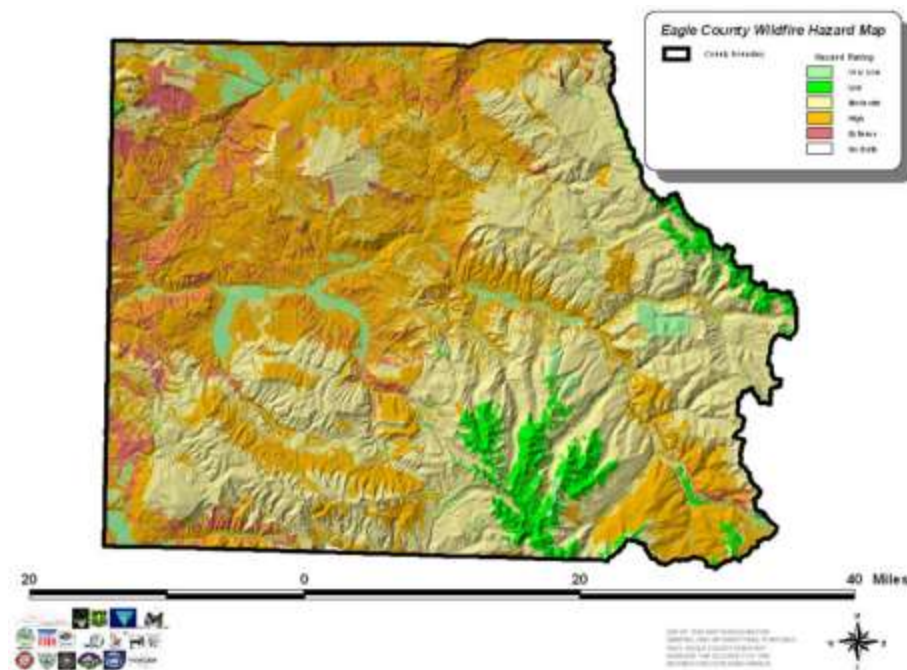


Applicability – Building Permits

- Any new residential or commercial construction
- Exterior modifications to existing structures
 - Re-roofing and/or re-siding
- Additions to existing structures
 - Increase building footprint or number of stories
 - Decks included

Permit Requirements

- Based on wildfire hazard rating of building site
 - Low
 - Moderate
 - High
 - Extreme



- Determined by hazard mapping and/or by Wildfire Mitigation Manager during site-visit

Hazard Rating Methodology

- Hazard mapping
- Hazard criteria
- Site visit(s)
- Weigh existing hazards w/
proposed
improvements



Fire Resistant Construction - Decks



Decking Requirements

- Completely non-combustible
- Heavy Timbers (Type IV construction)
- Waterproofed deck protected by 5/8" Type X
- FR structural members (decking, joist, columns)
 - Ipe Family
 - Composites
 - Fire Retardant Treated Wood
 - TimberSil Glasswood

Fire Resistant Construction - Roofs



Roofing Requirements

- Moderate Hazard
 - Class B assembly
- High/Extreme Hazard
 - Class A assembly
- Fire Ratings
 - Covering = “stand-alone”
 - Covering and underlying materials = “by assembly”

Class B Roof Assembly – Treated Shake



Class A Stand Alone – Metal Roof



Fire Resistant Construction - Siding



Photo courtesy of Chief Craig, Novato Fire Protection District

Siding Requirements

- Moderate Hazard
 - No limitations
- High/Extreme Hazard
 - Options include:
 - Non-combustible material (stone, brick, cement)
 - 1 hour listed assembly (5/8" type X gypsum board under combustible siding)
 - Cement Stucco (1/2" min. thickness)
 - 6+" diameter logs



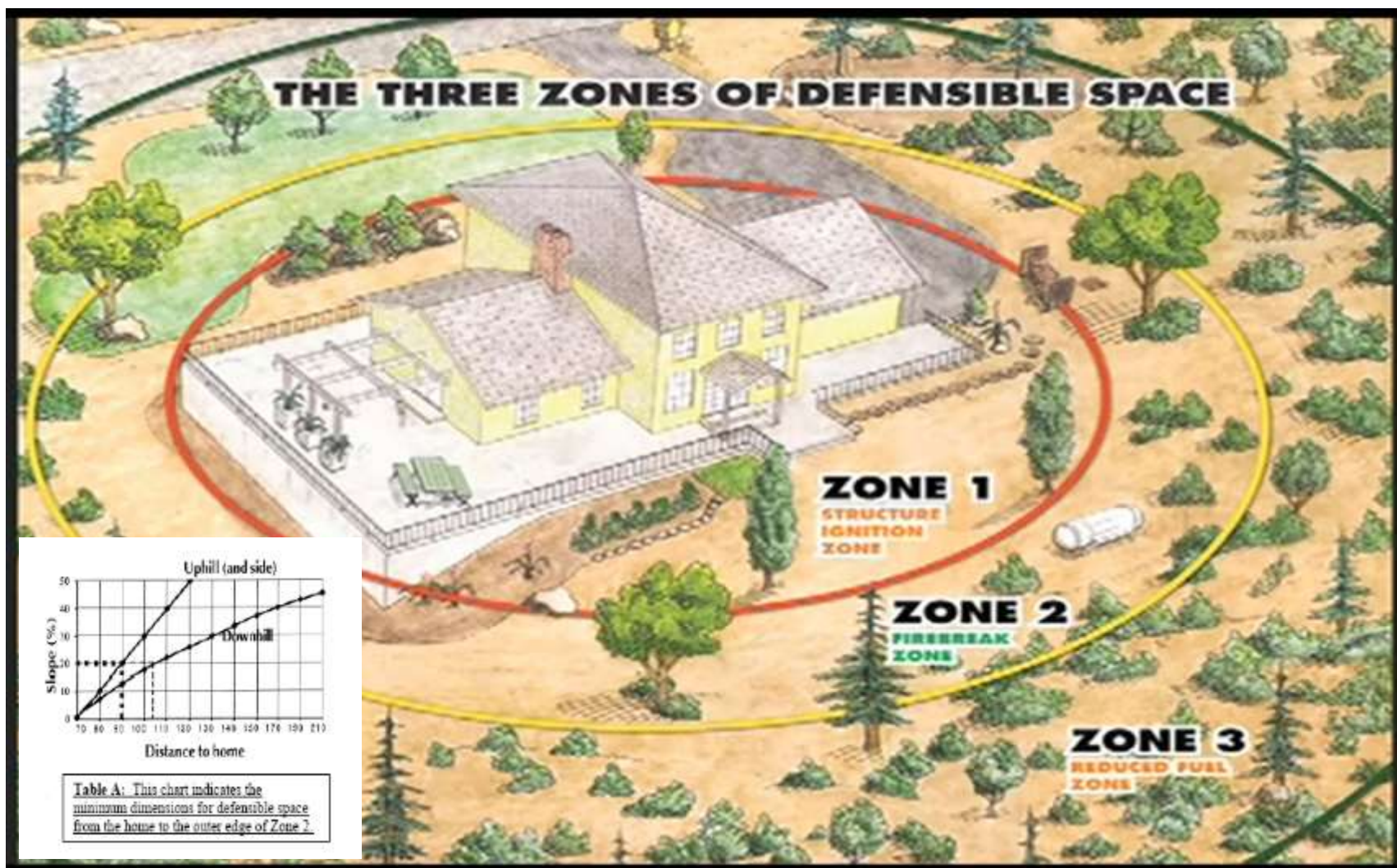
Fire Resistant Construction - Eaves



Soffit/Eave Requirements

- Moderate Hazard
 - Soffit/eave projections greater than 48" = 1-hour rated assembly
 - Venting = located in the outer 1/3 of soffit, non-combustible cover, w/ screening <1/4"
- High/Extreme
 - All soffit/eave projections = 1-hour rated assembly
 - Venting = located in the outer 1/3 of soffit, non-combustible cover, w/ screening <1/4

Defensible Space Requirements



Landscape Plan Review



Inspection Process

- \$200 wildfire mitigation fee
- Initial site inspection prior to footing/foundation
 - establish defensible space, identify trees and shrubs to be pruned or removed, and list other mitigation measures to be performed.
- Final Site Inspection
 - Verify that all required mitigation actions have been completed, including FR landscaping
 - Completed prior to issuance of a Temporary Certificate of Occupancy (TCO).

Initial Public Reaction

Builders/Developers

- Regulations “Draconian”
- Extra costs associated with site-clearing and FR construction an unfair burden – hurts bottom line
- More red-tape hindering development
- No place for government to interfere with market forces

Community/HOA Design Review

- Infringement of private property rights
- Poor understanding of intent – wildfire risk
- Unfair burden on taxpayer
- Existing DRB guidelines requiring wood-roofing and excessive landscaping
- Property “taking” through regulation (road standards)
- Lack of “buy-in” from towns

Public Acceptance – 10 Years Later

Builders/Developers

- Regulations part of building process – like any code requirement or LUR
- Extra costs anticipated - passed onto buyer/owner
- Larger companies adding wildfire mitigation to annual corporate training
- Opportunity for private sector and government to work together – encourage FR retrofits

Community/HOA Design Review

- Better understanding of intent – wildfire risk
- Two FireWise Communities
- DRB guidelines banning wood-roofing and requiring d-space in some gated communities
- Creation of 5 neighborhood specific CWPP's
- 200+ acres of voluntary, grant funded, fuel reduction work completed in and/or near towns

Challenges

Existing Homes

- Home owner attachment to trees, view of “natural” forest conditions
- Aging structures not up to code
- Second-home ownership – seasonal population
- Huge rental inventory near ski areas – duplex/condos
- No “one-size fits all” approach to defensible space

Existing Neighborhoods

- Topography & land ownership – 80% of county public lands
- Poor community design – several areas built with one point of ingress/egress
- Fair application of regulations without creating “hardship” for applicants
- Some DRB’s still refuse to allow asphalt/comp. roofing

Questions?

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