Building Resilience to Hazards:

Concrete steps for planners to safeguard their communities

Rocky Mountain Land Use Institute
March 9, 2018

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Overview

- Hazards and land use planning framework
- Implementation tools
- Assessing risk
- Additional resources
- Case Study: *Manitou Springs, CO*
- Discussion

What is a resilient community?

- Makes proactive policy and investment decisions
- Transparent about risk and vulnerability
- Strengthens public-private partnerships
- Recovers rapidly after hazard (or other) events

Why should we care about hazards?

- Population is growing
- Hazards increasing in frequency and severity
- Nearly every community faces hazard challenges
- Disaster amnesia

2012-2013 wildfires in Colorado

- High Park– 87,000 acres
- Waldo Canyon – 18,000 acres
- Black Forest – 14,000 acres
- Last Chance – 44,000 acres

- 1,200 structures damaged or destroyed
- $1 billion in damages

2013 floods in Colorado

- 24 counties impacted
- 10 deaths
- $4 billion in damage
- 18,000 displaced
- 1,800 homes destroyed
- 200 business destroyed

Hazards are interrelated

- Drought → Fire
- Lightning → Fire
- Fire → Flooding
- Fire → Debris Flow
- Flooding → Soil Hazards

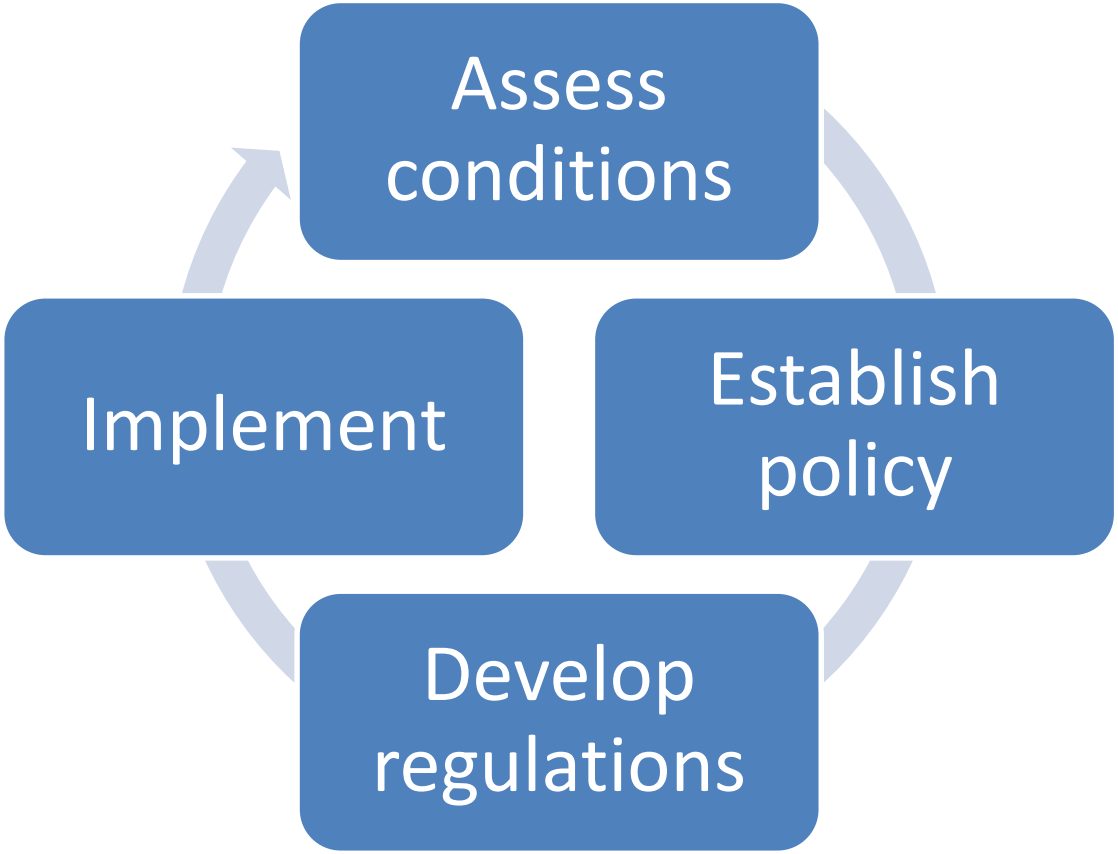
Planning for hazards

Planning for hazards

- Area specific
- Easier to plan for

- Not area specific
- Difficult to plan for

The planning framework (simplified)

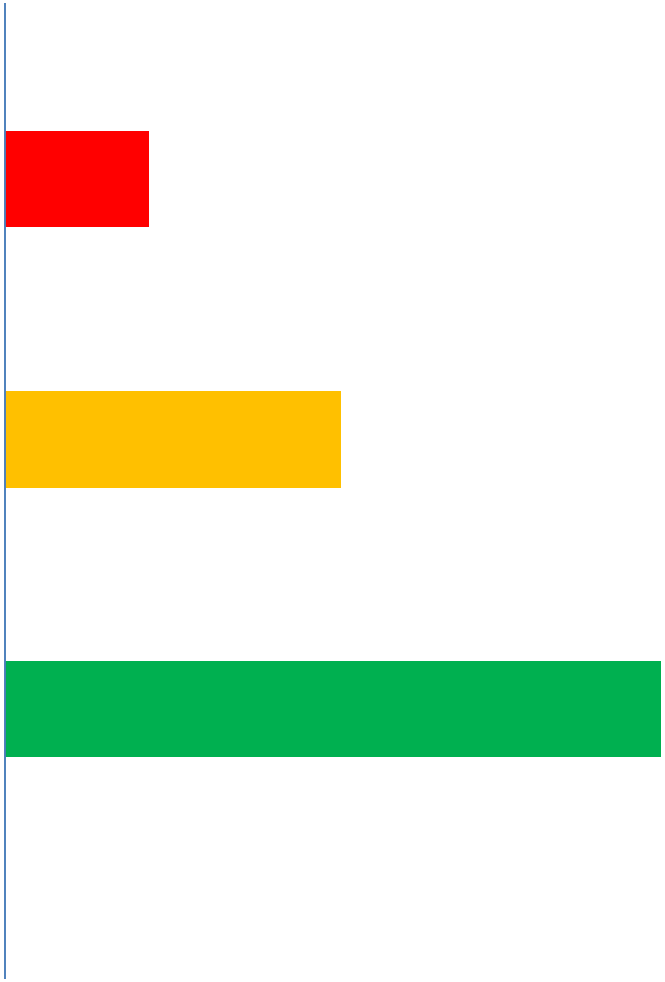


Assess conditions/risk

- What hazards affect the community?
- What are our community assets?
- Where are our vulnerable populations?
- What are the impacts of a hazard event on our community?
- Where are the most hazardous areas?
- What are our capabilities?
- **What can we do to reduce risk?**

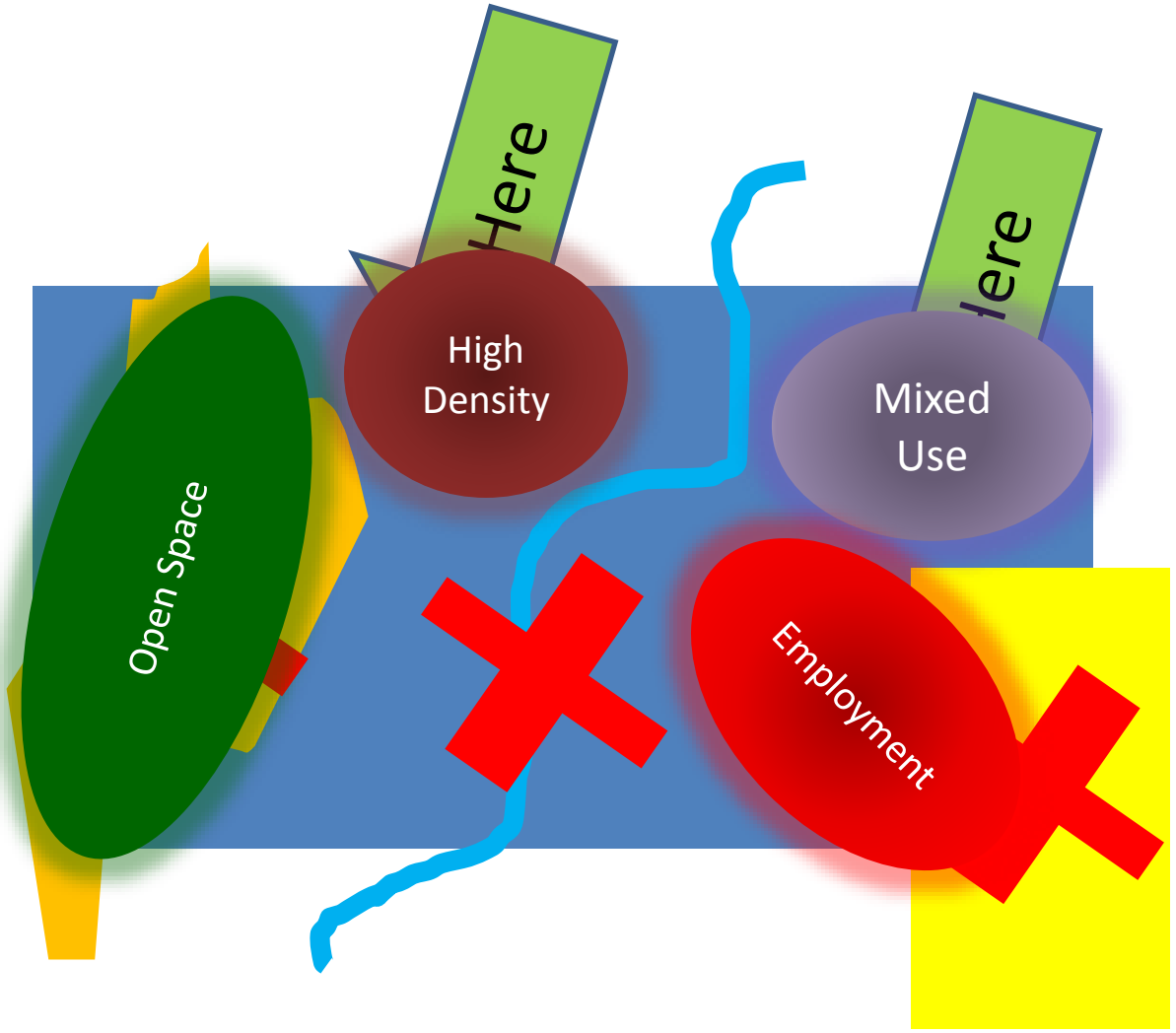
Establish policy

- **Avoid** development in hazardous areas
- **Direct** future growth to safer areas
- **Strengthen** existing development in hazardous areas



Establish policy

- Comprehensive plan
- Hazard mitigation plan
- Resolution
- Neighborhood program
- Capital improvement plan
- Resilience plan
- Parks/open space plan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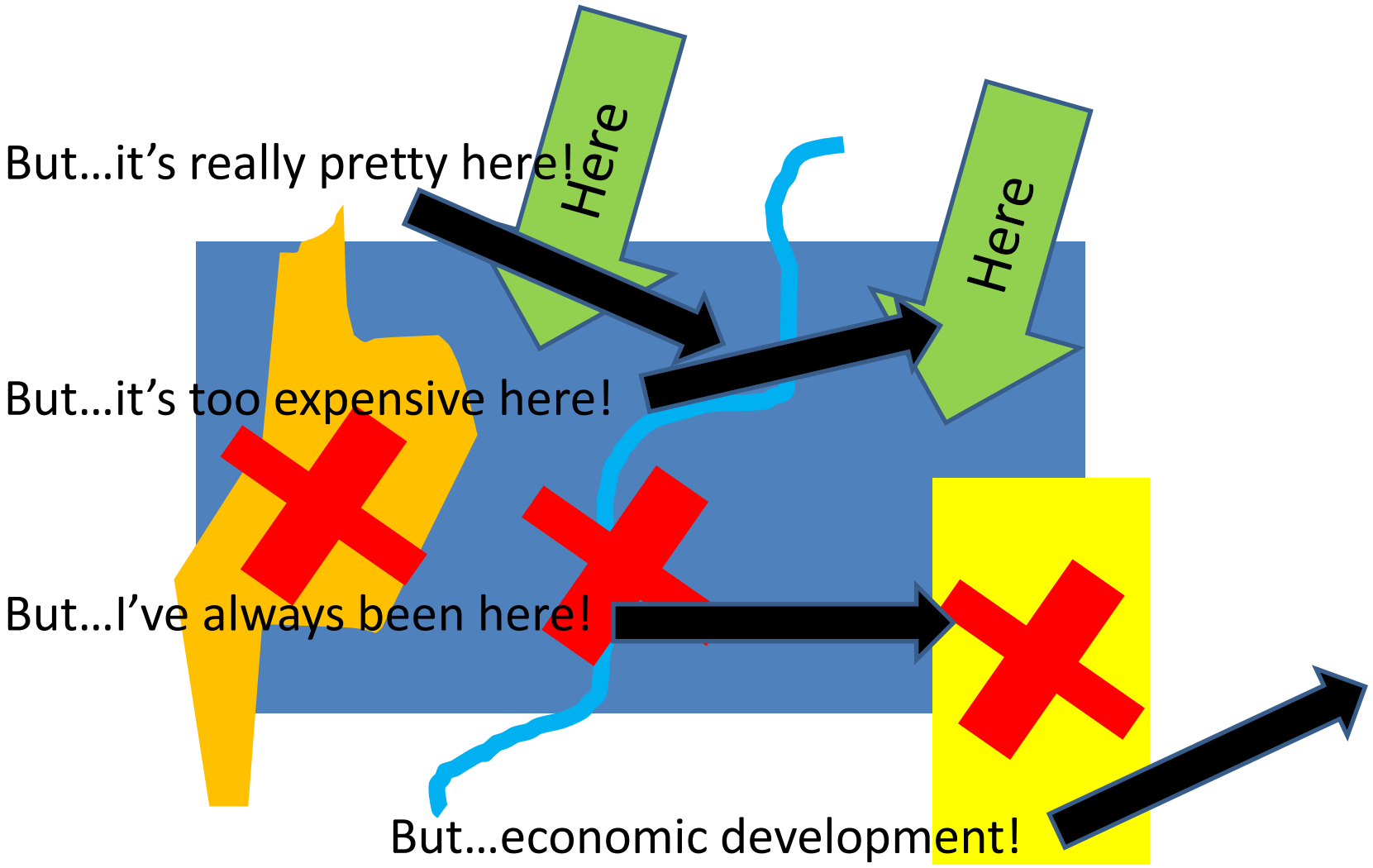
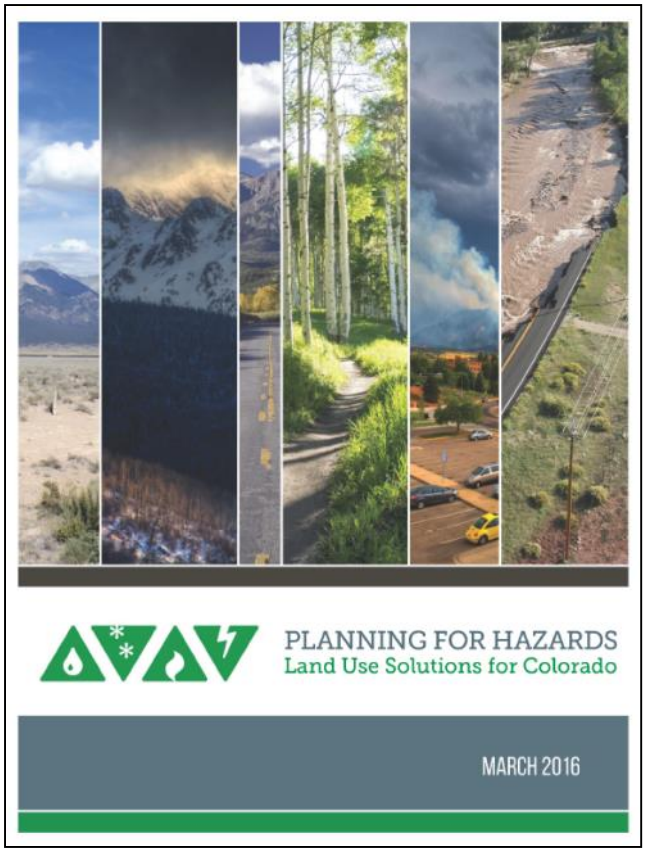
High Density
Mixed Use
Open Space
Employment


But…it's really pretty here!
Here
Here
But…it's too expensive here!
But…I've always been here!
But…economic development!

Land use implementation

- Strengthen incentives
- Protect sensitive areas
- Improve site development standards
- Improve buildings and infrastructure
- Enhance administration and procedures



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Land Use Solutions for Colorado

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Purpose of the Guide

Learn how the Hazard Mitigation Guide can help your community address risks and integrate hazard mitigation into policies, regulations, and standards.

Intro

This guide provides detailed, Colorado-specific information about how to assess a community's risk level to hazards and how to implement several land use planning tools and strategies for reducing a community's risk.

Read the Guide

To explore this guide or specific chapters in the traditional format, Page-by-Page from start to finish, look for the purple Table of Contents on the top right and the previous/next buttons on the bottom of each page.

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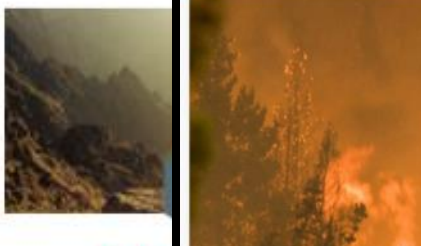
Avalanche

D

Hazardous Material Release



Extre

Wildfire

Wind Hazards

Severe Winter Storm

Close

Wildfire

On This Page

Description

The Colorado Natural Hazards Mitigation Plan defines a **wildfire** as an unplanned, unwanted **wildland fire**, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out[36]. Wildland fire occurs when vegetation, or "fuel," such as grass, leaf litter, trees, or shrubs, is exposed to an ignition source and the conditions for combustion are met, resulting in fire growth and spread through adjacent vegetation.

Wildland fires are either ignited by lightning or by some consequence of human activity. **In Colorado, lightning accounts for only 17 percent of wildfires, with human ignitions accounting for the remainder.**[37] Human causes vary and can include escaped debris pile burning, campfires, fireworks, construction sparks, downed transmission lines, and arson.

Wildland fires can occur during any time of year. Although there are frequent references to a "fire season," ignitions are a result of the ability of fuels to support combustion. In addition to an ignition source, the fuel type, amount of fuel, distribution pattern, and moisture content—coupled with weather and topography—will determine the conditions for combustion and resulting fire behavior. Fire behavior "outputs" include intensity,

Applicable Planning Tools and Strategies

Addressing Hazards in Plans and Policies

- Comprehensive Plans
- Climate plan
- Community Wildfire Protection Plan
- Hazard mitigation plan
- Parks and open space plan
- Response and recovery planning

Strengthening Incentives

- Development agreements
- Transfer of development rights and density bonuses

Protecting Sensitive Areas

- 1041 Regulations
- Cluster subdivisions
- Conservation easements
- Land acquisition
- Overlay zoning

Land Use Tool: Overlay Zoning

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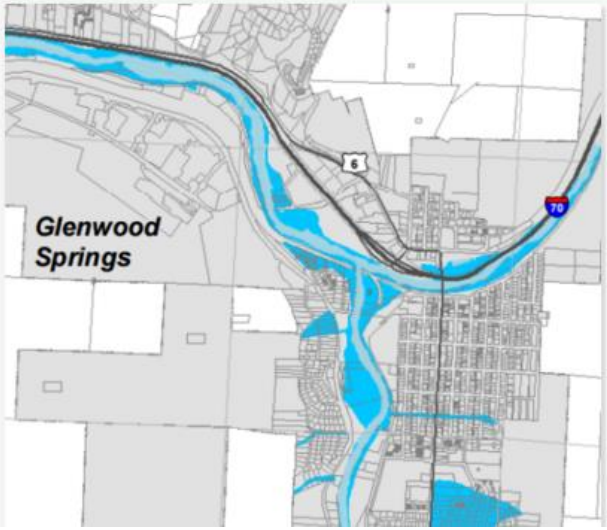
How It Works



Overlay zoning is used by communities to appl area-specific standards and/or conditi zoning district (such as residential or m d-use) determines the types of uses permitted, the dimensional requirements, and sometimes additional district-specific standards. An overlay district (or overlay zone) is an additional layer of standards that apply to all areas within a defined overlay boundary, regardless of the underlying base zoning district. For example, an area with single-family homes that is zoned R-1 might also be within a hillside overlay zone. In this example, the permitted uses might allow construction of a single-family home according to the R-1 standards;

Model Codes & Regulations

Learn More

Hazards Addressed

Flood

Wildfire

PDF

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See all PDFs

Key Facts

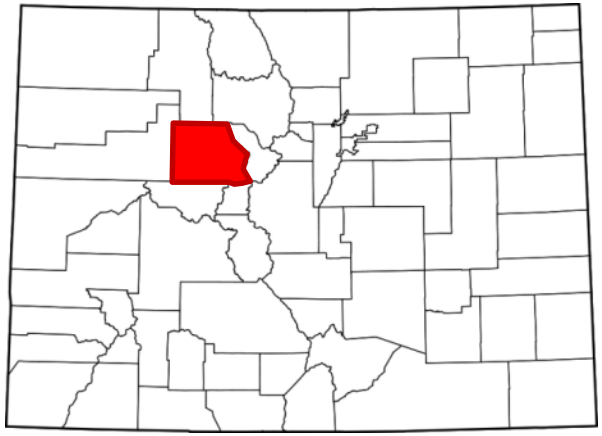
Administrative Capacity - Experienced planner

Mapping - Technical mapping typically required

Site-specific hazard assessment

Eagle County, Colorado

- Wildfire management requirements during planning procedures
  - Sketch Plan Process
  - Special Uses
  - Subdivisions
  - PUDs
- Requirements for building permits
- Site inspection process



Site-specific hazard assessment

Advantages and key talking points

- Best way to identify hazards on a site and determine the most effective methods for mitigation
- Highlight potentially hazardous conditions prior to any development occurring
- Results in reduced risk to property and life

Site-specific hazard assessment

Challenges with implementation

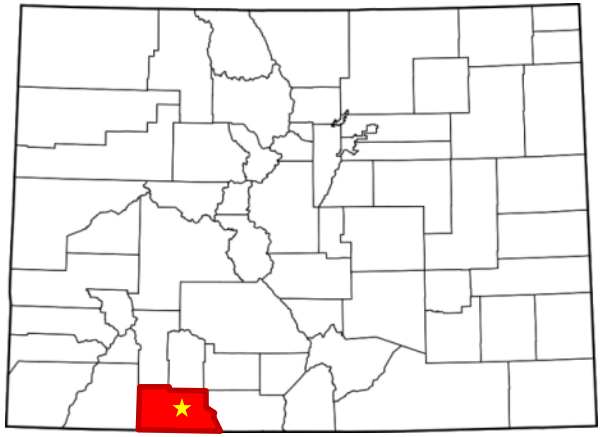
- Public acceptance takes time
- Competing interests such as “natural forest views”
- Second homeownership – seasonal population
- Poor design of existing communities (lack of appropriate ingress/egress)
- Paying for the program (only charges a $200 wildfire mitigation fee)

Subdivision and site design standards

Pagosa Springs, Colorado

Land Development Code

- Slopes
- Natural features
- Areas of special flood hazard
- Geologic hazard areas
- Wildfire hazard areas
- Riparian setbacks
- Perimeter fencing (for wildlife migration)



Subdivision and site design standards

Pagosa Springs, Colorado

Example: Subdivisions in Geologic Hazard Areas must meet several conditions, including:

- Will not create undue financial burden on future residents or the community
- Structures designed for occupancy shall be constructed to prevent risk to life and property
- Permitted land uses shall avoid or mitigate geologic hazards at initial construction

Other tools to reduce risk…

- Community rating system
- Density bonus
- Development agreement
- Transfer of development rights
- 1041 regulations
- Cluster subdivision
- Land acquisition
- Overlay zoning
- Stream buffers and setbacks
- Stormwater ordinance
- Use-specific standards
- Building code
- Wildland-urban interface code
- Application submittal requirements
- Post-disaster building moratorium

Important regulatory considerations

- What hazards are you trying to mitigate?
- Could you address multiple goals with one tool?
- Do you have policy in place?
- Do you have capacity to implement?
- Do you have community buy-in?

Updating regulations

- Comprehensive vs. targeted
- Establish a process and stick to it
- Involve the humans that administer the regulations
- Consider context
- Define applicability thresholds
- Don’t forget about enforcement and maintenance