WILDFIRE:
EQUIPPING PLANNERS WITH 21ST CENTURY TOOLS FOR SUCCESS

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Wildfires are increasing in size, severity, and frequency as a result of climate change.

- Increasing average annual temperatures implies a longer fire season,
- More fuels in the forests,
- Unpredictable snowpack and precipitation trends.

More homes are being built within the wildland-urban interface (WUI).

- Since 1990, 60% of new homes in the U.S. have been built within the WUI.
- Eighty-four percent of the WUI remains undeveloped, suggesting the potential for continued development.
As a Result...

10 million+ acres of forest burned in 2015 (largest on record).

The US Forest Service spent more money in 2015 fighting fires then any time before—diverting valuable resources and budget from other programs.

- Overall U.S. Forest Service budget = $5.1 billion in 2015
- Wildfire-related budget consumed $2.6 billion or 48% of total budget.
- Suppression costs have increased 365% since 1985 (from $160 million in 1985, to $367 million in 1995, to $1.7 billion in 2015.)
What Can Be Done?

**Solution... Innovative land use planning to address wildfire risk within the WUI.**

Headwaters Economics recently profiled how five urban areas in the West are taking progressive steps to proactively address wildfire risk at the local level:

- Defensible space standards,
- Collaborative public-private partnerships,
- Overlay districts and other land use standards, etc.
THANK YOU
Firefighters
AND CREW!
Planners and Building Team Members are Heroes Too!
Planning Strategies for Saving Homes in Boulder County

1. Limiting new development
2. Regulating new construction
3. Mitigating existing homes
The plan has been successful in its goal to locate urban development within or adjacent to existing communities.
Growth of Boulder County Towns and Open Space (Acres): 1980-2010

<table>
<thead>
<tr>
<th>Town</th>
<th>1980 (acres)</th>
<th>2010 (acres)</th>
<th>Annual Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward</td>
<td>342</td>
<td>342</td>
<td>None</td>
</tr>
<tr>
<td>Jamestown</td>
<td>367</td>
<td>367</td>
<td>None</td>
</tr>
<tr>
<td>Lyons</td>
<td>627</td>
<td>839</td>
<td>1.13%</td>
</tr>
<tr>
<td>Nederland</td>
<td>847</td>
<td>979</td>
<td>0.52%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Boulder County</th>
<th>1980 (acres)</th>
<th>2010 (acres)</th>
<th>Annual Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>County Open Space</td>
<td>3,385</td>
<td>44,867</td>
<td>40.85%</td>
</tr>
<tr>
<td>Lyons Area County Open Space</td>
<td>111</td>
<td>22,278</td>
<td>665.68%</td>
</tr>
</tbody>
</table>
### Population Growth in Boulder County WUI Towns vs. Colorado WUI County: 1980-2014

<table>
<thead>
<tr>
<th>Population</th>
<th>1980</th>
<th>2014</th>
<th>Annual Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward</td>
<td>129</td>
<td>154</td>
<td>0.57%</td>
</tr>
<tr>
<td>Jamestown</td>
<td>223</td>
<td>260</td>
<td>0.49%</td>
</tr>
<tr>
<td>Lyons</td>
<td>1,137</td>
<td>1,946</td>
<td>2.09%</td>
</tr>
<tr>
<td>Nederland</td>
<td>1,212</td>
<td>1,498</td>
<td>0.69%</td>
</tr>
<tr>
<td>Colorado WUI County</td>
<td>8,034</td>
<td>23,394</td>
<td>5.62%</td>
</tr>
</tbody>
</table>

### Boulder County Unincorporated Area

<table>
<thead>
<tr>
<th>Residential Units</th>
<th>1980</th>
<th>2010</th>
<th>Annual Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,655</td>
<td>8,715</td>
<td>1.80%</td>
<td></td>
</tr>
</tbody>
</table>
Historically...

• Late 1800s:
  – Mining
  – Patented Mining Claims
  – Mining Towns and Platted Townsites
Subject Parcel is 1.99 acres
Public and Private Lands Affected by the Fourmile Canyon Fire

- Fourmile Canyon Fire Perimeter (9-13-2010)
- Private Land: 3,755 Acres
- USFS Land: 306 Acres
- BLM Land: 1,397 Acres
- County Open Space: 370 Acres
- County Conservation Easement: 213 Acres
- Property Under County Negotiation: 118 Acres
- State Land Board: 10 Acres
- Gold Hill Open Space: 10 Acres
- Subdivisions or Platted Area

[Map with various land ownership types and fire perimeter highlighted]

Note: This map may be subject to change and is not to scale. It is for informational purposes only.
Question: Is there any correlation between dates of statehood (and accompanying development, suppression of fires, etc.) and the incidence of severe wildland fires?
• California?
• Colorado?
• Arizona?
• Others?
DATES OF STATEHOOD, WESTERN U.S.A.
Historically... (Continued)

• 1944: First Boulder County Zoning (much of the county “Unclassified”)

• 1957, and probably earlier: Building permits required and issued.

• 1965: Comprehensive Zoning Resolution, including “Forestry” zone with 25-ft. side yard setbacks & 5-acre minimum lot size.

• 1960s & early ‘70s: Many mountain subdivisions platted.
Historically... (Continued)

• 1972 – “Senate Bill 35” – state subdivision law.

• 1975 – Building permits required on all unincorporated parcels for all types of buildings.

• 1976 – Comforter Mountain Fire

• 1978 – Boulder County Comprehensive Plan (BCCP) adopted. “New urban development” to be directed into the cities and towns and not to occur in the unincorporated county.

• Subsequent downzoning of the county, 35-acre minimum size for newly created parcels.
The Fires Begin...

- 1988 – Beaver Lake Fire/Lefthand Fire (no homes lost).
- 1989 – Black Tiger Fire – 44 homes and other structures lost
- 1989 – Amend building code to add Fire Zones and require Class A roofs in mountains (Fire Zone No. 1).
- 1990 – (1st) Olde Stage Fire – 10 homes lost
The Chronology... (Continued)

- 1990 - Boulder County Wildfire Mitigation Group Formed (but hardly any of us had wildfire mitigation as our “real job”)
  - Inclusiveness
  - Collaboration
  - Utilize all available resources
  - Seek out other resources
INTER-AGENCY COOPERATION

- Citizens
- USDA Forest Service
- National Park Service
- State OEM
- State Forest Service
- Homeowners Assns.
- Building Officials
- Waste Management
- Fire Departments
- GIS Departments
- Human Resources
- Insurance Companies

- BLM
- Community Groups
- Sheriff/Police
- Consultants/Vendors
- Universities
- Politicians
- FEMA
- Planners
- Attorneys
- Budget
- Other Agencies
- Park Service
Being IN-clusive instead of EX-clusive

COLLABORATION
What are YOU doing here?
Methods and Tools...

• Inter-Agency Coordinating Group
  • Regular Meetings
  • Budgeting, Grants, Etc.
  • Chipping and Slash Disposal
  • “Cookbooks” for homeowners
  • Community Wildfire Symposiums

• WHIMS (Wildfire Hazard Identification & Mitigation System)
  • GIS
  • The Road Show
  • Train the Trainers
  • The Survey
  • Data entry
  • Mapping
The Chronology... (Continued)

• Creation of new Wildfire Mitigation Coordinator position, approval of funding and hiring of first Wildfire Mitigation Coordinator

• 1994 – Site Plan Review ("SPR") process created.
Don’t look a gift horse in the mouth...

...Administrative Site Plan Review
The Chronology... (Continued)

• 1995 – Automatic fire sprinkler systems required for homes over 3,600 sq. ft. and additions resulting in 4,800 sq. ft. or larger. Continued to add wildfire mitigation amendments, like noncombustible window screens, protected eaves and vents, defensible space, etc.

• 2000 – Walker Ranch (open space) Fire – no homes lost.

• 2003 – Overland Fire – 12 homes destroyed.

• 2009 – (2\textsuperscript{nd}) Olde Stage Fire – one (1) home lost.
The Chronology... (Continued)

• 2010 – Fourmile Canyon Fire – 169 homes lost.
  -Increased survival rate for homes that went through SPR.
  -Case manager approach toward recovery, with multi-departmental staffing of a fire recovery center.
  -Although rebuilds could be completed at the same size and location as homes previously existed, they still needed to meet current building codes, including fire sprinklers, ignition-resistant construction, defensible space and “BuildSmart” energy code requirements.
Evolving Regulations...

• Building code amendments used portions of the International Wildland-Urban Interface Code (“IWUIC”), mostly in the area of ignition-resistant building construction, without actually adopting the IWUIC, for various reasons.

• Review and approval of wildfire mitigation plans and inspection of defensible space by the wildfire mitigation coordinator became part of the day to day plan review and inspection routine.
IWUIC “THE SYSTEM”

• Much like the IBC, and the UBC before it, & a system to determine allowable area and height, only Ign-Res Construction has its own system...

• MANDATORY:
  • Fire Hazard Severity (M, H or E)
  • Access

• “GIVE & TAKE” ELEMENTS:
  • Water Supply
  • Ignition-Resistant Construction
  • Defensible Space
High Hazard

Conforming Water Supply 404

No

New Subdivision

Yes

Not Allowed Per Table 503.1, Footnote 2

Subdivision or Individual Structure

Yes

Individual Structure

No

A

Conforming Defensible Space 603

No

IR1

Yes

Conforming Defensible Space 603

No

IR1 N.C.

1.5x Conforming Defensible Space

No

IR2

Yes

IR1

No

IR2

Yes

IR3
Evolving Regulations... (Continued)

• 2013 - Automatic fire sprinkler systems required for all new homes (and still for additions ≥ 4,800 sq. ft.). Ignition-resistant construction requirements for exterior walls are revised to be the same, regardless of wildfire hazard rating (Moderate, High or Extreme).

• 2014-Wildfire Partners program begins as a grant-funded voluntary program for existing homes.
Current Codes, January 1, 2016...

• Revise ignition-resistant construction (wildfire mitigation) requirements to eliminate the 3 existing hazard zones and have a single set of construction requirements largely based upon the existing high hazard zone requirements.

• Define the latest Colorado State Forest Service (CSFS) guidelines as the “defensible space standard” and allow obtaining a certificate from the Wildfire Partners program as an option for meeting defensible space requirements.
1,054 homes have implemented wildfire mitigation regulations since 1993
Wildfire Partners is a unique program
Wildfire Partners is a public-private partnership.
Lessons from the Fourmile Canyon Fire Findings

1. We have the opportunity to **significantly reduce** the potential for WUI fire disasters

2. **This opportunity requires a change in approach**

3. The **responsibility** for reducing vulnerability to wildfire **rests with the homeowner**

4. WUI fire disasters cannot be prevented without homeowners **actively creating and maintaining HIZs with low home ignition potential**
• $2.6 million in grant funding
• 35 partners
• 7 mitigation specialists
• Phone advisors
• 12 contractors
• 28 advisory committee members
• Support from many county staff
The Benefits to Homeowners

- Comprehensive home assessment
- Customized report & “To Do List”
- Phone Advising
- Financial Assistance
- Certificate & Recognition
Strong Partnership with Insurance Companies

- Insurance Institute for Business and Home Safety
- Rocky Mountain Insurance Information Association
- Property and Casualty Insurance Association of America
- Allstate
- State Farm
- Farmers
- USAA
Participating homeowners are the best ambassadors

• 91% of participants said it was likely or very likely they would refer Wildfire Partners to a friend or neighbor
Wildfire Partners is a comprehensive approach to mitigation and community empowerment.
RESOURCES:

Boulder County:
• Boulder County Land Use: http://www.bouldercounty.org/dept/landuse/pages/default.aspx
• Boulder County Building Safety & Inspection Services: http://www.bouldercounty.org/property/build/pages/buildingdivmain.aspx
• Boulder County Wildfire Partners: http://www.wildfirepartners.org/

Colorado State Forest Service (CSFS): https://csfs.colostate.edu/wildfire-mitigation

Insurance Institute for Business & Home Safety: https://disastersafety.org/wildfire