



A FOUR-STEP APPROACH TO PLANNING FOR WILDFIRE IN THE WILDLAND-URBAN INTERFACE

Stephen R. Miller, Associate Professor
University of Idaho College of Law - Boise

Grant team

- PI: Stephen R. Miller, Associate Professor of Law, University of Idaho College of Law (millers@uidaho.edu)
- Thomas Wuerzer, Associate Professor for Real Estate Development, Nova Southeastern University (twuerzer@nova.edu)
- Eric Lindquist, Director, Public Policy Research Center, Boise State University (elindquist@boisestate.edu)
- Jaap Vos, Program Head, Bioregional Planning & Community Design, University of Idaho College of Art and Architecture (jvos@uidaho.edu)
- Molly Mowery, Wildfire Planning International (molly@wildfireplanning.com)
- Tyre Holfeltz, Idaho Department of Lands (tholfeltz@idl.idaho.gov)
- Students: Jace Hellman, Alexander Grad, Brian Stephens

Outline for today

- About the report
- Risk of wildfire
- What is the wildland-urban interface (WUI)?
- The WUI Wildfire Planning Process
 - *Cohesive Strategy goals*
 - *Four-step process*
 - Draft CWPPs
 - Create regulation and incentive packages
 - Enforce and implement
 - Substantial events occur causing the cycle to repeat
 - *Education*
- Questions, comments, and evaluation of the model

What is the risk of wildfire? (And why do we care?)

- One way to measure the price of wildfire is the dollars spent on suppression alone.
 - *In 1995, fire made up 16 percent of the U.S. Forest Service's annual appropriation budget; in 2015, wildfire consumed more than 50 percent of the agency's budget, a benchmark reflective of steadily rising costs.*
 - *A recent study of wildfires in Wyoming found that protecting just one isolated home can add \$225,000 to the overall cost of fighting a fire.*
 - *But the long-term consequences are less easy to quantify and more damaging to the community*
 - lost recreational opportunities
 - scarred landscapes adjacent to city centers
 - loss of wildlife habitat
 - presence of invasive species
 - after-effects such as flood and landslides
- Six of the 10 most expensive fires in the past 100 years were WUI fires despite the fact that WUI fires account for just a small fraction of overall fires fought in any given year
- According to one widely used WUI definition, only 14 percent of the WUI is developed. If we keep developing like we are, we will lock-in long-term costs.

What is the wildland-urban interface? – policy definitions

- Most commonly used definition: “where humans and their development meet or intermix with wildland fuel”
- U.S. Forest Service: “The WUI is the area where structures and other human development meet or intermingle with undeveloped wildland. Wildland urban interface is any area containing human developments, such as a rural subdivision, that may be threatened by wildland fires.”
- Other options include density-based models

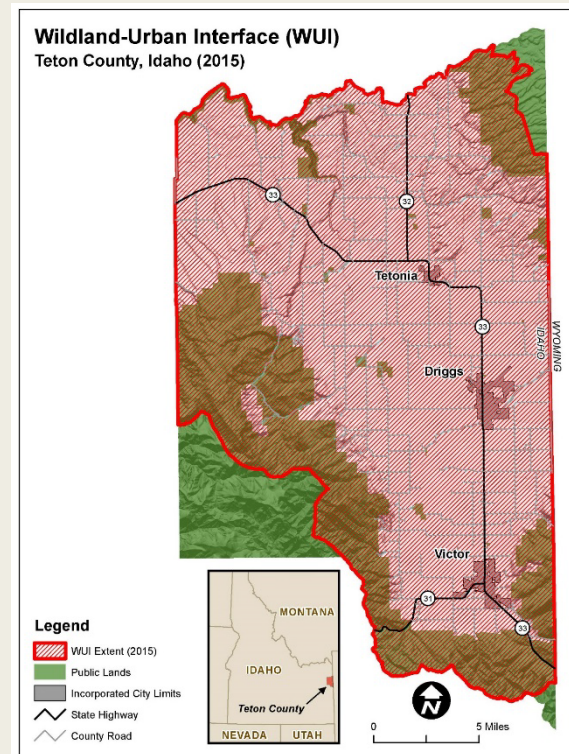
What is the wildland-urban interface? -

Legal definitions

- Healthy Forest Restoration Act of 2003 (HFRA)
 - *If a community has adopted a WUI definition in a CWPP, federal agencies will abide by that determination*
 - *If no community has done so, however, an alternative default definition is supplied*
- 16 U.S.C. § 6511 (2016)
 - *The term “wildland-urban interface” means--*
 - *(A) an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan; or*
 - *(B) in the case of any area for which a community wildfire protection plan is not in effect--*
 - (i) *an area extending ½ -mile from the boundary of an at-risk community;*
 - (ii) *an area within 1 ½ miles of the boundary of an at-risk community, including any land that--*
 - *(I) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community;*
 - *(II) has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or*
 - *(III) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; and*
 - (iii) *an area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community.*

What is the wildland-urban interface? – Legal definitions

- The WUI as defined by a CWPP in Teton County, Idaho just recently completed.
- How would it be different if the community had not done a CWPP?

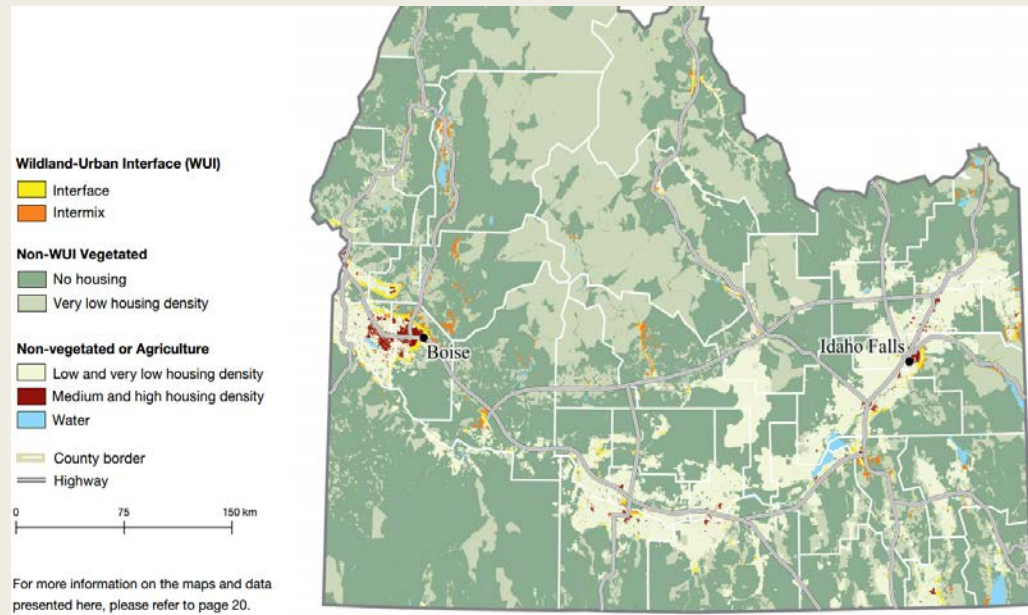


What is the wildland-urban interface? – Legal definitions

- In May, 2016, President Obama signed an executive order that required federal buildings in the WUI to meet certain wildfire standards defined by the order.
- Order stated that, “[w]hen determining whether buildings are located within the wildland-urban interface, agencies shall use the U.S. Department of Agriculture Forest Service's, ‘The 2010 Wildland-Urban Interface of the Conterminous United States,’ or an equivalent tool.”

What is the wildland-urban interface? – Legal definitions

- Here is how that map, which determines applicability of the Executive Order, defines the WUI in Idaho and Teton County:



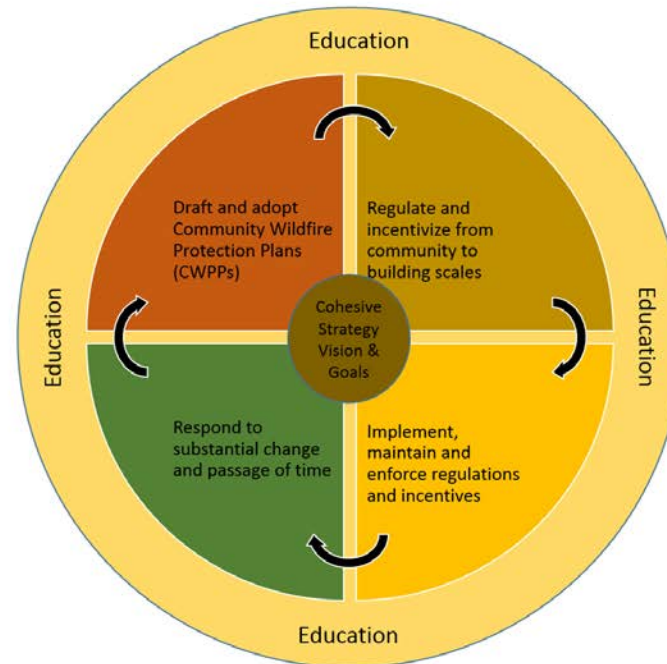
What is the wildland-urban interface? – a fluid concept

- WUI area changes as development progresses
- Requires re-visiting legal and policy definitions over time, especially in fast-growth areas

Planning for wildfire – procedural principles

- Engage public and encourage public ownership of the WUI wildfire planning process
- Encourage different levels of government to speak with each other and, especially, in a way that mobilizes the public
- Break “silos” at the federal and state level
- Break “silos” at the local government level
- Define an on-going and cyclical process
- Offer a range of alternatives for addressing wildfire
- Prioritize knowledge-sharing among Idaho communities

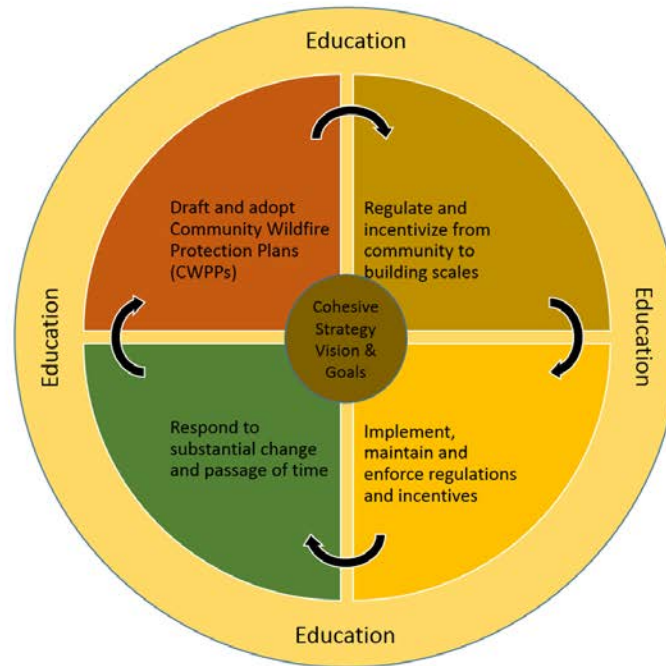
The WUI Wildfire Planning Process



The “core” around which WUI Wildfire Planning revolves – the Cohesive Strategy

- 5-year planning strategy between federal, state and local governments around the country trying to create an overarching, unified approach to wildfire in the U.S.
- The Cohesive Strategy established three goals:
 - *Restore and maintain landscapes:* Landscapes across all jurisdictions are resilient to fire related disturbances in accordance with management objectives.
 - *Fire-adapted communities:* Human populations and infrastructure can withstand a wildfire without loss of life and property.
 - *Wildfire response:* All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

Step 1: CWPPs



Step 1: Draft and Adopt Community Wildfire Protection Plans (CWPPs)

- What is a CWPP?
 - *A community wildfire protection plan (CWPP) is a compliance document under HFRA*
 - *Perhaps more importantly, it is a flexible framework that establishes a process of collaboration between different levels of government and local communities that allows those local communities to establish local priorities for wildfire planning that federal and state agencies agree to follow.*
- Why start here:
 - *Permits local communities to influence how wildfire is managed on federal and state lands*
 - *Identifies and maps wildfire hazards in the local community*
 - *Identifies mitigation strategies that reflect the interests and values of the local community but also have the approval of federal and state agencies managing land near the community*
 - *Creates and maintains a broad-based coalition to maintain fire-preparedness locally*
 - *Enables community to receive federal HFRA funds*
 - *Enables CWPPs integrated into All Hazard Mitigation Funds to access FEMA funds*

How most states do CWPPs right now

- Most states...
 - *Typically “owned” by the fire community*
 - *Very little participation by planning or building staff, much less local officials that approve development*
 - *No “nesting” of plans*
- Example of Idaho
 - *CWPPs only done at county level; most are more than a decade old*
 - *IDL is open to a new way, which is the genesis of this project*

CWPP process goals

- Readable
- Relevant
- Integrated
- Updated

CWPP Participation

- Four groups need to participate in drafting a CWPP
 - *The Fire Group*
 - *The Local Official Group*
 - *The Local Staff Group*
 - *The Citizen Advisors Group*

Key goal of a CWPP – identify and map fire risk in a meaningful way

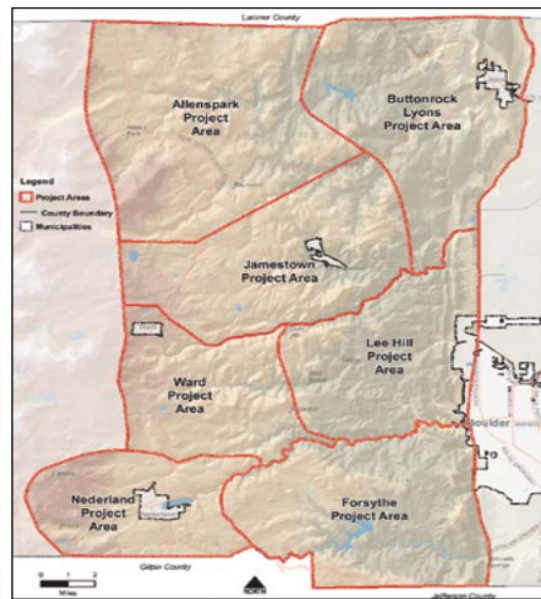
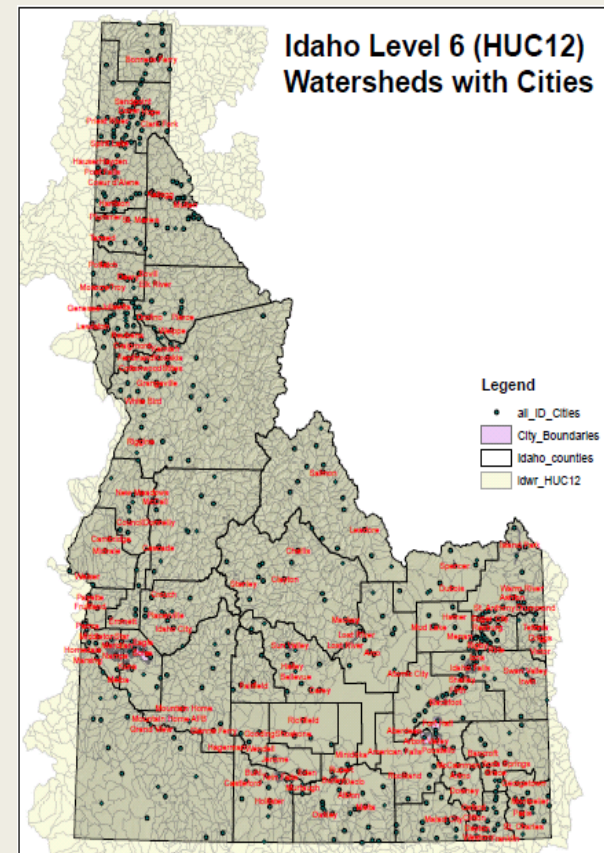
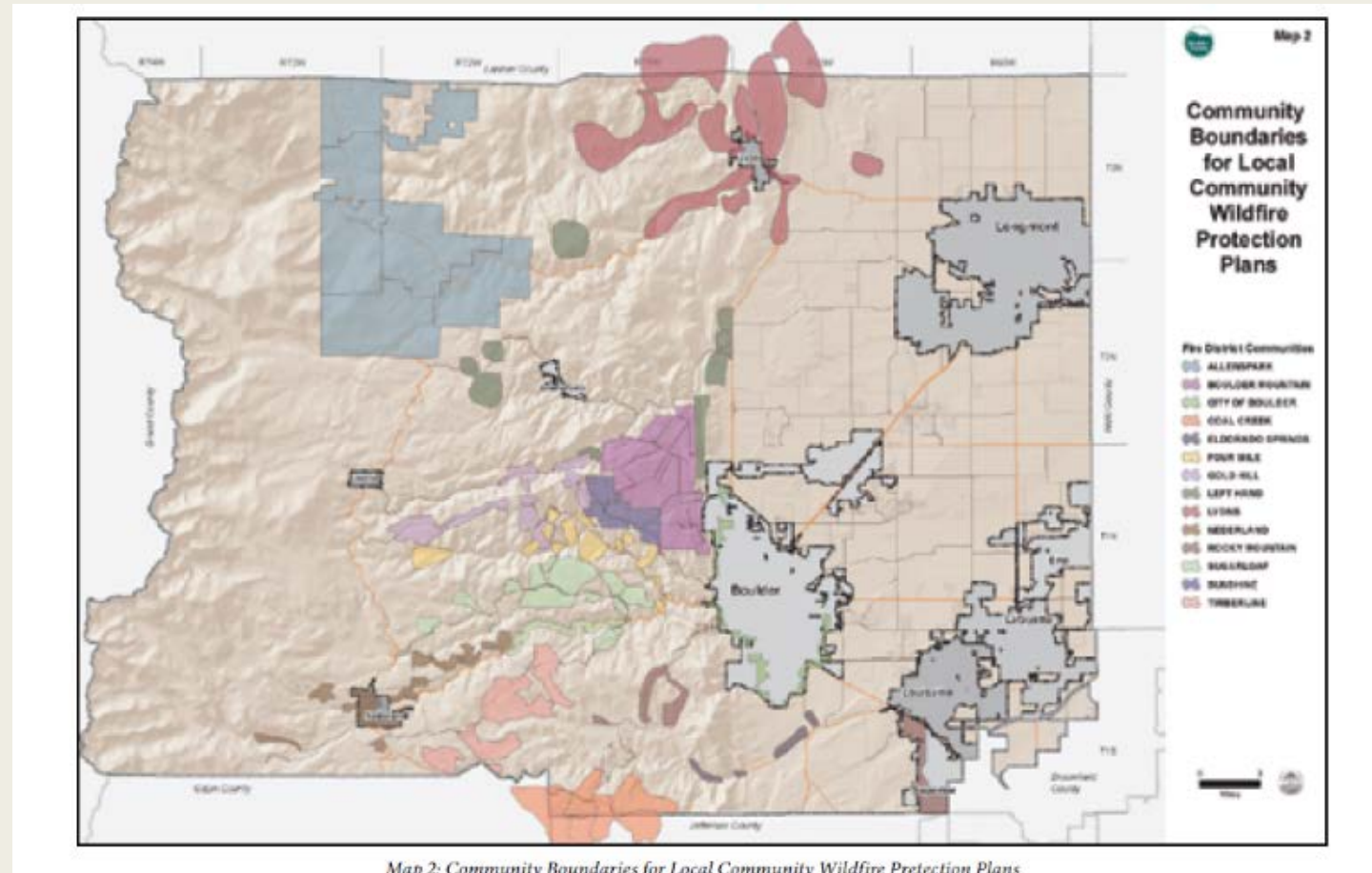


Figure 7. Map from Boulder, Colorado CWPP Illustrating Sub-Planning Project Areas.



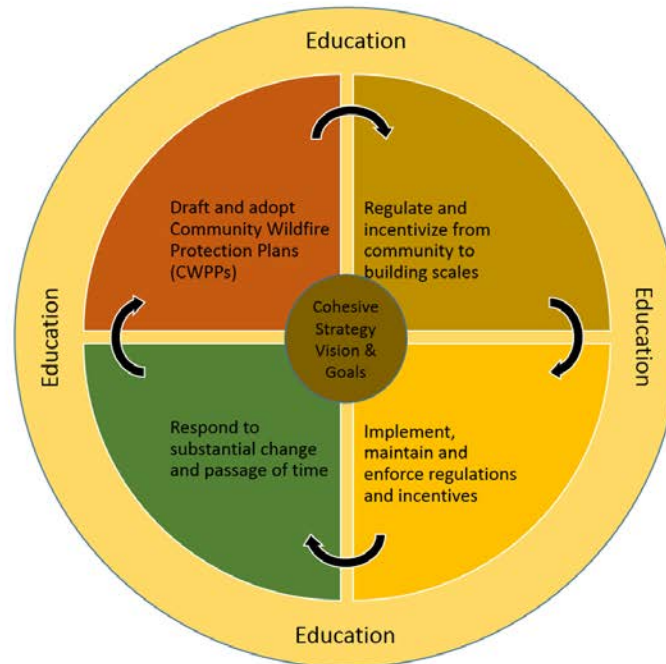
“Nest” CWPPs for meaningful fire protection planning at various levels



Creating a Community Wildfire Protection Plan

- Committee
 - agencies, business, citizens, etc..
- Community description
- Refine the county risk assessment (if needed)
- Identify actions that will lead towards reduced risk
- Implement!
- Update

Step Two: Draft and Adopt Wildfire Regulations, Programs and Initiatives at Scales



Threshold questions about regulation v. incentives

- Will the local community permit new development in the WUI where there is an identified wildfire risk?
- If the local community decides to permit development in the WUI where there is wildfire risk, is the community willing to adopt and enforce regulations related to wildfire?
- If the local community decides to permit development in the WUI where there is wildfire risk, what incentives or voluntary programs does the community want to offer or encourage to support, or stand in place of, regulations?
- If there is existing development in the WUI subject to wildfire risk, what regulations, incentives and programs should the local community adopt or offer that would reflect the local community's values?

Common take-aways from the process

- Seek co-benefits
- Seize upon interest after wildfires (about six months)
- Choose an approach the community will support
- Anticipate and plan for wildfire's after-effects, especially flood, landslide, aesthetic harm, and economic development issues.

The Simple Solution

- For communities that want a basic wildfire protection plan, here it is:
 - *30 feet of defensible space*
 - *Metal roofs*
 - *Weed abatement ordinance*



Working at different scales. Regulation and incentives at each scale:

- Community
- Neighborhood
- Site / Subdivision
- Building

Regulatory tools – community scale (from NFPA)

Community Scale WUI Tools	
Hazard mapping	Conduct hazard assessment (risk of wildfire) and risk assessment (risk of loss of structures or life).
Zoning overlays	Consider using existing zoning overlays for wildfire purpose or develop new overlays applicable to known wildfire areas.
Restriction of sensitive or hazardous uses	Restrict land uses with vulnerable populations (hospitals), large populations (stadiums), or flammable materials (gas stations) in wildfire risk areas.

Regulatory tools - Community scale

- Comprehensive plans

- *Advisory in most states; in California, the general plan is the “constitution of land use”; excellent guidance documents for [general plans](#) provided by the State*
- *Also a necessary finding of compliance or accordance in most discretionary permits*

- Zoning codes

- *In Lemhi County, the zoning code provides that any residence or structure located in a wooded area or an area of flammable brushy vegetation must provide a minimum of 30 feet of defensible space, which it defines as “one in which trees are thinned so that crowns do not overlap or touch, woody brush is removed or substantially thinned, and dead fuel is removed. Maintenance of the defensible space is a requirement for continuing compliance with this ordinance.”*

Regulatory tools – Neighborhood scale (from NFPA)

Neighborhood/Subdivision Scale WUI Tools	
Residential clustering requirements	Require new lots in subdivisions to be located away from wildfire hazard areas, and allow smaller lots if necessary to avoid economic harm to the landowner.
Water supply	Require firefighting water supply. Provide hydrants with adequate pressure and volume or a year round water source of 4,000 – 5,000 gallons in the form of a dry well, cistern, pond, or swimming pool
Density reductions in high hazard areas	Reducing permitted development density in high wildfire hazard areas. Transfer of Development Rights (TDR) programs may also be useful.
Tax districts to fund fire mitigation projects (vegetation clearance)	Establish special districts funded by homeowners to conduct wildfire mitigation services for the neighborhood (e.g., clear and maintain vegetation, install signage, develop evacuation plans).
Proper access	Require adequate road (20 to 28 ft.) and driveway (12 ft.) widths and clearance (13.5 ft. vertical and 10 ft. horizontal) to accommodate fire-fighting equipment. Limit grade of roads to 10-15% and require multiple access points for larger developments.
Signs	Require that street signs and address markers be noncombustible easy-to-read, and well-located. Dead-end roads should be clearly signed.

Neighborhood

- Clustering ordinances

- *Kootenai County, Idaho offers a bonus density for conservation-oriented subdivision, which must preserve at least twenty percent of property within the subdivision. The use of this clustering, and its commensurate open space, is guided in part by compliance with the substantial wildfire preparedness terms in the section, which require substantial pre-planning of the community for wildfire. It also requires the subdivision proposal to show short and long term plans for eliminating dangerous vegetative and fuel conditions in and around proposed building sites and requires canopy cover in these areas to be less than 50 %, with lower branches pruned, the ground should be relatively free of debris, and ladder fuels and dead and dying trees removed. Further, the proposal must verify that power lines will be installed underground and confirm that there will be safe and adequate emergency access for residents.*

Regulatory tools – Individual sites (from NFPA)

Individual Site Scale WUI Tools	
Site-specific assessment hazard	Require or allow landowners to perform wildfire hazard assessment of their own property to confirm or establish wildfire hazard level. Use that analysis as the basis for project site design.
Location of accessory structures and flammable materials	Require accessory structures to be separated from other structures (e.g., 30 ft.). Require wood piles and gas tanks to be located 20-30 ft. from primary structure. Fences must be of non-flammable material—or at least within a minimum distance from the structure
Fire-resistant landscaping	Ensure that only fire-resistant landscaping is allowed in hazard area.

Individual sites

- The Power County, Idaho Development Code provides that individual structures, including single-family dwellings, that are located in or adjacent to forested areas, or areas of flammable brushy vegetation, must provide defensible space of at least 30 feet around the home or structure and maintain that defensible space, which is defined as one in which trees are thinned so that crowns do not overlap or touch, woody brush is removed or substantially thinned, and dead fuel is removed.

Regulatory tools – building scale regulations (from NFPA)

Building Scale WUI Tools	
Siding	Require one-hour fire resistant materials, or brick, stone, stucco, or large timber siding, and generally prohibit metal siding in most fire hazard classifications.
Windows	Require or encourage double-paned or small-paned windows.
Eaves and soffits	Require eaves and soffits to be covered and boxed in or covered with mesh that will not allow embers into attic.
Gutters	Require designs that do not collect leaves/needles (and require regular cleaning)
Attic vents	Require mesh coverings with a maximum mesh size of 1/8 inch, or install approved ember-resistant vents
Chimney spark arresters	Require spark arresters on all chimneys.
Decks and porches	Require that under-deck areas of structures 3 ft. or less above the ground be enclosed with wire mesh or fire resistive material. Require that structures farther from the ground be enclosed with a solid fire-resistive skirt, and ensure that these features be constructed of heavy timber or other fire resistant material.

Building codes

- 2015 International Code Council International Wildland-Urban Interface Code
- NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas
- NFPA 1142: Standard on Water Supplies for Suburban and Rural Fire Fighting
- NFPA 1143: Standard for Wildland Fire Management
- NFPA 1144: Standard for Reducing Structure Ignition Hazards from Wildland Fire

Non-regulatory tools - Firewise

- Firewise is a voluntary program that encourages homeowners and neighbors to work together to minimize their wildfire risk. To become a recognized Firewise Community, a community goes through a five-step process. This often occurs at the time of project application and is conducted by the developer, but it can occur later on.
 - *First, the project applicant or community must obtain a wildfire risk assessment from the state forestry agency or a fire department.*
 - *Second, they must convene a working group and create an action plan based on the assessment.*
 - *Third, they or a subsequently created fire board must conduct community outreach events promoting wildfire education or the action plan on an ongoing basis.*
 - *Fourth, the community must invest two dollars per member annually in Firewise activities.*
 - *Fifth, the development must submit an application for approval to the state Firewise liaison.*

Firewise

- Good educational program, but not certainty of results
- Do not mistake Firewise vegetation for Firewise Community designation
- Local planning and building officials, as well as commissions, need to be informed about the limitations of Firewise; in our experience, many developers mis-represent one-time Firewise vegetation as a long-term wildfire solution

Non-regulatory tools - insurance

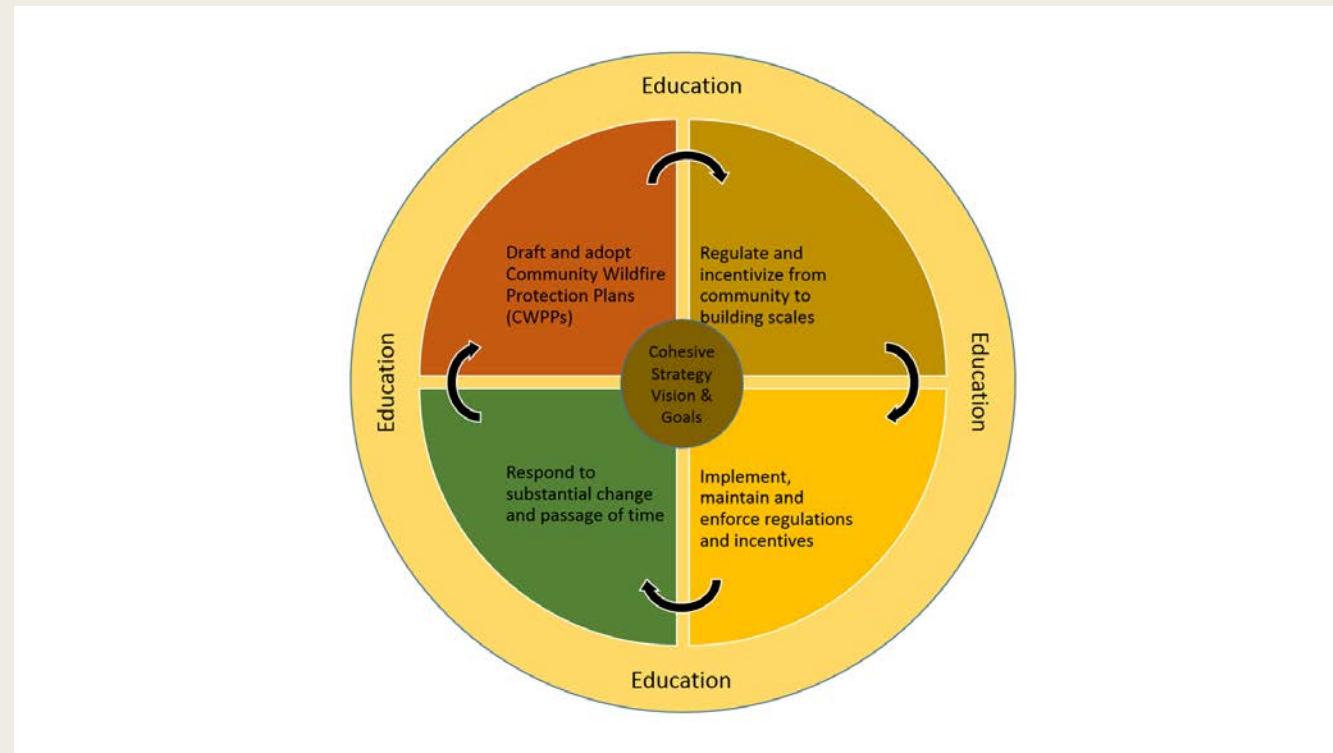
- Cannot resolve the overall costs issue. Why?
- Boulder County, Colorado's Wildfire Partners program, which is administered by the county and run on state and federal grants, offers in-depth property assessments by mitigation specialists to help residents understand their structural and property vulnerabilities. Property owners who successfully perform all required mitigation receive a certificate. The program has two unusual benefits: a financial rebate to cover mitigation costs (e.g., tree removal), the certificate's acceptance by several insurance companies as proof of adequate fire mitigation sufficient to reduce rates or retain coverage.

Non-regulatory tools - HOAs

- Hidden Springs CC&Rs:
- 3.1.7.16 Wildfire Prevention. Establish, implement and enforce all programs, services, activities, restrictions, rules and regulations necessary or appropriate to achieve the "Wild Fire Prevention Strategy" identified in Section 3, 3-19, of the Town Plan, including any and all steps necessary to minimize disruption of wildlife habitat in the form of native ground cover vegetation and existing soil and drainage patterns.

Step 3: Implementation, Maintenance and Enforcement

Step Three: Implement, maintain and enforce regulations and incentives



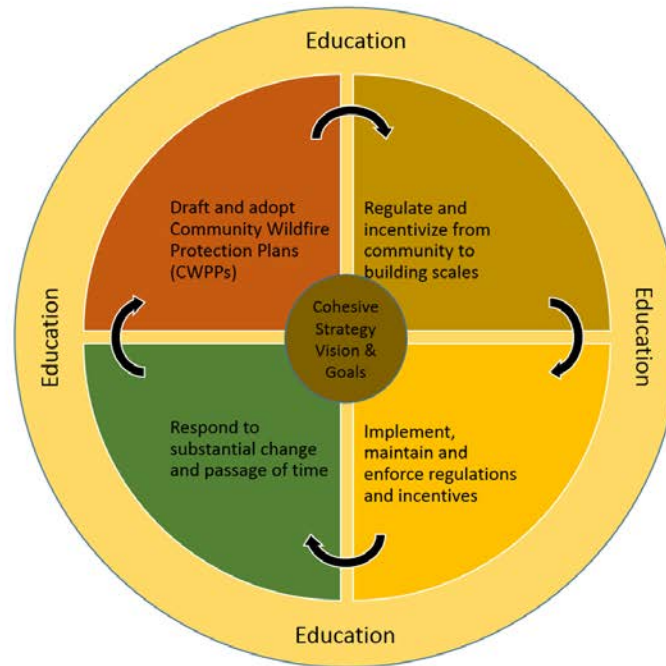
Improving communication

- Who owns “wildfire” in a local government?
 - *Pre-application processes*
 - *Comments on proposals for commission / council review*
 - *Who should control the process of integrating departmental responses to wildfire, and to whom should that person report?*

Other enforcement mechanisms

- HOA CC&Rs
- Cities as 3rd party beneficiaries of HOA CC&Rs
- Development agreements
- Zoning maintenance requirements
- Nuisance abatement for wildfire hazards
- Disclosure of wildfire hazards
- City work for private owners with maintenance agreement

Step 4 – Substantial change occurs



Substantial change can be...

- A wildfire event (or potentially resultant floods or landslides)
- A statutory passage of time, such as 5 years when integrated into AHMPs
- Passage of time tied to local planning cycles, such as local comprehensive planning (California general plans), which often happens on a decade cycle

A resource for trying out related approaches

COMMUNITY PLANNING ASSISTANCE for WILDFIRE (CPAW) (<http://planningforwildfire.org/>)



Communities Selected for 2016-2017 CPAW Program

Where does the grant go from here?

- Two years of outreach and engagement
- Seeking neighborhoods here in Idaho to draft local CWPPs
- What else should we do?
- Return to the guide and update in Year 3
- Risk Perception Survey – conducted in Year 1, will be conducted again in Year 3
- We plan to host a wildfire planning symposium in Fall, 2018 in Boise (stay tuned!)

Responses thus far

Academics' thoughts on the guide

- Is there a “normative” argument in the guide?
 - *Yes. It is the process proposed, which is used in just a few communities.*
- But to influence the academic literature, it may need to tie itself to theories related to resilience and commons management.
 - *Probably cannot be achieved in the same publication as one aimed at practitioners.*

Practitioners' thoughts on the guide

- How realistic is this model?
- What would it take to implement?
- Practitioners tend to pick out one or two items of interest, but seem to have little interest in the framework.

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Questions and comments

- Contact: Stephen R. Miller (millers@uidaho.edu)

