WORKSHOP SUMMARY REPORT

Workshop hosted by the following collaborative partnership:

THE FIRE PROTECTION RESEARCH FOUNDATION | Front Range Roundtable | cbi Consensus Building Institute | NFPA | CCI Public Lands An affiliate of Colorado Counties, Inc. | APA CO

Report prepared by:

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EXECUTIVE SUMMARY

On 17 May 2013 approximately six-dozen land use, fire protection, and safety professionals gathered in Denver, Colorado for a unique one day workshop to address land use policy on the wildland urban interface (WUI). This event, aptly titled "*Wildland Urban Interface Land Use Policy Workshop*", is also referred to herein as the "*WUI Land Use Policy Workshop*".

The Workshop and this Summary Report represent an effort to proactively address the significant losses in Colorado due to disastrous fires in the wildland urban interface. Speakers, panelists and attendees, representing leadership and policy makers, and wildfire mitigation practitioners for the Colorado WUI, provided thought-provoking perspectives on the problems that collectively confront us, a vision for the future of our WUI, and insight into how best to reduce the risk of wildfire on the Colorado Front Range.

The meeting was held in the Denver Art Museum in Denver, Colorado and provided a unique opportunity for local, regional and national stakeholders to come together to discuss WUI land use policy. This event was hosted and/or supported by a consortium of local, regional and national organizations composed of the following: American Planning Association – Colorado Chapter (APA CO); Colorado Counties Inc (CCI); Consensus Building Institute (CBI); Fire Protection Research Foundation (FPRF); Front Range Roundtable; and National Fire Protection Association (NFPA).

Through the presentations and interactive break-out and discussion groups, many ideas emerged as potential areas that Colorado could explore to improve WUI land use policies. These ideas, referred to as recommendations in the report, reflect a spectrum of possible opportunities identified through the workshop. These ideas are not intended to represent the opinions of the individual sponsoring organizations or a consensus view of workshop participants, but they do offer interested readers insight into the ideas discussed and possible avenues for future discussion and possible action. The key recommendations outlined in this report include:

1) ***Public Education Outreach*** – Educate elected officials using recent data; create consistent, clear and easily understood messaging; and better utilize risk models for homeowners.
2) ***Stakeholder Training/Involvement*** – Provide training that promotes and improves dialog between the land planning agencies, fire officials and building officials; and provide training for wildfire mitigation efforts with private entities.
3) ***Guidelines and Regulations*** – Coordinate fire mitigation and non-fire related regulations (such as historic preservation, visibility, flood risk, etc.); enforce regulations over time once implemented; provide regulatory oversight of new subdivisions and developments; and utilize model documents in local jurisdictions such as model WUI building codes.

4) ***Planning Tools*** – Combine land use policy and guiding documents such as comprehensive plans with Community Wildfire Protection Plans (CWPPs); use fire hazard risk models that are openly available on-line for homeowners and regularly updated; and provide tax structures with incentives/disincentives for wildfire mitigation activities.

The discussion also yielded certain re-occurring key themes that may help in developing national, state, and local solutions to the most pressing WUI land use issues we face. These include:

- Land use planning is a local issue – one size does not fit all.
- It is important to share lessons learned and current, locally relevant data from recent damaging wildfires.
- Education is key; training is essential.
- There is a need to involve and coordinate stakeholders (including policy makers/government entities) in the discussions.
- There is a need to provide more data and statistics to stakeholders in order to heighten awareness and support changes in behavior.

ACKNOWLEDGEMENTS

This initiative has been a collaborative effort involving input and support from the following:

Planning for this project has taken place over the course of the preceding year through the dedicated efforts of a Workshop Steering Committee. Special thanks are extended to the members of the committee comprised of the following:

Workshop Steering Committee

Boulder County, *Megan Davis (Commissioner's Office), Abby Shannon (Land Use Dept.)*
Colorado Counties Inc *(CCI), Andy Karsian*
Consensus Building Institute *(CBI), Bennett Brooks, Tushar Kansal, Danya Rumore, Doug Thompson*
Fire Protection Research Foundation *(FPRF), Casey Grant*
National Fire Protection Association *(NFPA), Molly Mowery*

The workshop has been made possible through generous financial support from the:

National Fire Protection Association

This workshop summary report has been prepared by Casey Grant, Research Director for the Fire Protection Research Foundation, with assistance from the Workshop Steering Committee. The information contained herein is based on the input of numerous professionals and subject-matter-experts. While considerable effort has been taken to accurately document this input, the final interpretation of the information contained herein resides with the report author.

Photographs included in this report were taken at the Workshop or provided through "InciWeb: Incident Information System" (at www.inciweb.org) of the Waldo Canyon Fire and High Park Fire

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1) INTRODUCTION AND BACKGROUND

Recent fire seasons in Colorado have been severe and destructive. The cost of lost homes from the three most devastating fires in Colorado history is $667 million. All of these fires have occurred along the Front Range in the Wildland Urban Interface (WUI) over the past three years. The national annual cost of wildfire suppression has risen to $3 billion, more than twice what the costs were a decade ago. Recent data suggests that this trend will continue due to climate change, increased growth of the WUI, and other external factors (e.g., poor health of forests).

Development continues in Colorado's WUI area with some data projecting as high as a 300% increase in the Colorado WUI by 2030. Throughout the west, 84% of private lands near fire-prone public forests are undeveloped, and building is expected to continue, particularly in areas in close proximity to metro centers such as the Front Range.

As part of this development, local, regional and national stakeholders all have a vested interest and significant opportunity to protect life and property values in these hazardous environments. With recent devastating wildfires still vivid, Colorado decision makers, along with regional and national stakeholders, were invited to a one-day workshop to discuss how locally-crafted land use policies can lessen wildfire risks.

Wildland fires, and especially those that interface with the urban environment, are typically a complex phenomenon that demand widespread resources for preparedness, suppression, recovery and restoration. Further, the factors that influence the severity of these disasters are diverse, including topography, vegetation type, development density, access, etc., and requiring unique solutions for every jurisdiction.

External influences such as climate change are looming ominously on the horizon as having significant impact on wildfires. A series of reports from Headwaters Economics located in Bozeman, Montana, indicate that a 1º F increase in summer temperatures in Montana would at least double home protection costs, an annual increase in average summer temperature of 1º F in California's Sierra Nevada would lead to a 35 percent growth in area burned, and a rise in average summer temperature of 1º F in Oregon would result in an increase of approximately 420 wildfires (source: http://headwaterseconomics.org/wildfire/fire-research-summary).

The policies that address land use are a key component in the arsenal available to decision makers to mitigate wildfire disasters. With this as a basis, this workshop was conducted with the following objectives:

- Increase dialogue among 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 the event's highlights and outline potential next steps.

2) WORKSHOP OVERVIEW AND AGENDA

This one-day workshop was conducted in Denver, Colorado on 17 May 2013. The workshop agenda is illustrated in Figures 1 and 2. The workshop was split into a morning session focused toward the interests of policy makers, while the afternoon session had a focus toward land-use planners. However, the overall agenda was coordinated so that the entire workshop would be of interest to all stakeholders involved with WUI land use issues.

8:30 – 9:00 AM	**Registration**
9:00 – 9:15 AM	**Welcome and Opening Comments** Jim Shannon, *President, National Fire Protection Association* Jeanne Nicholson, *State Senator, Colorado District 16 (Gilpin County)* Paul Cooke, *Director, Colorado Division of Fire Prevention and Control*
9:15 – 9:25 AM	**Workshop Overview and Introductions**
9:25-10:25 AM	**Panel Discussion: Understanding the Opportunity and Challenges in Using Wildfire Regulations in Local Development Codes** *Moderator:* Jill Ozarski, *Natural Resources Policy Advisor, Office of Senator Udall* *Panelists:* Chris Mehl, *Policy Director, Headwaters Economics* Dan Gibbs, *Commissioner, Summit County* Don Elliott, *Director, Clarion Associates*
10:25-10:40 AM	**Break**
10:40-11:10 AM	**Case Study: What's Been Done and Worked Elsewhere** Brett Lacey, *Fire Marshal, Colorado Springs Fire Department*
11:10-11:50 AM	**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?
11:50-Noon	**Summary Comments**
Noon-1:00 PM	**Lunch**

Figure 1: Workshop Agenda Part1 - Policymaker Forum

1:00-2:30 PM	**Understanding the Nuts and Bolts of Using Local Development Codes to Alleviate Wildfire Threat** *Moderator and Opening Comments:* Don Elliott, *Director, Clarion Associates* *Presentations:* Gary Goodell, *Boulder County* Andrew Notbohm, *Boulder County* Jill Alexander, *Douglas County*
2:30 – 2:45 PM	Break
2:45-3:30 PM	**Small Group Discussion: How Might Wildfire Regulations Make a Difference in Your Communities?** *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?
3:30-3:55 PM	***Plenary Discussion: Taking Stock and Determining Next Steps***
3:55-4:00 PM	***Closing Remarks***

Figure 2: Workshop Agenda Part 2 - Planner Focus

Approximately six-dozen land use, fire protection, and safety professionals attended, and the list of attendees is included in "*Annex A: "Workshop Participants and Attendees*." In particular, the workshop focused on providing important value-added tools and information for County Commissioners and land use planners in the Colorado region.

The genesis for this event was a concerted effort among local, regional and national stakeholders to address WUI related fire disasters. This has been magnified in the last several years due to recent large-scale disasters. Mitigating these disasters is a clear priority for all stakeholders, at all levels.

As represented by the event title: "*Wildland Urban Interface Land Use Policy Workshop*", the workshop was an exercise to proactively address the significant losses that have been occurring due to disastrous fires in the wildland urban interface. Speakers, panelists

and attendees, representing the leadership of the Colorado wildland urban interface, provided thought provoking perspectives on the problems that collectively confront us, a vision for where we may be heading, and insight for how best to address WUI concerns in the future.

The workshop was held in the Denver Art Museum in downtown Denver, Colorado. This event was hosted and/or supported by a consortium of local, regional and national organizations composed of the following: American Planning Association – Colorado Chapter (APA CO); Colorado Counties Inc (CCI); Consensus Building Institute (CBI); Fire Protection Research Foundation (FPRF); Front Range Roundtable; and National Fire Protection Association (NFPA).

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3) PRESENTATIONS AND DISCUSSION

The workshop had a dual focus approach, with the morning session focused toward the interests of policy makers, while the afternoon session addressed the interests of land-use planners. The morning session was referred to as "*Part 1: Policymaker Forum*", and the afternoon session was titled "*Part 2: Planner Focus*."

Despite this dual focus, the overall agenda was coordinated so that the full day would be of direct and indirect interest to all stakeholders involved with WUI land use issues. Some of the speakers used PowerPoint slides; these were combined into a single PowerPoint presentation that is included in "*Annex B: "Workshop PowerPoint Slides*."

Following introductory remarks, the workshop opened with welcoming comments and remarks from several keynote speakers. This included Jim Shannon, *President, National Fire Protection Association*, Jeanne Nicholson, *State Senator, Colorado District 16 (Gilpin County)*, and Paul Cooke, *Director, Colorado Division of Fire Prevention and Control*.

This was followed by a panel discussion that addressed "*Understanding the Opportunity and Challenges in Using Wildfire Regulations in Local Development Codes"*. This panel was moderated by Jill Ozarski, *Natural Resources Policy Advisor, Office of Senator Udall*. Jill also provided opening remarks on the topic being addressed by the panel. The other members of the panel, each of whom gave a short presentation, were the following: Chris Mehl, *Policy Director, Headwaters Economics*; Dan Gibbs, *Commissioner, Summit County*; and Don Elliott, *Director, Clarion Associates*.

Next during the morning session was a case study presentation from the Colorado Springs perspective, entitled: "What's Been Done and Worked Elsewhere." This was presented by Brett Lacey, *Fire Marshal, Colorado Springs Fire Department*, with support from Amy Sylvester of the Program Coordinator, *Colorado Springs Fire Department*. They addressed the details of the Waldo Canyon Fire from June of 2012 which lost about 350 homes. Included among the notable details of this event is that the fire spread was significantly enhanced by flying embers, with many homes burning from the top down. In addition, they also addressed various mitigation techniques and approaches used within the Colorado Springs jurisdiction, with particular focus on a transparent on-line risk model that is regularly updated by the fire department and which has been a significant factor in public outreach.

The penultimate morning session involved small group discussions, where each table of approximately eight attendees gathered for approximately 20 minutes to independently address the following set of 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?*

Following the small group discussions, the morning session wrapped up with a plenary debriefing of the small group discussions, and an open discussion of the entire morning session. This resulted in multiple points being included on a flipchart, and these are illustrated in Figure 3, "Summary of Flipchart for Plenary Debrief of AM Small Group Discussions."

- Public Education is key
- Get stakeholders together
- Need to update homeowners association covenants
- Regulations may be hard to enforce
- Embers are major risk
- Strong compliance plans
- Tax structure to discourage building outside of fire protection zone, and incentives for mitigation
- Need to find common ground with different points of view
- Local control
- Make known data public
- Look to insurance industry as ally
- Agree to compromise by providing public safety but de-prioritize saving homes in far-out, remote areas.

Figure 3: Summary of Flipchart for Plenary Debrief of AM Small Group Discussions

The afternoon session was titled "*Part 2: Planner Focus*" and started with a panel discussion on "*Understanding the Nuts and Bolts of Using Local Development Codes to Alleviate Wildfire Threat*." This was moderated by Don Elliott, *Director, Clarion Associates*, and he also provided remarks similar to the other panelists using PowerPoint slides. The other panelists included the following: Gary Goodell, *Boulder County*; Andrew Notbohm, *Boulder County*; and Jill Alexander, *Douglas County*.

Similar to the format of the morning, the penultimate afternoon session involved small group discussions, where each table of approximately eight attendees gathered for approximately 20 minutes to independently address the following set of 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?*

Following the small group discussions, the afternoon session wrapped-up with a plenary debriefing of the small group discussions, and a open discussion of the entire afternoon session. This resulted in a range of points being made and recorded on a flipchart. These are illustrated in Figure 4, "Summary of Flipchart for Plenary Debrief of PM Small Group Discussions."

- Defensible space program is effective
- Need to coordinate efforts across departments
- Incentive based programs
- Challenge is existing homes
- Mitigation across huge area is challenging
- Ongoing maintenance is challenging
- Strategy – inclusion and coordination – use community enthusiasm
- Provide information to public and policy makers
- Need better communication between local, state and federal governments
- Greater responsibility at local level
- Policy in summit county = making HOWs responsible for enforcing forest health management plans.
- Have guidelines for key elements to include in management plans.

Figure 4: Summary of Flipchart for Plenary Debrief of PM Small Group Discussions

As the workshop was drawing to a close, an open discussion was facilitated that took stock of the discussions throughout the day and attempted to clarify possible next steps. This resulted in the various points being recorded on a flipchart, and these are summarized in Figure 5, "*Summary of Flipchart for Final Plenary Discussions*."

- Key to brief policy-makers on 2-3 important ideas
- Publicize data to elected officials, fire hazard mapping
- Adult behavior modification - messaging and conveying info to influence behavior
- Key to incorporate fire risk into subdivision review
- Interaction of two goals/trends - resident safety, reducing suppression costs
- Should we allow people to build in high-risk areas? Should everyone pay for their decisions?
- Behavior modification bridges between structural and suppression
- Fire officials need to interact more with planning and building officials
- Messaging to kids will impact the future
- Need to enforce after initial inspection
- Models, data are available, monetary and political costs are high, need to convince elected officials of long-term interests.
- Have to engage with politicians to set agenda, and include this on the agenda.
- Building requirements do really work
- Need to demonstrate the utility for political will
- Counties should focus on their comp plans.
- All players in collaboration should play active role
- Wildfire season can be good time to move!
- State employees have outreach tools to use
- Douglas and Boulder Counties are models
- School curriculum around mountain living
- Use Smokey Bear for messaging
- Insurance industry should be a part of the discussion

Figure 5: Summary of Flipchart for Final Plenary Discussions

Final remarks were offered on behalf of the Steering Committee, with thanks offered for all who participated in the workshop. It was indicated that the report of this workshop is intended as a deliverable, and workshop participants will be notified when it becomes available on-line. This will hopefully serve as a point of leverage and enable other efforts that help address the WUI fire problem.

4) SUMMARY OBSERVATIONS

A review of all the key themes and pertinent points of information that were raised during the workshop were distilled into a set of summary observations. This is based on presentations and discussions that occurred throughout the Workshop, along with supplemental information where referenced in Workshop discussions.

Once identified, the key themes and other pertinent points were separated into logical groupings. This has ultimately resulted in the following three basic categories of information: (1) Broad Concepts; (2) Specific Recommendations; and (3) Trends.

A further synthesis and outline of the information has revealed multiple common themes, and the result of the distillation process is the outline of information shown in Figure 6, Summary of Key Themes. Sub items are included for the first two categories of Broad Concepts and Specific Recommendations, though not for Trends since these involves a relatively lengthy string of independent pieces of information such as statistical data.

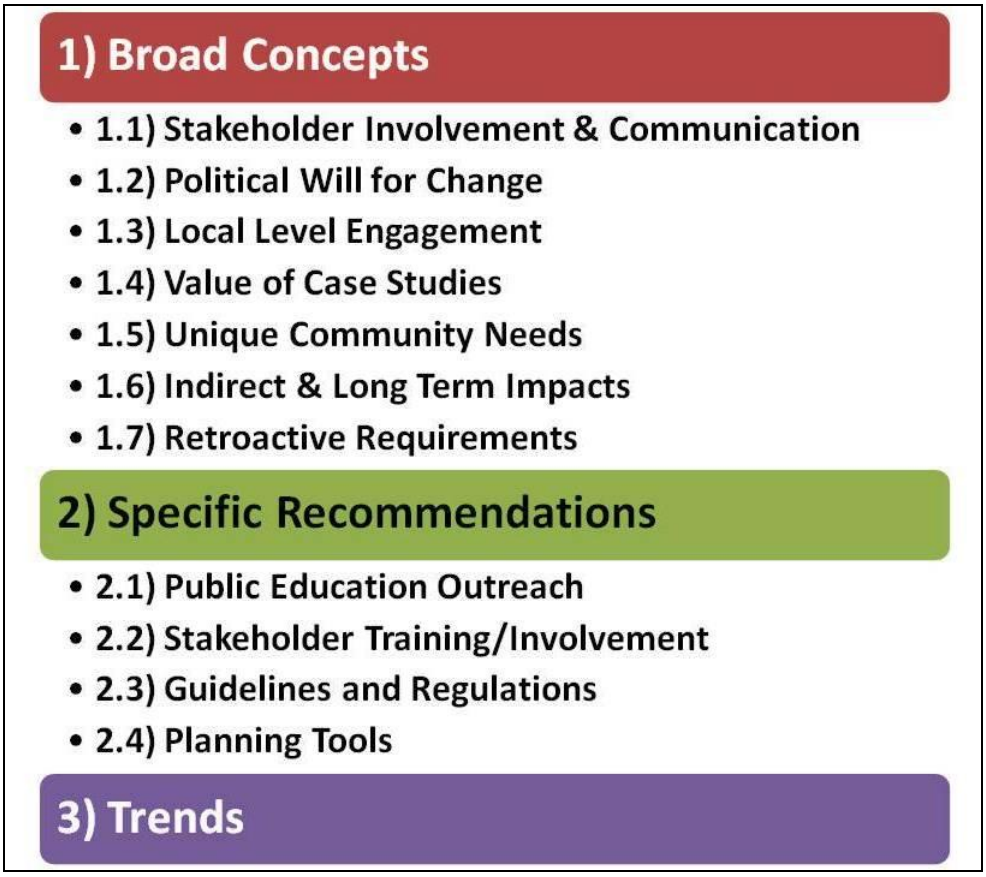

Figure 6: Summary of Key Themes

There is significant background detail for each of the items identified in Figures 6. This background detail, which is representative of all the presentations and discussion at the Workshop, is organized and provided in the following summary compilation. This is effectively a download of *all* the information collected and summarized at the workshop.

1. Broad Concepts

1.1 Success Depends on Comprehensive Stakeholder Involvement and Communication

- **Code Development Involvement:** We need to have active stakeholder involvement in the code development process and have well defined scope of participation.
- **Community Enthusiasm:** Effectively use community enthusiasm. Leverage all passionate stakeholders and don't slow them down if they want to champion a specific cause.
- **Competency:** We need to have the right people involved. Stakeholders need to be competent and should actively participate.
- **Comprehensive Approach:** Need multi-faceted approach. There is no simple answer, and interactive work on these issues is needed. Leverage the review of stewardship programs and collaborative partnerships.
- **Full Collaboration:** It is critical to collaborate with all stakeholders. Work closely and network with folks of common interests. Be inclusive with all stakeholders. Where there are differing opinions, identify opportunities early on and use data to address stakeholder concerns and disagreements. Specific examples are: include less obvious ones like community clubs, etc; Include all appropriate public officials and policy makers; and promote fire officials to interact more with planning and building officials.
- **Insurance:** We need to better engage the insurance groups. Look to the insurance industry as an ally with shared interests in protecting homeowners. Insurance may be able to assist with data and risk concepts.
- **Inter and Intra County Dialogue:** Counties should have linkage between plans.
- **Resources:** The resolution to these problems far exceeds any single resource, and a collective effort is needed to resolve.
- **Two Way Dialogue:** The up-and-down and down-and-up dialogue is critical. Assessing all layers of government and coordinating them is an important activity. It is critical to have good communications and to coordinate efforts across departments. There needs to be better communications through all levels, up and down.

1.2 Supporting the Political Will for Change is Critical

- **Awareness:** It is important to leverage disasters to elevate the political will and need to get the ear of the politicians. Use tools to publicize data for elected officials and others, such as fire hazard mapping.
- **Leadership:** We need leadership and networking, much like is being demonstrated by this workshop.
- **Long Term Impact:** We need to continually convince elected officials of long-term

interests.

- **Political Inertia:** We need to provide elected officials with political inertia. They need solid backing to proceed with good political cover.

1.3 Engagement on the local Level is Critical

- **Cultural Adaptation:** The culture of city transplants is an issue. We don't address human behavior enough, especially with educating city transplants (e.g., 2nd homes) who do not understand what it takes to maintain their property.
- **Education:** Need greater overall education with property owners.
- **Local Support:** Successful land use must respect local needs. Land use is a local issue, and we need to work closely with stakeholders. The solutions start at home.
- **On-Site Knowledge:** Locals know there land use better, and thus the local component is critical. Communities themselves are best suited to evaluate their own risks.

1.4 Value of Successful Case Studies is Significant

- **Code Development:** Code development requirements really work, and successful case studies show their effectiveness.
- **Example Case Study:** An example of an important Fire Case Study: The Waldo Canyon Fire of June 2012
- **Fire Adapted Communities:** Case studies are effective in supporting our efforts to build fire adapted communities.
- **Lessons Learned:** We need to learn the hard lessons from previous disasters to avoid repeating them. We can clearly learn from each other, and we want to share our lessons learned.
- **Opportunity for Progress:** Disasters are unfortunate but a great opportunity to make progress. An example of a non-fire disaster is the bark beetle.
- **Political Leverage:** Political cover and political need to leverage the emotional cost of recent disasters

1.5 Every Community has Unique Needs

- **Comprehensive Approach:** Need multi-faceted approach. There is no simple answer, and interactive work on these issues is needed. Leverage the review of stewardship programs and collaborative partnerships.
- **Need for Adaptable Approach:** Policy efforts need to be flexible and adaptable. While there are commonalities between communities, ultimately what is right in one community is not necessarily right in other communities. The spectrum of risk aversion and acceptance is wide.

1.6 Indirect and Long-term Impacts are Significant

- **Awareness:** The long-term impact of disastrous fires is often under-appreciated and not considered. Examples are environmental impact or the loss of the watershed that directly impacts drinking water supplies.
- **External Influencing Factors:** Impact of external influencing factors is significant, such

as climate change.

- **Measurement:** Better measurement of indirect and long-term impacts are needed.
- **Over-Arching Philosophical Question:** Should general population have to foot the bill for risks taken by individuals. Should we allow people to build in high-risk areas? Should everyone pay directly for their decisions?
- **Primary Driver:** Today, modern fire fighting expenses are being driven by the homes, and not the wilderness.
- **Research:** Working with insurers and others, consider providing research activities that would analyze the economic impact for homes that are more remote versus less remote, as well as the costs of fire suppression services for these homes.

1.7 Retroactive Requirements are a Special Problem

- **Challenge of Existing Construction:** How to handle existing construction, that constitutes a hazard by today's measures, is a significant challenge. Depending on the area, existing homes can provide a significant collective threat.
- **Ability to Regulate:** New developments are the easiest target for regulations. They are coming to regulators looking for permission to build, and regulators have leverage. Interaction of threats is important, as well as balancing the resource impact of regulations over the long-run.
- **Timeliness of Regulation:** Implementing appropriate regulations in a timely fashion is important, since existing homes are typically addressed through attrition.

2. Specific Recommendations

2.1 Public Education Outreach

- **Educational Focus:** Public Education is critical and should be a key part of the overall strategy. Educational program is pivotal in solidifying stakeholder involvement, and honest dialogue is huge in getting community buy-in. Education programs need to be regularly maintained and updated. Ultimately, it's all about education, which helps promote a sense of involvement and ownership with homeowners.
- **Education Outreach for Elected Officials:** Provide educational outreach specifically geared toward public officials, with data and other information that is important to them for addressing the political will, such as fire hazard mapping
- **Education Outreach for Homeowners:** Need to better engage and enable involvement of homeowners. Proliferation of incoming urbanites is special education challenge and needs more attention. There is a cultural divide that involves a human behavior aspect with naïve newcomers. Education is critical.
- **Education Outreach for Younger Generation:** Provide educational to children, through all levels. Capitalize and leverage the widespread of iconic representatives such as Smokey the Bear, or icons with universal appeal.
- **Messaging Strategy:** Need consistent, clear and easily understood messaging with out-reach. Use accurate data and make it openly accessible. Need to include all stakeholders, and especially homeowners. Focus on adult behavior modification and

social engineering done through education. Leverage community enthusiasm

- **Outreach Using Risk Models:** Better utilize risk models through transparent platforms (i.e. on-line) that address specific risk factors such home siding and other materials, inclines, topography defensible space, fuels, etc. Keep the openly available risk models fully updated and well maintained.
- **Utilization of Programmatic Education:** Need better recognition of proven programmatic educational tools, such as programs relating to Firewise Communities.

2.2 Stakeholder Training/Involvement

- **Communications:** Provide training that reduces networking barriers and improves stakeholder communications. For example, provide training that improves the understanding and dialogue within a specific jurisdiction between the land planning official, the fire official, and building official.
- **Outsourcing of Training:** If resources do not support in-house training, consider out-sourcing training and including a fee structure that provides overall programmatic support. This approach is sometimes effectively used with other hazards (e.g., floods), and can likewise be readily implemented for fire hazards. For example, consider training to allow contractors to process tree marking, with the appropriate credentialing and/or certification to assure that quality and credibility is maintained.
- **Training Strategies:** Focus on providing the necessary training to all stakeholders, with specific elements tailored to specific stakeholders groups. Emphasize training for on-going efforts, such as the need to continue enforcement after an initial inspection. Leverage proven training programs that support overall program goals.
- **Use Training to Leverage Institutionalized Programs:** Include specific content in stakeholder training that fosters an understanding and appreciation of proven programmatic educational tools, such as programs relating to Firewise Communities.
- **Use Training to Leverage Insurance Involvement:** Provide specific training outreach to engage insurers and related insurance groups. They have an important role that is typically underutilized and needs to be better coordinated among the other stakeholders. For example, work with insurers to incorporate their risk data into available community risk models that are openly available to homeowners and others in the community.
- **Use Training to Leverage Public Official Involvement:** Provide training geared specifically to serve the needs of public officials and to provide them with the information necessary to address the political will. Include specific information tools as appropriate, such as fire hazard mapping.

2.3 Guidelines and Regulations

- **Coordinating Fire and Non-Fire Regulations:** Regulations addressing fire protection need to be coordinated and balanced with regulations addressing other community issues. Examples include not only other hazard related topics such as floods, but also non-hazard topics such as historic districts.
- **Enforcement:** Only adopt and implement regulations in a particular jurisdiction that are

realistic and can be properly enforced through an on-going inspection and enforcement programs. Promote dialogue and interactions between fire officials and both planning officials and building officials.

- **Regulatory Focus for Subdivisions:** Consider using model documents to provide regulatory oversight of new subdivisions. Regulators should utilize their inherent leverage by allowing or not allowing permission to build. Work with and enlist the help of home builder groups and developers for new developments or when rebuilding fire damaged areas, and treat them as an ally (e.g., to mandate the best materials). Be serious about subdivision regulations and development agreements, as they are the key to land use tool to prevent new development in WUI fire risk areas.
- **Regulatory Focus in Populated Areas:** The collective risk from wildfire is greater in more populated areas, and thus regulations should be considered as a tool for addressing these areas. Today the implementation of regulations is directly related to population density with more regulations generally in more densely populated areas. Restrictions in the name of safety are more justifiable in more populated areas, since modern fire fighting expenses are being driven by homes built in the wildland urban interface.
- **Regulatory Tactics:** Use zoning regulations and site plan review standards to reduce risks in already developed areas. Integrate zoning, subdivision and land use regulations with fire and building codes to better address wildfire risk. Use regulations to control priority control factors, such as defensible space and roof materials. Examples of regulatory approaches include replacing existing materials in some cases: Class A roofing; Exterior walls being ignition resistant; solid core doors; double pane glazing; attic screens; gutters; decks; and fuels management (trees; dead limbs; brush; and safety zone).
- **Retroactivity:** Consider regulatory tools to address existing homes that constitutes a hazard by today's measures. Retroactive regulations are particularly challenging and can be difficult to implement due to inherent community resistance. Depending on the area, existing homes can provide a significant collective threat. Implementing appropriate regulations in a timely fashion is important, since existing homes are typically addressed through attrition, and the longer it takes for implementation to address new construction the bigger the problem with regard to retroactivity.
- **Utilize Institutionalized Programs:** Consider implementation of proven regulatory-based tools, such as Fire Adapted Communities. Learn how other cities and counties have successfully used regulatory tools to address wildfire risk.
- **Utilize Model Documents:** Implementation of new regulations should consider existing model documents intended for the specific purpose, such as the latest edition of NFPA 299, *Standard for Protection of Life and Property from Wildfire.*

2.4 Planning Tools

- **Community Wildfire Protection Plan:** We need to match land use policy with Community Wildfire Protection Plans (CWPPs), which are a ubiquitous tool. The CWPPs need to be fully integrated with comprehensive plans and land use regulations. Local

jurisdictions need to tie back approvals for their particular districts. Consider other supplemental approaches such as a county wildfire council.

- **Fire Hazard Risk Models:** Consider fire hazard risk models that are regularly updated and openly available on-line for all homeowners in the community. This provides an effective adult behavior modification tool, and has previously demonstrated the risk homeowners have with their neighbors and others in the community.
- **Planning Tools at the Community Level:** Implement land use tools at the local level and integrate them with fire and building codes to better address wildfire risk, with example such as: zoning; subdivision; site-planning / design-review; and development agreements. Consider categorization of the scale tools based on use as follows: community; neighborhood; individual lot, and structure. Consider outsourcing various tasks if resources are not available. Increase the use the use of institutionalized programs such as Firewise Communities.
- **Planning Tools at the State-Level:** Consider State-level tactical planning tools, such as: grant programs that match state money with local money; funding for wildfire occupational safety health emergency response; money for controlled burns; establishment of interagency local groups; homeowner insurance reform; all-hazards mobilization to include floods and other disasters; funding for chainsaw and community backslash classes; and biomass legislation to support other ways to use wood products to help pay for other programs.
- **Planning Tools for Homeowners:** We need to update homeowner's association covenants. This includes achieving better fire protection by focusing on defensible space and roof materials. Consider tactics such as the Defensible Space Program.
- **Research:** Initiate research projects to analyze the economic impact for homes that are more remote versus less remote, the costs of fire suppression services for these homes, with consideration of influencing factors such as anticipated growth, adjusted cost of mitigation measures, and climate change. Work with insurers and others to leverage all available risk related data.
- **Subdivisions:** Consider it a priority to implement serious regulations and development agreements for new subdivision, which are the key land use tool to prevent new development in WUI fire risk areas. Likewise, consider it a priority to use zoning regulations and site plan review standards to reduce risks in already developed subdivision areas. Attempt to push financial burden onto the developer rather than subsequently onto the homeowner. Use tools such as a Site Plan Review (SPR) and a Wildfire Mitigation Plan (WMP), and try to leverage a reduction on fire insurance.
- **Tax Based Planning Tools:** Consider a new tax structure that would coordinate a disincentive in certain cases but also provide an incentive in other cases, such as maintaining property cutbacks or building outside a fire protection zone. Funds raised from these taxes could directly fund programs such as hazardous materials reduction grants.
- **Transferable Development Rights:** Implement land use development rights that are transferable to preserve land owner values, with a focus on mitigating the wildfire risk and implementation in areas requiring safety protection.

3. Trends

- **Colorado Development:** Eighty percent (80%) of Colorado is not developed, and forty percent (40%) of housing is comprised of second homes.
- **Cost Share:** Expect a push down on needed resources from the federal level down onto the state level.
- **Federal Support:** Last year this was a $2B expenditure, and in previous years was only $1B. Federal dollars have been increasing, but this is not a sustainable trend and is expected to level and eventually diminish.
- **Fire Fighting Support:** Half of current annual resources go to fire fighting.
- **Growth of Fire Fighting Services:** Unless action is taken, the current growth of the cost of fire fighting will double in 15 years. This is not a sustainable model.
- **Recent Loss Trend:** Losses in recent years have been staggering, and the trend is increasing. WUI disasters appear to be the biggest challenges being faced by the fire protection community.
- **Sustainability:** Federal resource support is in an upward trend that is not sustainable.

5) NEXT STEPS

In the landscape of WUI land use policy, this workshop was unique. Here, local, regional and national stakeholders came together to directly address policy related issues that directly impact Colorado's WUI environment. A significant amount of information was captured from this workshop, and breadth of the topics covered was extensive.

Of particular interest are the specific recommendations that have resulted for "next steps." These recommendations are based on the information processed in the previous section, which has its origin from all the presentations and discussions at the Workshop.

Through the presentations and interactive break-out and discussion groups, many ideas emerged as potential areas that Colorado could explore to improve WUI land use policies. These ideas, referred to as recommendations in the report, reflect a spectrum of possible opportunities identified through the workshop. These ideas are not intended to represent the opinions of the individual sponsoring organizations or a consensus view of workshop participants, but they do offer interested readers insight into the ideas discussed and possible avenues for future discussion and possible action. The key recommendations outlined in this report include:

1) ***Public Education Outreach*** – Educate elected officials using recent data; create consistent, clear and easily understood messaging; and better utilize risk models for homeowners.
2) ***Stakeholder Training/Involvement*** – Provide training that promotes and improves dialog between the land planning agencies, fire officials and building officials; and provide training for wildfire mitigation efforts with private entities.
3) ***Guidelines and Regulations*** – Coordinate fire mitigation and non-fire related regulations (such as historic preservation, visibility, flood risk, etc.); enforce regulations over time once implemented; provide regulatory oversight of new subdivisions and developments; and utilize model documents in local jurisdictions such as model WUI building codes.
4) ***Planning Tools*** – Combine land use policy and guiding documents such as comprehensive plans with Community Wildfire Protection Plans (CWPPs); use fire hazard risk models that are openly available on-line for homeowners and regularly updated; and provide tax structures with incentives/disincentives for wildfire mitigation activities.

For convenience these four key recommendations are summarized in Figure 7, Overview of Workshop Recommendations. They are offered as the basis for considering the next steps and related future activities coming out of this Workshop.

Figure 7: Overview of Workshop Recommendations

It's noted that there is overlap between these four overarching groupings of recommendations. For example, the first and second on Public Education Outreach and Stakeholder Training/Involvement have similar goals and occasionally can be categorized in either group. Likewise, the third and fourth groups addressing Guidelines and Regulations and Planning Tools also arguably have some overlap, though here planning tools are considered to be other than the traditional codes, standards, guidelines or best practices, and meant to address planning tools such as risk assessment models.

As already mentioned, a significant amount of information was captured from this workshop and the breadth of the topics covered was extensive. Thus, to support the aforementioned key recommendations outlined in Figure 7, more extensive detail is offered to help substantiate the logic of these recommendations and, just as importantly, to further promote consideration of all possible outcomes from the workshop. The following is the baseline-detailed information that supports the recommendations indicated in Figure 7:

PUBLIC EDUCATION OUTREACH

A. Course Development. Develop a course or session that educates audiences on building and land use regulations to reduce wildfire risk. Include links such as NFPA's Home Ignition Zone (HIZ) courses (or expand on the current HIZ course with more in-depth information regarding regulations). Provide continuing education credits. Build out the web-based content to provide audiences with more substantive information on applicable regulations and their challenges and successes. Clarify the role HIZ and home assessments play in successful regulation and land use planning.

B. Existing Programs. Leverage and further proliferate existing education awareness programs like the Fire Adapted Communities, the Firewise Communities/USA recognition program and the Ready, Set, Go! Programs.

C. **Legislative Briefing**. Organize a legislative briefing (e.g., in Washington, DC) that brings together stakeholders and government officials who are addressing this issue. Provide statistics and data, budget trends, community stories etc. and an agenda that encourages next steps.

D. **Products**. Create a brochure or another simple "products" that addresses community wildfire safety and regulation and land use planning; provide it online and offer it at presentations and workshops and in meetings with community members, civic leaders and residents.

E. **Webinars**. Develop a webinar series (e.g., bi-annual) to introduce/promote a best practices guide (e.g., NFPA's) and/or the steps communities can take to address their wildfire risk based on the outcomes/themes of the earlier study on Regulatory Assessment Tools. Consider using a panel that includes the following professionals: planners, fire marshals, zoning officials, builders, developers, policymakers, foresters, and insurers. Consider targeting the webinar to specific audiences.

STAKEHOLDER TRAINING/INVOLVEMENT

F. **Best Practice Guidance**. Develop, promote and conduct a webinar series in support of best practices guidance that is focused on engaging stakeholders.

G. **Professional Networks**. Create and promote local partnerships, coalitions and/or interagency groups focused on regulatory issues. Include applicable stakeholders such as fire service, planners, fire and forestry non-governmental agencies, developers, builders, insurers and civic leaders, and others. Bring groups together once a year for updates and lessons learned, success stories, etc. Use the Backyards & Beyond conference as a possible model approach. Develop a collaborative planning stakeholder model that helps identify stakeholders that could or should be included in the process.

H. **Regulatory Outreach**. Promote existing programs to regulatory decision makers through presentations at relevant conferences, such as Fire Adapted Communities and Firewise. Consider developing a schedule with partners/stakeholders for implementation. Focus on outreach to State Senator and State Representatives, with the intent of providing them with the information and tools needed to address and help move the political will. Likewise provide outreach and education efforts focused toward state, county, city/town planners and others who are critical to the adoption of regulatory strategies.

I. **Workshops**. Create a workshop template and conduct additional workshops (similar to this workshop). Consider targeting other high risk states and regions, including additional expertise (e.g., insurance), and using alternative formats such as train the trainer, focus groups, etc… Focus on providing deliverables that include real action steps for that particular community or region. Consider alternative formats to these workshops, such as a train the trainer session, focus groups, or a panel discussion (or pre-conference session etc) tied to other approaches such as NFPA's Backyards & Beyond Conference. Establish realistic timetables for implementing these workshops.

GUIDELINES AND REGULATIONS

J. **Best Practice Guide**. Create a best practices guide and supporting workbook that

supports all the key concepts recommended from this workshop. Coordinate this information with workshops, course materials, etc.

K. **Existing Documents**. Actively leverage existing regulatory documents and promote their availability and usage (e.g., NFPA 1141, *Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas*; and NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*).

L. **Regulatory Assessment**. Clarify the tools available assessing the effectiveness of regulations (and guidelines if applicable). Identify gaps and recommend applicable metrics for regulatory assessment tools, not only for the regulations themselves but also for how they are implemented (i.e., enforced or applied).

M. **WUI Model Code**. Establish and promote an iconic WUI model code based on existing codes and standards (e.g., NFPA codes and standards). Reformat current standards into one document that is realistic and practical in content, and in a format that will readily enable community use. Make it freely accessible through on-line methods and other means. Promote to communities once it's active and online.

PLANNING TOOLS

N. **Benchmark Existing Communities.** Develop realistic measurement benchmarks and identify "benchmark communities". Analyze and study communities to help decision-makers with understanding the investments scale that will result in efficient outcomes. Explore all mechanisms (e.g., voluntary, regulatory, planning, combinations thereof) within the context of fiscal and wildfire risk reduction performance. Consider non-parametric techniques that use a ranking system where no clear numerical number can be assigned to measure the performance efficiency of communities on a relative scale. Clarify the performance characteristics of these benchmark communities at different scales.

O. **Case Studies**. Leverage or develop new case studies from communities who suffered a damaging wildfire. Openly share lessons learned, data and other statistics to support further dialogue and provide support for policymakers to address the political will in their jurisdictions. Utilize easily understood formats, e.g., mapping to highlight high-risk areas, and make the information broadly available via on-line and through other means.

P. **Conflict Resolution Methodologies**. Develop conflict resolution methodologies to address the conflicts between building, fire, land-use and subdivision codes, and establish a plan to implement these methodologies prior to residential development.

Q. **Economic Development Models**. Establish local economic development models for undeveloped areas that factor development in high wildfire risk areas and account for firefighting services, and housing/community design and sustainability.

R. **Mitigation Templates**. Develop, implement and promote strategic WUI mitigation templates that incentivize mitigation activities (e.g., hazardous fuel treatments, home hardening, etc) for individual homeowners and communities. Account for all values at risk, such as: (a) ecosystem services (including water quality, wildlife habitat and landscape resilience); (b) cultural sites (including cemeteries and places of worship); and (c) infrastructure (including hospitals, schools, businesses, transport and utility networks).

S. **Pilot Programs**. Develop regionally oriented pilot programs that highlight a specified number of communities/jurisdictions and how they implement WUI regulations. Summarize and communicate WUI regulations that are currently followed in the region or state of interest, e.g., Douglas or Boulder counties in Colorado.

T. **Risk Models**. Conduct research that develops a wildland fire-risk-potential geospatial compendium that summarizes geospatial data development. Summarize the different geospatial techniques and data layers that are currently being used to describe wildland fire risk potential, and address the strengths and weaknesses of each utility and how they address different spatial and temporal characteristics. Include a decision-tree that helps define and leverage existing wildfire risk modeling tools.

U. **Strategic Plan Templates**. Develop templates of specific strategic plans, to be used in multiple venues (e.g., a best practice guide, webinars, workshops, etc), that address critical issues such as: enforcement; incentives; and integrated workforce training.

The discussion also yielded certain re-occurring key themes that may help in developing national, state, and local solutions to the most pressing WUI land use issues we face. These include, though are not limited to the following:

- Land use planning is a local issue – one size does not fit all.
- It is important to share lessons learned and current, locally relevant data from recent damaging wildfires.
- Education is key; training is essential.
- There is a need to involve and coordinate stakeholders (including policy makers/government entities) in the discussions.
- There is a need to provide more data and statistics to stakeholders in order to heighten awareness and support changes in behavior.

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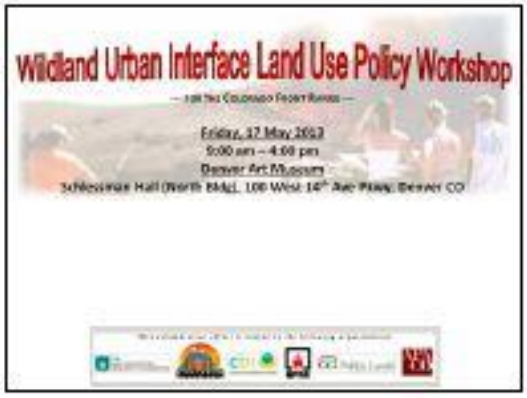
ANNEX A: WORKSHOP PARTICIPANTS AND ATTENDEES

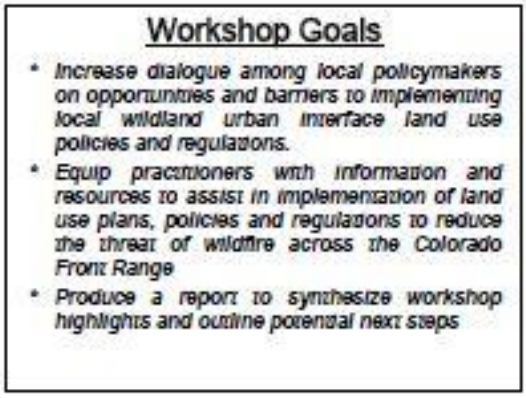
The following were the workshop participants and attendees:

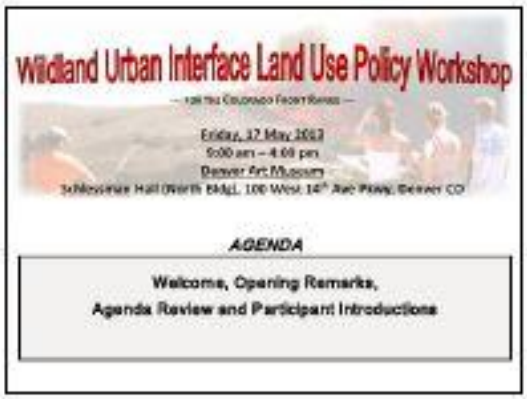
Jill	Alexander	Douglas County Building Division
Matt	Andrews	El Paso County, Colorado
Ray	Bizal	NFPA
Jonathan	Bruno	CUSP
Phil	Buckland	Clear Creek County
Lorraine	Carli	NFPA
Glenn	Casamassa	US Forest Service
Dale	Case	Boulder County Land Use Dept.
Paul	Cooke	Colorado Div. of Fire Prev. & Control
Megan	Davis	Boulder County
Kristin	Dean	Summit County
Brandy	DeLange	Colorado Counties Inc
Marc	Dettenrieder	Teller County Commissioner
Don	Elliott	Clarion Associates
Brian	Ferebee	US Forest Service
Daniel	Folke	City of Manitou Springs
Dan	Gibbs	Summit County Government
Joe	Gierlach	Town of Nederland - Mayor
Gary	Goodell	Boulder County Land Use Dept
Casey	Grant	FPRF
Travis	Griffin	Jefferson County Sheriff's Office
Trent	Hyatt	Clear Creek County
Jay	Jackson	West Metro Fire Protection District
Tushar	Kansal	CBI
Susan	Kuglitsch	Community Connex Grand County
Brett	Lacey	Colorado Springs Fire Department
Paige	Lewis	The Nature Conservancy
David	Loomis	US Forest Service
Connie	McLain	Gilpin County
Patrick	McLaughlin	CO Dept of Public Health & Environment
Chris	Mehl	Headwaters Economics
Casey	Metz	Colorado State University
Anne	Miller	CO Dept of Local Affairs
Don	Moore	Jefferson Conservation District
Molly	Mowery	NFPA
Jeanne	Nicholson	State Senator District 16 (Gilpin County)
Tito	Nieto	American Panel Media
Andrew	Notbohm	Boulder County Land Use Dept

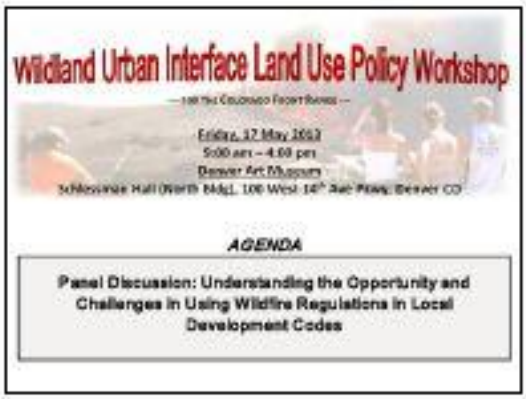
Dave	Nuss	NFPA
Brian	Olson	El Paso County
Jill	Ozarski	Office of Sen. Mark Udall
Roger	Partridge	Douglas County
Peter	Pollock	Lincoln Institute of Land Policy
Ray	Rears	Gilpin County
Frederick	Rollenhagen	Clear Creek County
Danya	Rumore	CBI
Jim	Shannon	NFPA
Tony	Simons	Larimer County Sheriff's Office
Rocco	Snart	Colorado Div. of Fire Prev. & Control
Jo Ann	Sorensen	Clear Creek County
Amy	Sylvester	Colorado Springs Fire Department
Doug	Thompson	CBI
Steven	Watson	Gilpin County Sheriff's Office
Gail	Watson	County Commission, Gilpin County
Jim	Webster	Boulder County Land Use Department
Justin	Whitesell	Larimer County Sheriff's Office
Susan	Wood	Regional Transport District - FasTracks

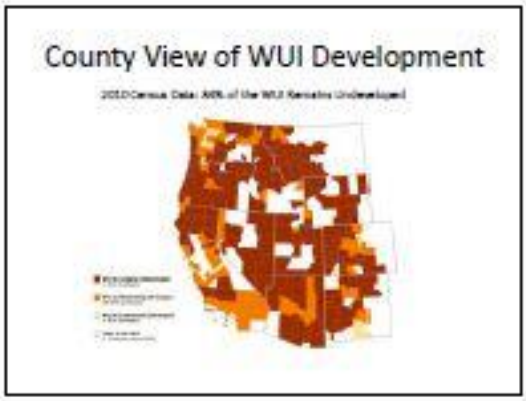
ANNEX B: WORKSHOP POWERPOINT SLIDES

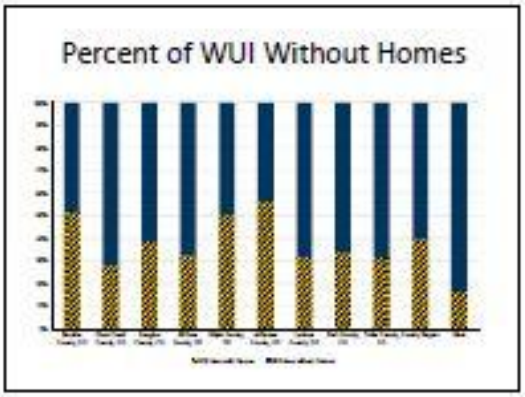


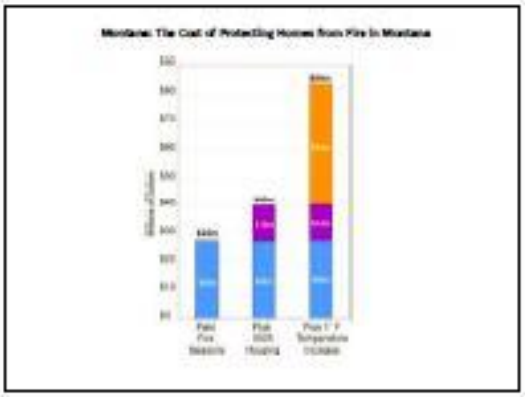




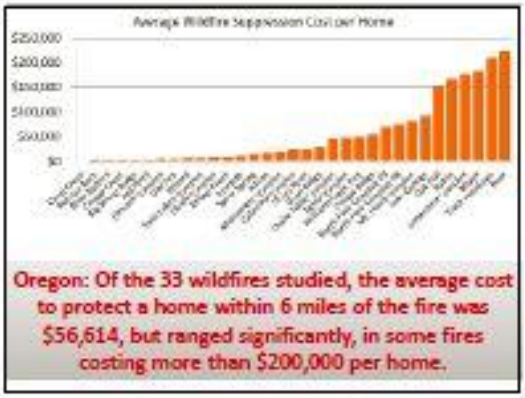






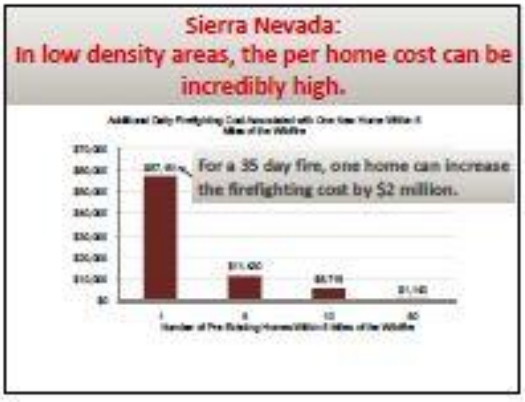


Oregon: The estimated firefighting cost related to housing for the study fires ranged from none to 42%, and averaged 17%.



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.

Sierra Nevada:
In low density areas, the per home cost can be incredibly high.



When there are hundreds of homes around, the cost of each additional home is less (fire managers are probably already doing all they can to stop the fire).

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

WUI Land Use Policy Workshop

Chris Mehl
406-570-8939
chris@headwaterseconomics.org

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

Wildland Urban Interface Land Use Policy Workshop

Friday, 17 May 2013
9:00 am – 4:00 pm
Denver Art Museum
Schlessman Hall (North Bldg), 100 West 14th Ave Pkwy, Denver CO

AGENDA

--- Break ---

Wildland Urban Interface Land Use Policy Workshop

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AGENDA

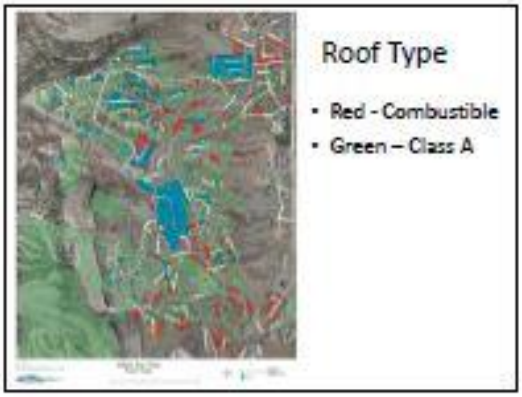
Case Study:
What' s Been Done and Worked Elsewhere

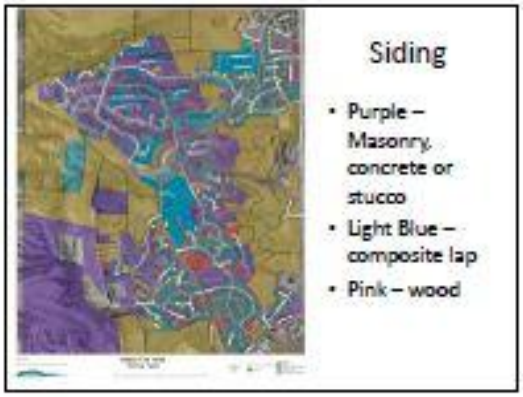
Waldo Canyon Fire

Waldo Canyon Wildfire

June 26, 2012

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


Roof Type
• Red - Combustible
• Green – Class A


Siding
• Purple – Masonry, concrete or stucco
• Light Blue – composite lap
• Pink – wood


Denominators in Wildfire Disaster
•Fuel (Incl 14th fuel model)
•Weather
•Topography
•Re-construction
•Big Question?
•Insurance
•Collaboration
•Codes and Changes?
•Permits


Mountain Shadows


Mitigation Success

Home Ignition Zone

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**

Wildland Urban Interface Land Use Policy Workshop

— for the Colorado Front Ranges —

Friday, 17 May 2013
9:00 am – 4:00 pm
Denver Art Museum
Schlessman Hall (North Bldg), 100 West 14th Ave Pkwy, Denver CO

AGENDA

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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— for the Colorado Front Ranges —

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AGENDA

Discussion Summary
and Preview of Afternoon Session

Wildland Urban Interface Land Use Policy Workshop

— for the Colorado Front Ranges —

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AGENDA

--- Lunch ---

Wildland Urban Interface Land Use Policy Workshop

— for the Colorado Front Ranges —

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AGENDA

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

CLARION

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

Clarion Associates

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

Clarion Associates

The Planning Tool Belt

Using Land Use tools to Reduce Fire Risk

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

Clarion Associates

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

Clarion Associates

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

Clarion Associates

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

Clarion Associates

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

Clarion Associates

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

Clarion Associates

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

Clarion Associates

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 ?

Clarion Associates

Boulder County

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 septics
  - 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.appleatefi.com/images/pdfs/HIZ%20handout%20pages.pdf
  - http://docs.cal.gov/files/pdf/pubs/fh/FS0476.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-time 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

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"

Douglas County Colorado
Case Study

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Wildland Urban Interface Land Use Policy Workshop

Friday, 17 May 2013
9:00 am – 4:00 pm
Denver Art Museum
Schlessman Hall (North Bldg), 100 West 14th Ave Pkwy, Denver CO

AGENDA

--- Break ---

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AGENDA

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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AGENDA

Closing Remarks

www.nfpa.org/WildfireLandUseWorkshop

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