

THESIS

UNDERSTANDING ELEMENTS CONTRIBUTING TO THE COLLABORATIVE  
DEVELOPMENT OF COMMUNITY WILDFIRE PROTECTION PLANS

Submitted by

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## ABSTRACT OF **THESIS**

### UNDERSTANDING ELEMENTS CONTRIBUTING TO THE COLLABORATIVE DEVELOPMENT OF COMMUNITY WILDFIRE PROTECTION PLANS

The occurrence of large-scale catastrophic wildfires in recent years led to a change in national wildfire policies. Policies such as the National Fire Plan (NFP) (2000) and the Healthy Forest Restoration Act (HFRA) (2003) mandate collaboration between federal, state, and local stakeholders in addressing wildfire mitigation across a landscape scale. These policies contain behavioral assumptions that stakeholder groups will collaborate due to the influence of policy tools inherent in the policies. However, these policies do not provide the capacity policy tools necessary to facilitate collaboration between stakeholders in addressing wildfire mitigation planning, particularly Community Wildfire Protection Plans (CWPP) which were introduced by the HFRA. This study is an empirical examination of three CWPP development processes in Colorado. The goal of this study was to uncover: 1) the types of capacities required for collaborative CWPP development; and 2) the role of intermediaries in facilitating collaborative capacity building. Our results demonstrated that collaborative CWPP development requires a range of specific capacities, including networks, human capital, and collaborative learning. We discovered that collaborative capacity was not facilitated by external intermediary organizations, but instead that there was an ad hoc emergence of

intermediary roles and functions filled by actors in the CWPP development process. A key lesson learned in this study is that actors embarking on a CWPP development process should act strategically in recognizing the required capacities in advance, leveraging and maximizing capacities already present, and accessing resources to fill capacity gaps. This study provides evidence that the goals of the NFP and HFRA are being met.

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## **Chapter 1**

### **Introduction**

Private, community, state, and federal entities actively fought to exclude and eliminate fire from forest ecosystems throughout the majority of the 20<sup>th</sup> century. Fire was perceived as a negative disturbance that threatened forest ecosystems and our timber resources, and fire prevention and suppression was strongly linked to the popular concept of forest conservation (Pyne, 1982). However, a century of fire suppression and exclusion has led to overgrown forests and a build-up of fuels across the US, so that when fires do occur they have been extremely more significant (McLoone, 2006). Philosophies have recently changed and ecologists now understand that fire plays an integral role in regulating many ecosystems, and that fire exclusion from these ecosystems leads to unhealthy forest conditions (Kimmons, 1987).

This issue has received increasing attention since the 1980s due to the increase in human settlement in previously undeveloped forested areas (Vaughn and Cortner, 2005). Devastating wildfires occurred in the summer of 2000, drawing increasing national attention to the threat that fire poses to human life and property. There is also an increasing awareness that wildfire prevention and response is complicated due to varying jurisdictions across federally, state, locally and privately managed lands, as well as the lack of infrastructure and funding for these activities in many communities (McLoone,

2006). The combination of these factors has resulted in a proliferation of policies and policy tools. The first and foremost was the National Fire Plan initiated by President Clinton in 2000 (Vaughn and Cortner, 2005).

The goal of the NFP is to “provide invaluable technical, financial, and resource guidance and support for wildland fire management across the US” ([www.fireplan.gov](http://www.fireplan.gov)). It addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. The NFP also emphasizes the importance of community participation and government support for communities in creating local solutions to mitigating fire risk in the WUI zone ([www.fireplan.gov/overview/whatis.html](http://www.fireplan.gov/overview/whatis.html)). It directs federal and state agencies to create a ten-year comprehensive strategy and implementation plan. The philosophy behind NFP implementation is that tackling this widespread problem that crosses multiple jurisdictions can only be successfully accomplished through collaboration with local communities (McLoone, 2006).

The 10-Year Comprehensive Strategy, “A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment” was released in August 2001. It explains the following:

*“Congress directed the Secretaries of the Interior and Agriculture to work with the Governors to develop this strategy in the FY 2001 Interior and Related Agencies Appropriations Act (P.L. 106-291). The direction requires ‘close collaboration among citizens and governments at all levels,’ which, by extension, includes a geographically diverse group of people, representing all levels of government, tribal interests, conservation and commodity groups, and community-based restoration groups”(p. 1)*

It describes its goal as “An open, collaborative process among multiple levels of government and a range of interests” (p. 1). It recognizes that priorities for fire and fuel



management projects should be established at the local level and it states the goal of creating an information sharing system “whereby the stakeholders exchange information necessary to make fully informed decisions” (p. 2). It recognizes the importance of local knowledge in creating long-term management objectives.

The 10-Year Comprehensive Strategy is only 1 ½ pages long and merely states who should be involved and what the general goals of collaboration should be. This document states collaboration and information sharing between agencies and local communities as a goal, but it does not provide a clear description of how this process should be undertaken. Even the glossary lacks a definition of collaboration.

To fill this operational gap, the Secretaries of Agriculture and Interior, Western Governors’ Association, National Association of State Foresters, National Association of Counties, and the Intertribal Timber Council endorsed an Implementation Plan for the 10-Year Comprehensive Strategy, which was released in May 2002. It provides a framework for collaboration at the national, regional and local levels that provides more detail in terms of listing more specifically who the local stakeholders should be. It lists participants such as landowners, watershed councils, and existing resource advisory committees. However, it neither defines nor provides strategies for collaboration.

The US Department of Agriculture Forest Service, the Department of the Interior, the National Association of State Foresters, and the National Association of Counties created a Memorandum of Understanding (MOU) in January 2003 entitled “Memorandum of Understanding for The Development of a Collaborative Fuels Treatment Program”. Its purpose is to provide a framework for collaboration on annual fuels treatment programs consistent with the goals and collaborative framework outlined

in the 10-Year Comprehensive Strategy and Implementation Plan. It dictates that priority will be given to states that are using collaborative processes to identify areas for treatment, and that “the amount of collaboration at the local and state/regional and tribal level will be consistent with the complexity of the land ownership patterns, resource management issues, and the number of interested stakeholders” (p.2). While the MOU emphasizes the need for including a wide range of local stakeholders and offers an incentive for states to implement collaborative processes, there is once again no actual guidance as to what constitutes collaboration.

The summer of 2002 brought the most devastating fires in a century to Arizona, Colorado, Oregon and New Mexico ([www.healthyforests.gov/initiative/introduction.html](http://www.healthyforests.gov/initiative/introduction.html)). In response to these factors, President Bush launched the Healthy Forests Initiative (HFI) in August 2002. The HFI emphasizes removal of hazardous fuels as the answer to the wildland fire problem, and allows for expedited environmental assessments to get hazardous fuels treatment projects on the ground more quickly. It also calls for legislative action to further address the problem, which gave rise to the Healthy Forest Restoration Act (HFRA) which was passed by Congress in 2003 ([www.healthyforests.gov/initiative/introduction.html](http://www.healthyforests.gov/initiative/introduction.html)).

The HFRA states as one of its six purposes: “to reduce wildfire risk to communities, municipal water supplies, and other at-risk Federal land through a collaborative process of planning, prioritizing, and implementing hazardous fuel reduction projects” (H.R. 1904, p. 2). It introduces the concept of a “Community Wildfire Protection Plan” (CWPP), which is defined as follows:

*“a plan for an at-risk community that--  
(A) is developed within the context of the collaborative agreements and the guidance established by the Wildland Fire Leadership Council and agreed to by the applicable local government, local fire department, and State agency responsible for forest management, in consultation with interested parties and the Federal land management agencies managing land in the vicinity of the at-risk community;  
(B) identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment on Federal and non-Federal land that will protect 1 or more at-risk communities and essential infrastructure; and  
(C) recommends measures to reduce structural ignitability throughout the at-risk community” (H.R. 1904, p. 3).*

These three characteristics describe the minimum qualifications for a CWPP. The US Department of Agriculture Forest Service and the Department of Interior Bureau of Land Management must give consideration to the priorities of local communities in developing and implementing wildfire mitigation plans (Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities). As with the previously discussed policies, the HFRA neither defines nor provides strategies for collaboration.

The USFS and BLM released the “Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide” in February 2004 as a tool for resource managers to understand the changes in procedures and processes under HFI and HFRA. The Field Guide includes a section entitled “Setting Priorities and Collaborating” which briefly summarizes the HFRA provisions for creating CWPPs and emphasizes that priorities for fuel reduction projects should be made through collaboration at the local level. It states that federal agencies should be partners in creating CWPPs at the discretion of local communities and according to budgetary constraints. Once again, the Field Guide does not provide actual strategies or guidance for collaboration.

In March 2004 a partnership including the Communities Committee of the Seventh American Forest Congress, National Association of Counties, National Association of State Foresters, Society of American Foresters, the seventh American Forest Congress, and the Western Governor's Association sponsored a handbook for creating CWPPs titled "Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities" ([www.safnet.org/policyandprocess/cwpphandbook.pdf](http://www.safnet.org/policyandprocess/cwpphandbook.pdf)). The handbook walks users through the steps required for creating a CWPP. It explains that a community benefits from creating a CWPP because it allows them to define their own priority areas and to receive federal priority for implementing fuel reduction projects they identify in the CWPP. It also explains that a community's plan can be as basic or complex as necessary, as long as it meets the three basic HFRA CWPP requirements.

The Handbook emphasizes that "a key element in community fire planning should be the meaningful discussion it promotes among community members regarding their priorities for local fire protection and forest management" (p. 4). It defines the first three steps as: 1) convene decisionmakers (referred to as the "core group" composed of a representative from the local government, local fire authorities, and the responsible state agency); 2) involve federal agencies (USFS and/or BLM); and 3) engage interested parties. It states that

*"the success of a CWPP also hinges on the ability of the core team to effectively involve a broad range of local stakeholders...substantive input from a diversity of interests will ensure that the final document reflects the highest priorities of the community. It will also help to facilitate timely implementation of recommended project" (p. 5).*

The handbook provides a list of potential local stakeholders to include, such as existing collaborative forest management councils, homeowners associations, local and/or state emergency management agencies, and utilities. While the HFRA defines the core group as the main decision-makers (the state forestry agency, local government, and local fire authority), the handbook suggests that in some circumstances the core group may desire other community leaders or stakeholders to be included in the final decision making.

Step five of the CWPP creation process involves developing a community risk assessment. Among other tasks this involves identifying community values that are threatened by the risk of wildfire. Values can include property, community infrastructure, watersheds, areas of cultural or historical significance, scenic or recreation areas, etc. The planning team uses these values identified as they establish community hazard reduction priorities and recommendations to reduce structural ignitability in Step six.

Step seven involves developing an action plan and assessment strategy that identifies roles and responsibilities, funding needs and timetables for implementing the projects according to priority. It also states that additional steps should be taken for developing a revision strategy to ensure relevance and effectiveness over the long term.

Step eight involves finalizing the CWPP and requires that the core team mutually agree on the content of the plan. It also directs the core team to identify a strategy for sharing the plan with the community and key land management partners.

The Field Guide emphasizes the need to collaborate between the core group members and between the core group and interested parties, and it outlines the general goals and objectives of each of the CWPP planning steps. However, as is the case with

all of the documents that preceded it, it does not describe how to navigate a collaborative planning process.

The goal of the NFP and the HFRA and all of the policies that support them is to identify landscape-scale solutions to wildfire mitigation through collaborative planning processes, but they do not include all of the necessary tools for collaboration. A key assumption underlying these wildfire policies is that the target populations possess the capacities required to collaborate. Schneider and Ingram (1990) provide an analytical framework for examining the opportunities and limitations of policy tools by identifying the behavioral assumptions underlying the policy tools. They identify five main types of policy tools: *authority tools* that grant permission, prohibit, or require action; *incentive tools* that use tangible positive or negative payoffs to persuade action; *capacity tools* that provide information, skills, and resources to facilitate action; *symbolic and hortatory tools* that appeal to individuals' values and beliefs to encourage action; and *learning tools* that rely on an adaptive system of learning about behaviors and situations to select the other appropriate tools. Table 1.1 provides a summary of the policy tools and behavioral assumptions.

The HFRA provides an authority tool in requiring federal agencies to give priority to locations for federal fuels reduction projects that are adjacent to communities that have completed a CWPP. The NFP and the HFRA provide incentive tools in that plans must be collaboratively developed in order to obtain government funding for mitigation. The NFP and the HFRA provide learning tools in that they assume that CWPP planning teams will learn how to best address landscape scale wildfire mitigation through the process of collaborative CWPP planning. However, none of the legislative or administrative

Table 1.1: Behavioral Assumptions of Policy Tools<sup>1</sup>

| <b>Policy Tool</b>   | <b>Behavioral Assumption</b>  |
|--|---|
| <b>Authority:</b><br>Statements that grant permission, prohibit, or require action under designated circumstances                      | Agents and targets are responsive to the organizational structure of leader-follower relationships and that lower level agents usually will do what they are told             |
| <b>Incentive:</b><br>Rely on tangible payoffs, positive or negative  | Individuals are utility maximizers and will not be positively motivated to take policy-relevant action unless they are influenced, encouraged, or coerced by tangible payoffs |
| <b>Capacity:</b><br>Provide information, training, education, and resources to enable actors to make decisions or carry out activities | Target populations will take policy-relevant action if they are properly informed and have sufficient resources   |
| <b>Symbolic and Hortatory:</b><br>Target beliefs and values  | People are motivated from within and decide whether or not to take policy-related actions on the basis of their beliefs and values  |
| <b>Learning:</b><br>Promote learning opportunities   | Target populations can learn about behavior, and select from the other tools those that will be effective   |

1. Reference: Schneider and Ingram (1990)

policies provide the capacity tools necessary for collaboration. They do not provide strategies for gaining local stakeholder participation, or for empowering local stakeholders to create fuels reductions goals and priorities.

This study is part of a national study funded by the Joint Fire Science program (<http://jfsp.fortlewis.edu>). Its focus is to analyze the lessons learned about collaborative processes that occurred during the development of CWPPs across the United States. This study focuses on CWPP development specifically in Colorado, utilizing research objectives and frameworks identified in the national Joint Fire Science study. Our research addressed the following questions: 1) what capacities are required to collaboratively develop a CWPP; and 2) do CWPP planning teams possess the required capacities, and 3) What strategies are employed to fill capacity gaps, specifically focusing on the role of intermediary organizations.

The following chapters address these research questions. Chapter 2 focuses on the capacities required for collaborative CWPP development, and Chapter 3 discusses the possibility of intervention by intermediary organizations in filling capacity gaps. These chapters are in manuscript format as individual studies, so redundancies occur during the introduction and methods sections. We will discuss the interaction of findings from both studies in the Conclusion chapter.



## **Chapter 2**

### **Capacities Required to Collaboratively Develop a Community Wildfire Protection Plan**

Throughout the 20<sup>th</sup> century policies in the United States regarding wildfire focused on suppression and prevention (Pyne, 1982). The exclusion of fire from forest ecosystems has led to a build-up of fuels in many forest types across the US, so that when fires occur today they burn with more intensity and create more damage than they did historically. Many devastating forest fires burned across the western US in the summer of 2000, drawing national attention to the issue of increased fire severity, and large-scale catastrophic fires in subsequent years has increased this attention. The threat posed to ex-urban human settlement in fire-prone forested regions has received particular attention, along with a growing awareness of the difficulty of preventing and responding to fires across a range of jurisdictions (McLoone, 2006). This combination of factors led to a series of policy actions focusing on the issue of wildfire preparedness and mitigation as well as the importance of collaboration among agencies and between agency and community stakeholders. The National Fire Plan (NFP) and the Healthy Forest Restoration Act (HFRA) are key national policies requiring collaboration in wildfire mitigation. Both of these policies address the need for mitigation to prevent catastrophic wildfires, and the need for different stakeholders to work together in order to address

mitigation at a landscape scale across multiple ownership jurisdictions. The federal government cannot address this issue alone, and assistance is needed at the state, county, and local levels.

While these policies mandate the need for collaboration, they do not describe the elements needed for collaboration to take place, or what a collaborative process entails. In other words, they do not provide all of the necessary tools. Schneider and Ingram (1990) discuss various tools that policies in the US rely on to influence behavior of a target population to comply with policies; “public policy almost always attempts to get people to do things that they might not otherwise do; or it enables people to do things that they might not have done otherwise” (p. 513). They argue that there are five main types of policy tools: authority tools that grant permission, prohibit, or require action; incentive tools that use tangible positive or negative payoffs to persuade action; capacity tools that provide information, skills, and resources to facilitate action; symbolic and hortatory tools that appeal to individuals’ values and beliefs to encourage action; and learning tools that rely on an adaptive system of learning about behaviors and situations to select the other appropriate tools. Table 1.1 provides a summary of policy tools and behavioral assumptions.

The NFP and HFRA provide authority, incentive and learning tools in that they mandate that CWPPs be collaboratively developed, offer funding for the implementation of collaboratively completed plans, and they assume that stakeholders will learn to effectively address wildfire hazards and risks through the collaborative process. We propose that these tools alone do not provide the basis for successful collaboration in wildfire mitigation planning, and that capacity tools are required as well. Stakeholders

must have the capacity to convene participants, to work through a deliberative information-sharing and learning process, and to produce a CWPP that can be effectively implemented. The purpose of this study is to understand the specific capacities that are required for collaborative CWPP development, and how the presence or absence of these capacities influences the CWPP development process and outcomes.

#### Joint Fire Science Program

This study is part of a national study funded by the Joint Fire Science program (<http://jfsp.fortlewis.edu>). Its focus is to analyze the lessons learned about collaborative processes that occurred during the development of CWPPs across the United States. This study focuses on CWPP development specifically in Colorado, utilizing research objectives and frameworks identified in the national Joint Fire Science study.

#### Preliminary Study

We conducted preliminary fieldwork in the summer of 2005 to further inform the concepts, methods, and the selection of case studies included in this study. The fieldwork involved creating an inventory of Colorado community wildfire mitigation plans for the Colorado State Forest Service. Specific information regarding this study can be found at [www.rockymountainwildlandfire.info/survey](http://www.rockymountainwildlandfire.info/survey).

We found that the collaborative development of these plans range in character and extent, and that the key actors and the level of community involvement varied from case to case. The fieldwork also showed that the roles of the key actors varied throughout the

process, as did the degree of direct community involvement during the different stages of plan development.

The information gained through the preliminary fieldwork suggested that the scope of the collaborative process and the degree of community participation differed from case to case. **We hypothesize that this was due to varying levels of collaborative capacity from case to case, and that communities and agencies framed their planning and implementation processes according to their levels of capacity to work through the process.** Plans that involved a wide range of stakeholder representation and a higher degree of community involvement were developed by participants who possessed a higher degree of collaborative capacity than plans that did not.

### Literature Review

Collaborative processes require specific capacities in order to be successful. In the context of community-based collaboration, such as CWPP planning, the focus is on the ability of communities to collaborate internally as well as with external actors in order to address collective issues. While our research involved community-based collaboration in the context of a natural resources issue, much of the research to date regarding community capacity to engage in collaborative processes focuses on community development and community health. Our literature review includes studies focusing on community development and health as well as community engagement in natural resources related issues.

Community capacity can be defined as the ability of a community to combine internal assets – human capital, organizational resources, and social capital – with

external resources – information, technical resources, and funding – to achieve community goals or respond to change (Chaskin et al., 2001). Social capital refers to “the connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them” (Putnam, 2000, p. 19). Human capital “includes the skills, education, experiences, and general abilities of residents” in a community (Kusel, 2001).

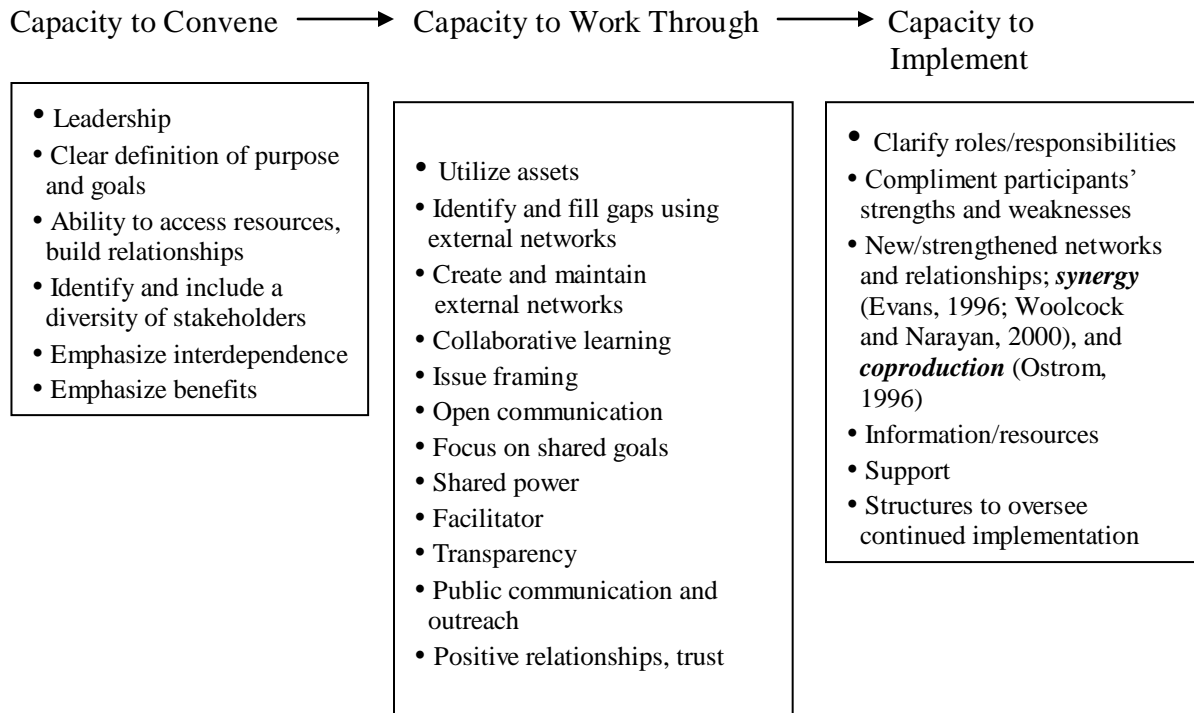
Collaborative efforts evolve dynamically in response to internal and external factors. Collaboration must be process-oriented and adapted to the specific context of a situation (Selin and Chavez, 1995). It is helpful to understand the capacities required to work through collaborative processes in order to better understand these processes and how they unfold.

The capacities necessary to facilitate collaborative processes can be divided into three phases: 1) capacities to convene the process, 2) capacities to work through the process, and 3) capacities to implement the goals defined through the process. During each phase existing capacities facilitate the development of further capacities that assist in working through the following phases. Figure 2.1 provides a summary of the capacities necessary to facilitate collaborative processes that emerged in the literature review.

#### *1) Capacities required to convene a collaborative process*

Convening a collaborative process requires one or more individuals who are willing to initiate and sustain the process. Attaining collaborative goals may be unlikely without committed leadership (Chaskin et al., 2001; Provan et al., 2003).

Figure 2.1: Capacities Required to Collaboratively Develop a Community Wildfire Protection Plan



Conveners of a collaborative process must assess specific aspects of the process before they begin. They must understand the context of their situation in order to identify the conditions necessary to make the collaborative process and its outcomes successful. There must be a clear definition of what collaboration means in the specific situational context, and a clear understanding of purpose and goals. Conveners must know how to access information and resources and build the relationships necessary to sustain a collaborative process throughout all of its phases (Sullivan et al., 2002).

Convening a collaborative process entails identifying and including a diversity of interests. It is important to include a broad range of participants in order to ensure a truly representative process. Lengths must be made to identify and include disempowered and underrepresented groups in order to ensure an equitable process (Baker and Kusel, 2003; Daniels and Walker, 2001; Gray et al., 2001; Moote et al., 2001). In order to support a diversity of participants, it may be necessary to provide additional resources or information to individuals who are in need of extra assistance. This may entail adapting invitation techniques to specifically reach underrepresented groups, providing technical knowledge or training, or offering logistical, social or contextual support such as child care for single parents, translation services, or institutional backing of participation (Foster-Fishman et al., 2001; Moote et al, 2001).

It is critical that the participants perceive themselves as being interdependent with one another, particularly those with conflicting values. This will encourage them to realize the need to work through issues with the other affected parties, and to understand that collaboration can provide them with this opportunity (Daniels and Walker, 2001).

They must understand how the benefits of participation outweigh the costs (Foster-Fishman et al., 2001).

## *2) Capacity to work through a collaborative process*

Working through a collaborative process requires multiple capacities. The group must identify the strengths and talents of its members and take advantage of the resources that each actor has to offer in order to meet collaborative capacity needs as fully and effectively as possible. The group must be able to acquire the resources it lacks through the use of external networks. The group must be able to create and maintain relationships with external entities in order to expand its networks and continue to access resources and support (Chaskin et al., 2001; Foster-Fishman et al., 2001; Mandell, 2001).

Collaborative learning is a key element of collaborative processes. Collaborative learning is a process that emerges through knowledge-sharing, relationship-building and the strengthening of trust, and deliberation (Daniels and Walker, 2001). Daniels and Walker (1996) explain that “Successful collaborative learning processes sustain quality discourse: constructive discussion of ideas, collaborative argument, and interaction – in short, communication competence” (p. 82). Daniels and Walker (2001) describe “communication competence” according to three dimensions: assessing and adapting expectations and behaviors according to the situation at hand, employing communication behaviors that are appropriate to the situation, and effectiveness at achieving one’s communication goals. Participants in a collaborative process must communicate in a manner that is respectful, understood by a wide audience, and adaptive to the needs of the group.



Participants in a collaborative learning process must be encouraged to share and discuss different types of knowledge and be willing to learn from each other. Lengths must be made to assist in understanding each other's knowledge, particularly scientific or technical knowledge (Daniels and Walker, 2001). While agency-contributed scientific and technical knowledge is commonly regarded as critical in understanding natural resources-related issues, local stakeholders contribute place-based ecological knowledge and local values that are equally critical in reaching effective high-quality decisions (Beierle and Konisky, 2001, Gray et al., 2001).

Collaborative learning should employ active learning techniques in order to address the learning requirements of adults. Information presented should be personally relevant to participants and presented in an interactive manner. Individuals should be provided opportunities to draw on their experiences and expertise and learn from one another. Field trips and work shops are examples of active learning opportunities (Daniels and Walker, 2001; Moote et al., 2001)

Daniels and Walker (1996) explain that "Through collaborative learning activities, parties broaden their understanding of a situation by learning to see it as a complex system of issues. Collaborative learning promotes discussion of stakeholders' concerns, from which parties develop tangible improvements that reflect their understanding of the particular situation as a system" (p. 97). Through the process of sharing information and explaining values and concerns, participants in a collaborative process can search for common ground solutions that offer improvement over a current undesirable or status quo situation (Daniels and Walker, 1996). The process of

collaboratively sharing information can contribute to a shared understanding among stakeholders of a particular issue (Saarikoski, 2000).

Schusler et al. (2003) offer discussion similar to Daniels and Walker, and found that the following elements contributed to what they referred to as social learning (essentially collaborative learning) in a natural resources-related collaborative effort: open communication, diverse participation, unrestrained thinking (creativity is encouraged), constructive conflict (seeking common ground rather than consensus), democratic structure (participants drove the process), multiple sources of knowledge (scientific and local), extended engagement (working together over a period of time), and facilitation (by a professional facilitator). They found that engaging participants in small group discussion was highly effective in encouraging open communication and building positive relationships, as small groups are less intimidating and provide more opportunity for participation than large groups.

Issue framing is a tool that can be utilized during a collaborative learning process to craft a common message or goal that is supported by a wide range of stakeholders. Benford and Snow (2000) define issue frames in the context of collective action as “action-oriented sets of beliefs and meanings that inspire and legitimate the activities and campaigns of a social movement organization” (p. 614), as participants “negotiate a shared understanding of some problematic condition or situation they define as in need of change” (p. 615). Benford and Snow (2000) discussed the variable features of collective action frames that emerged in their review of collective action framing literature: problem identification; the extent to which a frame is flexible and inclusive to a number of themes or ideas; the extent to which a frame broadly incorporates the goals of other movements;

and the degree to which a particular frame resonates with a targeted audience, which is influenced by the empirical credibility of the message as well as the credibility of the source.

The communication process in a collaborative effort should be well-developed and open in order to promote information sharing, problem discussion and resolution. The group must be continuously focused on learning and adapting their process to new information or contexts. The group must maintain a positive working environment that facilitates identifying and supporting shared goals. It is important that power is balanced and shared among members so that everyone has an equal voice throughout the process, even though some members may possess more formal power outside of the process (Daniels and Walker, 2001; Mandell, 2001). This concept is a change from traditional public involvement in natural resources decision making, in which the public is invited to provide comments regarding agency-proposed actions without exercising any real decision making authority. Power sharing during a collaborative process may prove to be challenging for agency representatives due to their final authority and obligation to manage public lands, and collaborative partnerships should understand agency abilities and limitations in sharing decision making authority. Agency partners should be willing to innovate and share power as much as possible (Moote et al., 2001).

Saarikoski (2000) found that individuals who lacked technical knowledge prior to a collaborative process were often less assertive or willing to contribute their perspectives throughout the collaborative process by other individuals with prior technical knowledge, as they believed themselves to lack technical competence. Saarikoski concluded that an

external mediator would be beneficial to facilitate more equal participation in situations in which power or knowledge is unbalanced.

It is important that collaborative processes are transparent. Information must be provided in an open and clear manner, and the participants must understand who has the final decision-making authority and how input gained during the process will be used in making decisions (Gray et al., 2001).

Information must be shared with the general community and not only within the collaborative partnership in order to increase community capacity to implement collaborative goals. Chaskin et al. (2001) discuss the necessity of outreach and communication efforts in order to raise community awareness of and involvement in collaborative community development efforts. They provide examples of outreach techniques such as door-to-door discussion, attending community meetings, sponsoring community events, informing local government representatives of the initiative, and mobilizing informal community networks to help disseminate information. Ack et al. (2001) discuss outreach in the context of natural resources management, and provide examples such as inviting community members on field trips, providing educational materials and workshops, and engaging the general community in hands-on projects.

Scientific and other types of information can raise issue awareness and facilitate a common understanding about problems facing natural resource management, but collaboration also depends on communication, trust and leadership among stakeholders (Heikkila and Gerlak, 2005). Daniels and Walker (2001) identify “relationship” as one of the key elements contributing to the success of a collaborative process; generally, the better the relationships among participants, the better the potential for successful

collaboration. They explain that the collaborative learning process offers a way to work through natural resources issues and produce positive relationships and results. Provan et al. (2003) found that the process of information-sharing between participants leads to strengthened relationships and trust, and they identified this as a main factor contributing to successful collaboration.

### *3) Capacities required to implement goals identified in a collaborative process*

In implementing a collaborative process, the group must clarify member roles and responsibilities regarding the implementation of its goals. The implementation phase should compliment the group's strengths and resources in order to achieve realistic goals (Foster-Fishman et al., 2001).

A major outcome of collaborative processes that contributes to implementation is the building and strengthening of relationships between stakeholders. Schusler et al. (2003) found that a collaborative effort affected relationships between stakeholders in three ways: strengthening existing positive relationships, transforming adversarial relationships, and creating new relationships. Positive relationships and trust were formed and strengthened as a result of mutual respect, listening, and open-mindedness demonstrated among participants.

Weber et al. (2005) discuss four measures of the strength of networks between agency and community stakeholders: the level of trust that exists between and among community and agency actors; the degree of good-faith bargaining, or the extent to which actors believe that other actors will keep their word; the extent to which actors perceive the collaborative process to have been positive and effective; and the ability of

collaborative partnerships to access resources to implement goals. Collaborative efforts in which actors rate these measures highly are more likely to result in community outcome capacity to implement goals and to become involved in future collaborative efforts.

Social capital is another way to refer to the networks and relationships that exist between individuals and groups. Social capital assists collaborative groups in fulfilling collective goals, as new and strengthened networks allow groups to leverage resources that may have been unattainable by any one party. The formation of networks between communities and external agents allows communities to be proactive as well as reactive in planning and taking action for the collective good (Woolcock, 2001). The synergy view of social capital suggests that partnerships between government agents and mobilized communities allows for an enhancement of resources and abilities to address problems facing the collective good. Neither government nor community actors possess all of the capacities required to solve collective issues, and by working together they can compliment and strengthen each other's capacities (Evans, 1996; Woolcock and Narayan, 2000).

Ostrom (1996) discusses a similar concept, coproduction, which she defines as “the process through which inputs used to produce a good or service are contributed by individuals who are not ‘in’ the same organization”, and that “coproduction implies that citizens can play an active role in producing public goods and services of consequence to them” (p. 1073). She discusses coproduction as a synergistic process in which internal community social capital and external government agency social capital are effectively coordinated to produce a public service in a more efficient and effective manner than if

the government was acting alone. Citizen participation builds community capacity which can be used to achieve future collective goals, and it makes the efforts of public officials more effective through the contribution of local assistance and support.

Government bureaucracies that have the stability and the capability can facilitate the development of synergistic relationships with communities by encouraging and assisting community collective action (Evans, 1996; Woolcock and Narayan, 2000). In a study of 69 villages in northern India, Krishna (2002) found that government agents with the capacity to create networks between citizens and the government facilitated the formation and strengthening of community social capital and an increase in citizen political participation. He stated that “agency capacity multiplies the effects of high [community] social capital” (p. 457). Therefore, collaboration between government agents and communities is a function of both community and agency capacity, and a capable government can facilitate the creation of synergistic relationships.

Knowledge and information shared through the collaborative learning process is critical in facilitating community-based implementation of collaborative goals.

Community members must possess the scientific and technical knowledge necessary to understand and address issues and take action (Raik et al., 2006). Collaborative groups must also have access to technology necessary to implement projects (Ack et al., 2001).

Collaborative processes must engage individuals who are critical in providing approval and support for implementation. This includes gaining the support of agencies that contribute necessary funding and staff, as well as gaining the support of community members whose support or opposition is key to implementation (Beierle and Konisky, 2001). Engaging broad community involvement during collaborative processes can

result in partnerships with local leaders, local businesses and groups, and individuals who can provide critical resources and support for goal implementation.

While the creation of networks and positive relationships is critical in facilitating the implementation of collaborative goals, this on its own is not enough to ensure sustainable implementation. Implementation, particularly over the course of time, requires structures and processes capable of overseeing and sustaining implementation (Beierle and Konisky, 2001; Schusler et al., 2003; Weber et al., 2005). Local leadership and continuing access to resources are critical in supporting a community-based project implementation (Schusler et al., 2003). Stakeholder advisory groups can also play key roles in overseeing and sustaining project implementation (Beierle and Konisky, 2001; Weber et al., 2005).

In consideration of our preliminary research as well as our literature review, we propose the following hypotheses:

#### Null Hypothesis

*H<sub>01</sub>: The collaborative development of CWPPs does not require specific capacities*

*H<sub>02</sub>: The CWPP development process is identical from case to case, regardless of capacities that are present or lacking*

*H<sub>03</sub>: Capacity is not created throughout the CWPP development process*

#### Alternative Hypotheses

*H<sub>1</sub>: The collaborative development of CWPPs requires specific capacities*



*H<sub>2</sub>: CWPPs are developed differently in each case according to capacities that are present*

*H<sub>3</sub>: Antecedent capacity influences the collaborative CWPP development throughout the planning process; new capacities are created during the planning process that assist in collaborative CWPP development, and facilitate CWPP implementation*

## **Methods**

This study is a comparative qualitative analysis of three cases. The use of the case study method is appropriate because it allows for an in-depth analysis of each case on an individual basis (Shank, 2006). In describing the benefits of a case study, Shank (2006) cites Merriam (1998), who explains that case studies are particularistic in that they allow the researcher to focus on a particular phenomenon, and to produce a rich description of the phenomenon being studied. While we studied individual cases, we did not design our research according to the traditional case study approach. Rather than focusing on individual details emergent in each case, we focused our study on the commonalities that exist across the cases. The goal of this study is to discover overarching themes that exist across the cases, as well as factors that resulted in differences.

We selected three case studies according to attributes identified through the preliminary fieldwork. All three are based in communities in Colorado that developed a CWPP according to the HFRA requirements. Seventy-four plans were reviewed during the preliminary fieldwork, and of these only four completed plans qualified as CWPPs according to HFRA requirements. The Harris Park and East Portal CWPPs are two of the four that qualified. As of the fall of 2005, twenty of the plans were still undergoing

drafting or revision according to HFRA requirements. One of these is the Lake County CWPP, which was completed at the end of 2005.

Level of community capacity was another factor in case study selection in order to ensure a balance of high and low capacity cases. In the East Portal case the community has high economic and social capacity, in the Harris Park case the community has high economic and low social capacity, and in the Lake case the community has low economic and social capacity. We determined capacity levels according to county demographic data as well as data regarding the number of community organizations present in the county and their financial stability. Economic capacity was determined by demographic information such as income level and individuals and families living below the poverty level (Table 2.1). Social capacity was determined primarily by the number of community organizations in a county and their financial assets (Table 2.2).

We obtained data through interviews that were tape-recorded, transcribed into text, and coded for themes using the qualitative analysis computer software program NVivo. We used interview questions developed by the Joint Fire Science project team. See Appendix A for the interview protocol. These questions were designed to capture a wide range of information related to collaborative CWPP development, in order to address numerous different research questions presented by the team. Questions that were relevant to our particular Colorado study are indicated in italics. These questions focused on the types of capacities that were present prior to the CWPP processes, types of capacities that emerged from the CWPP development process, and elements that contributed to capacity. Examples of interview questions include: “What experiences, if any, did the CWPP actors have in the past regarding natural resources management or

Table 2.1: Community Economic Capacity<sup>1</sup>

|                           | Population | Bachelor's Degree (%) | Graduate or Professional Degree | Median Household (\$) | Per Capita Income (\$) | Unemployment (%) | Families Below Poverty Level (%) |
|---------------------------|------------|-----------------------|---------------------------------|-----------------------|------------------------|------------------|----------------------------------|
| East Portal (Estes Park)  | 5,413      | 28.1                  | 15.2                            | 43,262                | 30,499                 | 1.8              | 3.2                              |
| Harris Park (Park County) | 14,523     | 22.6                  | 7.6                             | 51,899                | 25,019                 | 2.0              | 3.4                              |
| Lake County               | 7,812      | 13.3                  | 6.2                             | 37,691                | 18,524                 | 4.4              | 9.5                              |

1. Demographic data obtained from US Government 2000 Census data: [www.factfinder.census.gov](http://www.factfinder.census.gov)

Table 2.2: Community Social Capacity

| <b>Social Demographics by County</b> |                                |   |
|--------------------------------------|--------------------------------|---|
|                                      | County Population <sup>1</sup> | Number of Non-Profit Community Organizations and Financial Assets (\$) <sup>2</sup> |
| East Portal, Larimer County          | 251,494                        | 985<br>915,755,388  |
| Harris Park, Park County             | 14,523                         | 74<br>5,175,053   |
| Lake County                          | 7,812                          | 36<br>4,590,393   |

1. Demographic data obtained from US Government 2000 census data: [www.factfinder.census.gov](http://www.factfinder.census.gov)

2. Data obtained from the National Center for Charitable Statistics website: <http://nccsdataweb.urban.org>

wildfire mitigation?”, “What resources and information were critical to the process, and how was this information shared with the community”, “What was the community’s perception of wildfire risk prior to and after the CWPP process”, and “How will the relationships formed during the CWPP process assist in fulfilling future goals?”.

We conducted initial interviews with key informants who we identified during the preliminary fieldwork, and used their knowledge to identify other key actors to interview, using a “snowball sampling” technique in which individuals were identified until saturation was reached. There were eleven total interviews for Lake County, eight for Harris Park, and eight for East Portal. Four additional interviews were conducted with members of the Larimer County Coordinating Group in order to better understand the group’s role in CWPP development. We considered the interview phase to be complete only after information saturation was reached, at which point interviews were no longer producing new information and informant responses were repetitive of other informants. In order to retain the anonymity of the individuals we interviewed, we refer to the some actors in general terms (ex. – “the fire authority representative”), and we used pseudonyms to reference quotes.

The coding process resulted in themes that we identified through an iterative process. The preliminary field work and literature review provided a general concept of what types of capacities might appear, although the themes were all identified as emergent. The resulting themes identify the main capacities that were important in the CWPP processes in the context of the information-sharing and relationship-building processes that facilitated capacity-building. Appendix B provides a list of themes, and Appendix C provides a list of indicators that support the identification of these themes.

For example, an indicator for the theme “pre-existing networks” is information interviewees discussed regarding relationships and networks that were formed prior to the CWPP development process.

### **Brief Overview of the Cases**

#### ***East Portal***

The East Portal CWPP includes two subdivisions, a youth camp, and two privately-owned local businesses. The CWPP encompasses a region outside of Estes Park, CO along an old highway referred to as Spur 66. Estes Park is located in the Rocky Mountains approximately sixty miles northwest of Denver, and is the gateway to Rocky Mountain National Park; the local economy depends heavily on tourism. One of the subdivisions included in the CWPP has 118 homes, and the other has approximately twenty-five homes. Many of the homeowners are part-year residents. The private lands are bordered by both the USDA Forest Service (USFS) and the USDI National Park Service (NPS).

This region is located in Larimer County. The county has a county fire plan (not a CWPP) that serves as an umbrella for CWPP development throughout the county. The county wildfire website provides links to the county plan, maps (including wildfire hazards risk assessment), and CWPP guidelines that groups can access to assist in developing CWPPs. Larimer County also benefits from the presence of the Larimer County Coordinating Group (LCCG), which is an interagency collaborative group that addresses wildfire issues throughout the county. The members include actors from two

federal agencies that manage land in the county, the Colorado State Forest Service (CSFS), and a county government employee. The group shares information and resources in an attempt to coordinate wildfire mitigation planning and treatment. At the time that the East Portal CWPP process was initiated, the various resources offered through the county website were not available. However, the LCCG created the CWPP standards and guidelines in time to assist the East Portal CWPP team in completing their plan.

The CWPP core planning team included actors from two federal agencies, the CSFS, a county government agency, the local fire authority, the youth camp, and both subdivisions. The two local businesses did not attend the meetings but received updates and gave their approval and support. The USFS, NPS, CSFS, and county actors are all members of the LCCG.

### ***Harris Park***

The Harris Park CWPP includes twenty-two communities in Park and Jefferson County (approximately 1/6 of the project area is in Jefferson, the remainder in Park), and involves two fire districts (fire district A: twenty subdivisions; fire district B: two subdivisions). There are over 5,000 homes. The subdivisions are located along US Highway 285, which is a major route from Denver traveling southwest into the Rocky Mountains. The subdivisions are located in the mountains near the town of Bailey, which is 66 miles southwest of Denver. Many homeowners in the region commute to Denver for work, and many are part-year residents. The CWPP covers 26,302 acres, of which 57% is federal, 35% private, and 8% state. A state park is included in the planning area.

The CWPP planning area is south of the area burned by the 2002 Hayman fire, which was Colorado's largest wildfire in recorded history at 138,000 acres.

The Harris Park CWPP is within the focus area of the Front Range Fuels Treatment Partnership (FRFTP) ([www.frftp.org](http://www.frftp.org)). This is a regional collaborative effort made up of natural resources agency actors, as well as actors from local governments and non-government organizations. The FRFTP addresses wildfire mitigation and response along the northern 2/3 of Colorado's Front Range. While the FRFTP did not directly influence the Harris Park CWPP process, several of the actors are also members of the FRFTP, and they were able to share their experiences with their partners on the FRFTP.

The CWPP core planning team included federal and CSFS partners as well as actors from both of the involved fire districts. Because one of the fire districts only included two subdivisions out of the twenty-two included in the CWPP, for the sake of simplicity we will not focus on this fire district in our analysis and discussion.

The team hired three different consultants throughout the process to complete a biological assessment, run modeling programs and produce GIS maps, and draft the CWPP document. The fire authority hosted community meetings after the plan was completed in order to gather input and gain local support. The plan was completed in 2005 and implementation had begun at the time we conducted our research.

### ***Lake County***

Lake County, CO is located high in the Rocky Mountains at the headwaters of the Arkansas River. Its population is 7,812; 2,821 residents live in Leadville, the only incorporated town in the county, and the remaining 68% of the population lives in rural

areas. Leadville is located approximately 103 miles west of Denver, and sits at 10,430 feet above sea level, making it the highest incorporated city in North America. Lake County encompasses 384 square miles, of which 74% is federally owned, and 26% is state and private land. This region was heavily mined from the late 1800s until the end of the 20<sup>th</sup> century, when the mines closed. The local economy now depends on the tourism industry.

Seven subdivisions are included in the version of the CWPP completed in 2005. The CWPP team selected these subdivisions for inclusion according to community interest in being involved in the CWPP, and more subdivisions will be included in the future as local interest in the CWPP increases. The CWPP core planning team decided to create their plan at a county scale for two reasons: the entire county is covered by one fire protection district, and community members identify themselves at the county scale, with Leadville as the main gathering point.

The CWPP core planning team included a wide range of stakeholder representation: the USFS, CSFS, the local fire authority, the city and county government, and the community. One of the community members volunteered to facilitate the planning process, and also provided networks to academic knowledge as she was a PhD student at a CO university at the time. Her studies focused on collaborative resource management and forest ecology, and she assisted the core team in defining and implementing a collaborative process and also provided valuable information regarding high-altitude lodgepole pine ecology.



## **Results**

We organized our results in a framework that groups capacities according to those which were present in the context, process and outcomes of each case. This framework was created by the Joint Fire Sciences research team. The context phase refers to the scenario before the CWPP development process began, the process phase refers to the CWPP development process, and the outcomes phase refers to the scenario at the completion of the CWPP development phase. This framework allowed us to better understand which capacities were unique to the context, process, and outcomes phases of CWPP development, and how the capacities present in each phase facilitated the strengthening or creation of new capacities that facilitated collaboration in later phases.

For example, in the East Portal case we will describe how networks that formed between community members and agency actors prior to the CWPP process as a result of community mitigation efforts assisted in convening actors for the CWPP development process. During the CWPP development process these networks were strengthened between the original players and additional networks formed between new actors, and they facilitated access to information and resources that assisted in completing the CWPP. As a result of the relationships and networks formed and strengthened during the context and process phases, the outcome result is that community members have an increased capacity to collectively organize to address issues, and they possess networks with agency actors who can supply them with information and resources to assist in implementing the CWPP, as well as other projects.

The CWPP development process involved actors from natural resources agencies, local fire authorities, local governments, and the community. For the purposes of our

data analysis, we will refer to any non-community member as an agency actor. We include local fire authority and local government actors in the “agency” grouping because while they are themselves members of the community, they occupy a different level of authority and possess knowledge and networks beyond that of the average community member.

### **Pre-Existing Contextual Capacities**

Several capacities emerged as a result of collaborative efforts that occurred prior to the CWPP development process. Table 2.3 provides a summary of these capacities.

#### ***Previous Collaborative Experiences and Community Fire Mitigation Activities***

##### **East Portal**

Many of the actors in the East Portal CWPP case had worked together previously in the context of wildfire management and mitigation. The pre-existing relationships and networks created during these previous experiences played a defining role in facilitating collaboration during the CWPP development process.

The actors from the CSFS, USFS, NPS, the fire authority, and the county had all worked together on fire response efforts. These agencies share a mutual aid agreement and assist each other with wildfire response.

The community actors from subdivision A had been working with the state and county actors on mitigation projects for several years prior to the CWPP process, which began in 2004. Subdivision B had some prior experience working with the county and

Table 2.3: Context Capacities Identified in the Case Studies

| Context Capacities                 | Elements Contributing to Capacity  |
|------------------------------------|--|
| Networks and Working Relationships | <ul style="list-style-type: none"> <li>• Horizontal (community-community), and vertical (community-agency, agency-agency) networks</li> <li>• Motivated community actors create vertical networks with agency actors to access resources and assistance</li> <li>• Community members utilize horizontal networks to collectively organize and gain community support</li> <li>• Community actors provide agency actors with access to local networks in order to share information and gain support</li> </ul>   |
| Collaborative Learning             | <ul style="list-style-type: none"> <li>• Participatory discussion</li> <li>• Agency actors are willing to share power, guide and not lead</li> <li>• Experiential learning opportunities</li> <li>• Sharing scientific and technical information as well as local knowledge</li> <li>• Sharing risk assessment information</li> <li>• Communication skills; ability to explain complicated information in a clear and relevant manner</li> <li>• Use of maps, aerial photos, historic photos, and other visual aides</li> <li>• Utilize human capital of community representatives to disseminate information through local networks, act as community liaisons, and use local legitimacy to gain community support</li> </ul> |
| Issue Framing                      | <ul style="list-style-type: none"> <li>• Protect life and property, community members take responsibility</li> <li>• Restore forest health</li> </ul>  |
| Human Capital                      | <ul style="list-style-type: none"> <li>• Community leadership</li> <li>• Agency leadership</li> <li>• Community actors with backgrounds in fire fighting, natural resources management, leadership, problem solving</li> <li>• Agency actors demonstrate ability and willingness to collaborate with the community</li> </ul>  |

CSFS actors on wildfire mitigation efforts. While resistance and apathy within subdivision B had prevented community-wide mitigation activities in the past, a few motivated residents had completed mitigation projects on individual properties.

The youth camp had been conducting wildfire mitigation on the organization's property for several years prior to the CWPP, and had received assistance from the county, the CSFS, and the NPS. The NPS was motivated to assist because it shares a border with the youth camp. The youth camp actor we interviewed is a volunteer fire-fighter with the local fire authority and was therefore already familiar with regional wildfire issues when the CWPP process began.

These previous collaborative wildfire mitigation efforts indicate that prior to the CWPP process there was already capacity within the community to organize and take action in addressing wildfire risk, and capacity of the agencies to provide assistance. When the CWPP process began the majority of the community was already educated regarding wildfire risk and mitigation. Matt, the county actor, stated that the previous collaborative work built awareness and knowledge within the community, so that community members were up to speed when the CWPP process began:

*"We gave them a lot of the education materials, they knew they had a fire problem, they were pretty aware of the issue. We didn't have to start from ground zero."*

We will discuss the information sharing process that Matt refers to in greater detail later in this paper.

Paul, the subdivision B actor, explained that the previous wildfire mitigation experiences in the region set the stage for the CWPP process:

*"[The subdivision A actors] wanted to do something, and they were the original participants, and there has been an effort in [subdivision B], so I knew there were*

*some people who wanted to do something, and I understood that it was a good idea. And the [youth camp] was interested, in fact they already had their own program. So they came into an area that was ready for it. If you were going to go to an area that was not ready for it, or was unaware completely or mostly, and you don't have a lot of preparation and examples, you would have a rough time."*

Paul recognized that convening a CWPP process is much easier when building off of past collaborative mitigation efforts. Networks and working relationships were already established, and the community had knowledge regarding wildfire risk and mitigation. Members of the LCCG who we interviewed discussed their preference for working with communities who already have a baseline interest and knowledge in wildfire mitigation. The previous history of community wildfire mitigation projects in the East Portal region made convening the CWPP process and gaining local participation and support much easier than if there had been no such history.

#### Harris Park

The Harris Park CWPP process benefited from prior collaboration between several of the actors. There had been previous collaboration between the fire authority and the community as well as the CSFS and the community on wildfire mitigation projects. One of the subdivisions, which we will refer to as subdivision A, had been working closely with the fire authority for a number of years prior to the CWPP on community wildfire mitigation projects. The CSFS actor had been working with a different subdivision to create a wildfire mitigation demonstration site within their community common space in order to educate their subdivision as well as other community members.

The fire authority also facilitated pre-existing community wildfire mitigation capacity by providing a community slash pile for several years prior to the CWPP process. In addition, they provide a free chipping service to the subdivisions. It is important to emphasize the high level of wildfire mitigation capacity that the fire protection district contributed to the CWPP process as well as to the ability to protect their district from wildfire. Pete, the subdivision A actor, described this capacity:

*“[The fire authority] is a class six department, which is very important to those of us who pay insurance premiums for fire insurance on our homes. A class six fire department is the best rating you can get as a mountain community fire department. And it’s a volunteer fire department.”*

The fire authority completed a wildfire hazard risk assessment for the twenty subdivisions in their district in 2003. The information gained from this risk assessment was later incorporated into the CWPP. This process began in 2002 when the fire authority applied for and was awarded ArcView GIS software through a FireWise contest. They received a grant from the CSFS and hired a consultant to create the wildfire hazard risk assessment. The consultant provided individual structural assessments as well as subdivision-level risk assessments. This assessment resulted in the fire authority’s ability to use the software to access geospatial information regarding the GPS location and hazard rating of each individual property in their district, which they utilize in wildfire response efforts. This particular information was not included in the CWPP, but the subdivision-level hazard rating was, along with maps that provide information for determining fire risk (i.e. fuels, slope and aspect, etc). Bob, one of the fire authority actors, explained why they originally completed the hazard risk assessment and how this contributed to the CWPP process:

*“I guess prior to that, after the fire, our fire district and county had no mapping, so really we started off on that whole approach of mapping and did a wildland fire hazard analysis for our whole district. We new we had hazardous areas, we just didn’t have the science to prove that we did. So really, that mapping and wildfire hazard plan went along, we started that at the same time and then it went into the CWPP.”*

The USFS had been drafting an environmental assessment for a wildfire mitigation project in federal land near and surrounding the Harris Park communities prior to the CWPP initiation. The CWPP team combined the fire authority’s risk assessment of each of the subdivisions with the USFS’s environmental assessment to create the CWPP.

The federal and state agencies and the fire authority had worked together for years in regards to wildfire response. They also worked on wildfire response efforts with an actor from Jefferson County, who played a minor role in the CWPP process.

The federal and the CSFS had collaborated on a previous watershed restoration project in the region, the Upper South Platte Restoration Project. This project is an on-going effort to restore a critical Denver watershed from the effects of wildfires that have burned across the watershed since 1996. These actors also collaborated on a CWPP for that watershed, the South Platte CWPP. This provided valuable insight and experience in developing a CWPP, and this information was beneficial in facilitating the Harris Park CWPP process. Although a different CSFS actor worked on these projects, the CSFS actor for the Harris Park case benefited from the networks and relationships between his agency and the USFS. Both of these efforts involved a local fire authority and community members, and while these actors were different than the fire authority actors and the community members who participated in the Harris Park CWPP process, these efforts provided the agency actors with experience working with fire district and community stakeholders in the context of wildfire mitigation.

## Lake County

The Lake County case is different than the Harris Park and East Portal cases in that there had been very little previous collaborative experience between the agencies and the community involving wildfire mitigation. The county is high in elevation and the majority of the forests are lodgepole pine or spruce/fir, which have a longer fire interval compared to ponderosa pine forests. There are several historic mines in the region, particularly around Leadville, and the forests were heavily harvested in the late 1800s in order to provide fuel and timber to supply the mining operations. As a result, for most of the 20<sup>th</sup> century the forests were relatively young and not in danger of catastrophic wildfires, according to their ecological fire regime. Therefore, large scale wildfires have been virtually unheard during the history of white settlement in the region, and as a result a majority of residents were unaware aware of fire danger and were not motivated to undertake mitigation projects prior to the CWPP process.

While the county has not been impacted by large scale wildfires in the past century, small scale wildfires have occurred, and the federal and state agencies and the fire authority had worked together in response to wildfires in the past. These actors had also worked together on response efforts outside of their region.

An additional inter-agency collaborative effort regarding wildfire is the Upper Arkansas Wildfire Council. The Council was established several years prior as a cooperative effort between the CSFS, federal agencies, fire authorities, and actors from county governments in Lake and Chaffee counties (Chaffee County is directly south of Lake County). At the time we conducted interviews the Council had not met in the past



year or so, and many of the CWPP participants who were new to the region had not been a part of it. Alex, the CSFS actor, discussed his desire to convene the group once again as a resource for CWPP development as well as wildfire response. Alex explained:

*“My goal is to have a meeting with the council, get together and learn what’s going on with the CWPP process in Lake and Chaffee and kind of learn together.”*

Alex hopes to utilize the Council as a networking forum to coordinate efforts between agency actors in Lake and Chaffee counties, which is similar to the concept of the Larimer County Coordinating Group.

While the Council itself had not been recently active, it contributed to on-going regional capacity for wildfire response. The Upper Arkansas Wildfire Council founded the Colorado Wildfire Training Academy, which is used to train wildfire responders. The Council provides funding to the Academy as well as the Colorado Wildfire College, which has locations in Chaffee and Lake County. These two institutions train approximately 800 fire fighters a year combined.

While community wildfire mitigation projects were relatively rare in Lake County, they were much more common in Chaffee County, where the CSFS was actively working with landowners to mitigate private properties. Therefore, the CSFS actors were accustomed to working with community members in the context of wildfire mitigation. The CSFS and the USFS actors were also accustomed to working together in implementing mitigation projects on adjacent locally and federally owned land in Chaffee County.

While the federal and state agencies and the fire authority had previous experiences working together, the individual actors from the CSFS and the fire authority

who participated on the CWPP core team were relatively new, and were still forming networks at the time the CWPP process began.

Although previous community-agency efforts involving wildfire mitigation were rare, there were two previous projects involving forest management. The key community member, USFS, local governments, local college and many community members worked together in 2003 on the Lake County Forest Project. Interviewees discussed this project as an important precursor to the CWPP. This collaborative group discussed local values towards the county's forests in an attempt to determine what economic benefits, if any, could be drawn from the forests. The project folded in less than a year due to a lack of continuous community involvement; however it was a critical step in setting the stage for the CWPP effort. This project created initial forest management capacity within the community, as residents became familiar with the concept of actively managing their forests for local benefit. It created networks between the key community member, USFS, city and county government, and the community, as individuals got to know one another through discussing collective community interests.

The Forest Project also provided financial resources to the CWPP effort, as left-over funding from the project was utilized to fund the CWPP development process. This funding was from a Rural Community Assistance grant that the key community member and one of the USFS actors obtained through the local college. This highlights the ability of state higher learning institutions to contribute economic capacity through providing access to grant funding.

The key community member and the USFS collaborated on an additional project that facilitated the CWPP development process. The USFS had a history of

confrontational relationships with the community, and it had recently faced several appeals for an Environmental Assessment (EA) they were trying to pass in order to implement a fuels treatment project. The USFS actor asked the key community member for assistance in gaining community support for the EA. They decided to hold a Science and Information Workshop in order to learn and discuss cutting-edge knowledge regarding high-altitude lodgepole pine ecosystem management that could be shared with the public. The workshop took place in 2004. Throughout the course of the two-day workshop the researchers shared new information with the USFS and discussed different approaches to managing the forests. The key community member used the information that was presented in this workshop in her presentation to the community at CWPP meetings.

These previous collaborative experiences assisted in convening the Lake County CWPP process. Although the players hadn't all worked together collectively in the past, every player had previous contact with at least one other player. The agency actors were aware of the interest, motivation and resources that the key community member, local government actors, and the community members had to offer. The key community member was a part of the CWPP process from the very beginning, and the core team used their pre-existing community networks to contact community members to assist in organizing subdivision meetings.

#### Commonalities across the cases

In all three cases previous collaborative efforts regarding wildfire mitigation and response as well forest management provided a context of previous positive collaborative

experiences that actors were able to build from in convening the CWPP. Agency actors in all three cases were accustomed to cooperating on wildfire response efforts, and in the East Portal and Harris Park cases agency and community actors had worked together on community mitigation projects. These experiences provided preexisting capacity for the CWPP development process, as agency actors in all three cases and community actors in the East Portal and Harris Park cases understood the concepts of wildfire risk and mitigation. In the Lake County case the previous collaborative experiences facilitated an understanding of the concept of forest management within the community, so that while the concepts of wildfire risk and mitigation were relatively new when the CWPP process began, the community was open to the concept of forest management.

These previous experiences indicated capacity within the community to collectively organize to address forest-related issues, and capacity within the agencies to assist the community in pursuing wildfire mitigation and forest management goals. In the East Portal and Harris Park cases the CSFS and local fire authorities were the agencies most commonly engaged with the community prior to the CWPP process, with the addition of the county actor and the NPS in the East Portal case. In the Lake County case the USFS partnered with the key community member to organize community meetings to address forest management. The CSFS actors in the Lake County case were accustomed to working with communities on wildfire mitigation projects in Chaffee County to the south, indicating their ability to assist communities.

## *Networks and Working Relationships*

In each case prior collaborative experiences resulted in the creation of networks and positive working relationships between CWPP actors. These networks facilitated information sharing, access to resources, and the building of community support for mitigation projects, as we will describe in greater detail later in this paper. They contributed to collaborative capacity prior to the CWPP process, and continued to facilitate collaboration during the CWPP process.

We will refer to the networks that formed internally within the community as horizontal networks, as the networks involved actors within the same circle (the community). We will refer to the networks that formed between the community and the agency actors, as well as between different agency actors, as vertical networks, as these networks involved actors from different circles (community, county, state, federal) (Granovetter, 1973). It is important to distinguish between the two, because while horizontal networks allow actors to capitalize on resources that are available within their own circle, vertical networks allow actors to reach beyond their circle and secure resources that are available externally. This ability can be used to fill capacity gaps and strengthen and build new capacities.

### East Portal

A majority of interviewees discussed strong pre-existing vertical networks and positive relationships between the community and agency partners as a result of previous experiences working together on wildfire mitigation projects. These vertical networks

were formed between subdivision A and the county and CSFS actors, and between the youth camp and the county, CSFS, USFS, and NPS actors. Vertical networks already existed between all of the agency actors as a result of working together on wildfire response efforts. Strong community horizontal networks existed previously within subdivision A as a result of the community mitigation efforts. Thus, there were strong horizontal as well as vertical networks at the time the CWPP process began.

When the subdivision A actors began their efforts to motivate subdivision-scale mitigation, they began by using pre-existing horizontal networks within their community. Two of the subdivision actors were old friends who had recently retired from careers as urban firefighters in the same fire department in another state. They both moved to subdivision A at approximately the same time, and they learned about the recent wildfires and became concerned about wildfire risk. They began talking to their community about how to address this risk, and they captured the interest of one of the residents who joined them in leading the community mitigation effort. The three actors approached other residents and the HOA board members to enlist support. However, many residents as well as HOA board members initially resisted, due to negative public perception of cutting trees. The subdivision A actors realized that they needed assistance beyond their own means, and they enlisted the support of the CSFS and county actors, thus creating vertical networks to access resources otherwise unavailable to them.

With the assistance of the agency partners, the subdivision A actors ultimately succeeded in convincing their HOA board and their community to support the proposed mitigation projects. Subdivision A received a “FireWise Community” title in 2003 as a result of their efforts. They also have a formal fire mitigation committee that is a

subsidiary of their HOA board. This indicates strong horizontal networks for addressing wildfire mitigation, as the HOA has an institutionalized process for gathering and sharing wildfire mitigation information within the community.

These networks facilitated the building of trust between community members and agency actors, which resulted in community support for the mitigation projects as well as the CWPP process that followed. Trust also formed between the subdivision A actors and the rest of the subdivision, as the residents came to perceive the subdivision actors as trustworthy community leaders. When the CWPP process began, the subdivision A residents were content to grant the subdivision A actors with the authority to represent the subdivision on the planning core team. Chris, one of the subdivision A actors, explained:

*“Basically, I think what the homeowners did is they put a lot of trust in myself, [and the two other subdivision A actors]. And if we came back and said, we feel this needs to be done, I think we are now at the point where they say, we trust you, do it. We told them, we’re working on this plan, and what’s going to come out of it is a great map of where all of our important things are, and if you people feel that we missed something, let me know. If you’ve got some important piece of property that we missed, let me know and we’ll make sure that it gets listed. But I’d say 90% of the people just said, go do it.”*

The positive relationship that formed between subdivision A residents and the county actor is of particular significance, as one of the county actor’s roles is to conduct building safety inspections per the county building code, which caused the community members to be initially suspicious of him and his intentions. The county actor was able to build trust with the community as he offered his assistance in helping them address their wildfire risk.

While the community was initially suspicious of the county actor and of wildfire mitigation, they were also concerned about wildfire risk and forest health. When the subdivision A actors contacted the county actor to access information regarding wildfire

mitigation (creating a vertical network), the county actor took advantage of the opportunity to create a positive working relationship with the subdivision. He used interpersonal and issue framing skills, which we will discuss further later in this paper, to provide the residents with the scientific and technical information they desired in a friendly and open manner that gained their trust and led them to support the need for mitigation.

Vertical networks also existed between the youth camp and the county, CSFS and the NPS. The youth camp actor is a retired police chief and the current safety director for the youth camp, as well as a local volunteer fire fighter. Due to his role with the fire department, he was aware of the risk of wildfire to the youth camp property, and his role as the youth camp safety director required him to address this risk. He formed vertical networks with the county and CSFS actors as well as with the NPS in order to access resources and information to assist in mitigating the property. NPS staff played an especially critical role in educating his organization about mitigation and forest ecology. The NPS and the youth camp share a boundary, and NPS staff recognized that it was in their agency's best interest to assist the youth camp in mitigation activities, in order to collaborate in protecting both properties across their boundaries. Steve, the youth camp actor, explained:

*“The original thing when we met with the NPS was, two things happened: they said we’ve got all the crews and we want to do this mitigation, and we started meeting and the deal was that they’ll do so many feet on their side of the line and we’ll do so many here, because they couldn’t come over and do our side and we’re not allowed to go on their side. But we had a line we could both work out of. They didn’t want us to burn their land down, and we didn’t want them to burn our side down.”*



Vertical networks formed between the youth camp and the NPS produced mutually beneficial outcomes for both entities. NPS staff understood that the agency's property would be more defensible from wildfire if the neighboring properties were mitigated, and so the NPS staff was willing to assist the youth camp in order to assure that the youth camp's side of the boundary underwent mitigation treatments that complimented treatments on the agency's property.

Subdivision B did not have the benefit of strong horizontal or vertical networks. The majority of the property owners are part-year residents, some as short-term as a few weeks out of the year, making any type of collective community action difficult to convene. While the majority of residents in subdivision A are also part-time, subdivision A benefited from a core group of residents who worked together to motivate the rest of the subdivision. In subdivision B a few individuals who were motivated to mitigate their properties had formed vertical networks with the state and county agencies in the past, but their efforts were limited to mitigating their own individual properties. A few residents had previously attempted to motivate a subdivision-wide mitigation, but their attempt failed due to strong resistance by many of the residents, including many of the HOA board actors. The subdivision is located on a wildlife-focused conservation easement, and many of the residents were historically opposed to removing any of the trees due to the emphasis on wildlife habitat conservation. At the time that the CWPP was developed, the subdivision B representative was alone for the most part in motivating his community's support and involvement. Paul, the subdivision B actor, described these previous challenges:

*"Just before I [moved to subdivision B] [a few of the residents] tried to have a plan where they were going to do [wildfire mitigation], it was pretty advanced.*

*And one of the residents who is no longer here, actually formed a private company so he couldn't be sued by his neighbors, and launched publicity to prevent trees from being cut. And then he moved away. So my impression of the neighborhood was and still is, not a lot of cooperative spirit there. Plus, it's only about half occupied."*

Not only were there weak networks within subdivision B, but the networks that did exist were historically hostile to wildfire mitigation. One factor that facilitated subdivision B's involvement in the CWPP was that many of the residents who previously opposed mitigation had moved out of the community by the time the CWPP process convened. Therefore, while the horizontal community networks remained weak, they were no longer as negative to wildfire mitigation. The weak vertical networks were enough to provide the county agency actor with a foot in the door during the early attempts to motivate community mitigation projects in subdivision B. The county actor had the opportunity to meet and form a connection with the subdivision B actor, who was the president of the HOA, at an HOA meeting. When the conversation to start a regional effort began, the county actor used this vertical network to contact this individual to represent subdivision B.

All of the actors in the East Portal CWPP process described the benefits of pre-existing vertical and horizontal networks. A major capacity required of a collaborative process is the ability to convene the process and invite the appropriate actors. The pre-existing vertical networks provided the agency actors with the knowledge of who to invite from the community to participate in the CWPP development process, as Matt, the county actor, described:

*"I met [the subdivision B actor] at [a subdivision B HOA] meeting, because he was then the president of the board, and that's how he and I developed a relationship. And [the CSFS actor] and I invited [the subdivision B actor] to meet with [the subdivision A actors]. And then [the youth camp actors] are both*

*on the fire department, so they were up to speed to begin with. So they had baseline knowledge, and there was no problem getting them. And that's how those main actors came about."*

A majority of interviewees discussed pre-existing vertical networks between agency actors. Other than wildfire response efforts, the actors from the USFS, NPS, CSFS, and the county had pre-existing relationships and networks through the Larimer County Coordinating Group (LCCG); each of these actors discussed the LCCG in their interviews. The LCCG provides the agency actors with a forum for exchanging information and resources regarding wildfire mitigation planning and projects throughout the county. It formed though the networks that existed between the agencies as a result of wildfire response efforts, and since its formation has strengthened these networks and working relationships. Laura, the current CSFS actor, explained the benefit of the LCCG:

*"It's definitely helped in that most of the coordinating group members are participants in the CWPP, so we don't need to explain the issues that are going on, because we're already on the same page. Just from a planning standpoint, for the USFS anyway, and from our perspective, understanding which communities are active. And also having the USFS know which communities are active can help us with our grant applications."*

The actors in the East Portal CWPP process were highly aware that the previous mitigation projects and networks formed during these early efforts contributed significantly to the success of the CWPP process. These events resulted in ripeness for convening the CWPP process, as actors possessed an awareness of wildfire risk and the need for landscape-scale mitigation, and the knowledge, skills and motivation to take action. Horizontal networks within the community facilitated the transmission of information and garnering of local support, and vertical networks allowed the community access to agency-provided resources and information critical to gaining support for and

implementing mitigation projects. These pre-existing networks facilitated convening the CWPP actors.

### Harris Park

The previous collaborative experiences in the Harris Park case created vertical networks between the USFS, CSFS, and fire authority actors prior to the CWPP process. Vertical networks also previously existed between some of the subdivisions and the CSFS and fire authority. Interviewees placed much more emphasis on the pre-existing agency-agency networks than on community-agency networks. This may be due to the fact that the majority of the interview questions focused on the CWPP development phase rather than the implementation phase, and the community was not a player until the implementation phase. The CWPP development phase was facilitated by networks between agency players (including the fire authority), and did not rely on networks with the community. It is therefore logical that agency-agency networks received greater attention in our interviews than agency-community or community-community networks.

The Upper South Platte Watershed Restoration Project was particularly critical in creating strong networks and working relationships between the state and federal agencies. Alan, one of the USFS actors, emphasized how critical these previous networks and relationships were in facilitating the successful collaboration that occurred during the Harris Park CWPP process:

*“What really makes [collaborative efforts] work is building the relationships before. You can talk collaboration, but unless you’ve built the foundation, and you don’t even have to have a strong foundation, but unless you’ve built those foundations before...the collaboration is much easier and the relationships are much easier if you’ve built some kind of a relationship before you go into the planning process...to use an old cliché, you don’t have a mating dance.”*

Bob, one of the fire authority actors, explained how working with the agency actors during wildfire response efforts facilitated collaboration during the CWPP process, as positive relationships and trust were already established:

*“I think actually from running the calls, we were very comfortable with each other on the incidents. When we came together on our first CWPP meeting, we’d been working so long together working on calls that we didn’t have any issues. I think we already had the partnerships built, and then we turned it into this. I think the relationships that we built prior to this were the key. We had that knowledge, because around here, we’ll go fight on a federal fire, and our people will be in incident command of it, even if federal resources are coming in, we’ll be in charge. We trust each other, we know everybody’s ability, so that was a huge thing.”*

Vertical networks also existed between the community and agency actors. As we discussed earlier, subdivision A had been particularly active and had been working closely with the fire authority to conduct community mitigation projects since 2002. Another subdivision had been working with the CSFS actor to thin the forest in a community common area, and they have offered this area as a demonstration site for the surrounding communities.

These pre-existing vertical networks were critical in gaining community support for the CWPP, as the community was not directly involved during the CWPP development process until the end, and there were not opportunities to build networks between the agency partners and the community during the development phase. We will later discuss the importance of these networks when the fire authority held community meetings at the completion of the CWPP development phase to present the CWPP to residents and seek local approval and support.

There were also pre-existing horizontal networks within the community. Residents in subdivision A had been working together for several years on mitigation

projects, and their HOA has been an effective avenue for sharing information and motivating community involvement through quarterly newsletters, HOA meetings, and word of mouth. Their strong commitment to wildfire mitigation resulted in the creation of a FireWise director position on their HOA board in 2004. The HOA's goal is to ultimately be awarded a "FireWise Community" title.

While subdivision B had not previously been involved in mitigation projects, the subdivision B actor explained that close relationships previously existed between residents in her subdivision, and that this assisted in gaining support for mitigation projects:

*"[The absentee landowners] were fine [with giving permission for mitigation treatments on their properties], because they know their neighbors. So if they weren't going to be here they would just let their neighbor walk it and tell [the fire authority] what [trees] they wanted and didn't want [removed]. So that worked out just fine. We're all pretty close-knit up here. We know each other really well."*

While there were pre-existing horizontal and vertical networks in the Harris Park case, there were also elements that contributed to weak networks. Pete, the subdivision A actor, explained how the independent/isolationist mentality of many individuals in the region can cause resistance to collective action or government-imposed agendas:

*"There's a mountain mentality up here, 'I want to be alone' type of mentality of a lot of people up here, 'I don't want to be a part of this group or that group, or this HOA'. They moved up there to be reclusive and to raise a family, and they're not necessarily antisocial but they don't want to be a part of organizations or groups. They don't want people to tell them what to do."*

This local attitude may have contributed to the lack of community involvement during the CWPP development process.

The strong vertical networks that existed between the agency actors facilitated convening the CWPP process, as those actors were already in place. The vertical

networks that previously existed between the CSFS and the fire authority and the community did not come into play until the end of the CWPP process, when the fire authority needed to contact community actors to attend meetings to learn about the CWPP. However, these previous networks and working relationships were critical as they facilitated immediate support for the CWPP by communities such as subdivision A.

### Lake County

There were pre-existing networks between the agency and community actors in the Lake County case. Interviewees discussed the Lake County Forest Project as an important precursor to the CWPP process, as it facilitated the formation of vertical networks between the USFS and the local county and city governments and the community. The Forest Project also highlights pre-existing networks between the USFS actor and the key community member and the college. The college is actively involved in resource management in the region, and has a history of working with the USFS on resource management projects. The key community member is a former employee of the college. The USFS actor and the key community member utilized their networks with the college in order to access funding for the Project. The local government representatives were also involved in the Lake County Forest Project, which contributed to their willingness to play a role in the CWPP process. The Forest Project facilitated the creation of horizontal networks between the key community member and the local government representatives and vertical networks between the USFS and the local government representatives.

The Science and Information Workshop strengthened networks between the key community member and the USFS. The key community member used vertical networks she had established throughout her academic career to invite several researchers from universities, as well as representatives from several environmental groups. The USFS actor used internal agency horizontal networks to invite researchers from his agency from around the state. This Workshop also created vertical networks between the USFS and several actors from environmental groups, as well as the general community. Neil, one of the federal actors, explained how this relationship-building opportunity will be beneficial in avoiding future conflict with these environmental organizations:

*“That was a big opportunity that I see, was for these guys and gals to get together and talk, and to talk to me, because I got beat about the head in the Denver Post about [forest management issues]. And it kind of bothered me a little bit. And since this [Workshop], any time some of these folks have a question, they pick up the phone and call me. We have a much closer working relationship.”*

While the Forest Project created horizontal networks between the community members who attended the meetings, interviewees discussed weak previous horizontal networks within many communities. One community member explained that the residents in his subdivision choose to own first or second homes there because they value their privacy and like to keep to themselves and spend time with their families, and that there is not a great deal of exchange among residents. Residents in this subdivision place a great value on the privacy that their forested mountain community provides; we will later discuss how this value affected the willingness for community members to thin their forests.

Despite these indicators of weak community horizontal networks, many of the communities have an HOA, which can be considered an indicator of horizontal networks



and community organizational capacity. Additionally, one of the subdivision actors provided an example of pre-existing networks within the community when he explained that residents from a neighboring subdivision attended his subdivision's CWPP meeting because the two subdivisions share social networks. As a result, the core team grouped these subdivisions together in the CWPP planning.

#### Commonalities across the cases

Networks developed between agency and community actors in all three cases as a result of previous collaborative efforts. There were preexisting horizontal networks within the community, vertical networks between the community and agencies, and vertical networks between the different agencies.

In each there were communities that had strong internal horizontal networks as well as those that had weak horizontal networks. HOAs provided networking capacity in each case, as they are the main avenue of governance and addressing collective issues in many mountain communities. Vertical networks between the community and agencies were most common with the CSFS and the local fire authorities, although the county representative and the NPS had preexisting community networks in the East Portal case, and the USFS in the Lake County case. The agency actors in each case had preexisting networks formed through wildfire response efforts.

In each case horizontal networks within the community facilitated collective action to address either wildfire or forest management issues. Community actors formed vertical networks with agency actors in order to access external resources and combine forces in accomplishing goals. In each case these networks formed positive working

relationships and trust between community members as well as between community and agency actors. Networks and positive relationships were critical in convening the CWPP process, as the key CWPP actors had already worked together in some capacity and knew that they could count on each other as collaborators. In the East Portal and Lake County cases the agency actors had a network of community members who they knew to invite, which was also demonstrated in the Harris Park case at the end of the CWPP development process. As a result of preexisting networks, in each case the major actors were already in place at the time the CWPP was convened.

### *Collaborative Learning*

Collaborative learning is a process that emerges through knowledge-sharing, relationship-building and the strengthening of trust, and deliberation (Daniels and Walker, 2001). Daniels and Walker (1996) explain that “Successful collaborative learning processes sustain quality discourse: constructive discussion of ideas, collaborative argument, and interaction – in short, communication competence” (p. 82). Collaborative learning occurred during the collaborative efforts prior to the CWPP process, as well as during the CWPP development process.

### East Portal

The East Portal case was unique in that a great deal of information sharing and collaborative learning took place prior to the CWPP development process as a result of the community mitigation efforts. Collaborative learning occurred between the state and county agency actors and subdivision A, and between the state, county, and NPS actors

and the youth camp. It occurred to a small extent between the CSFS and county actors and the individual residents of subdivision B who had previously mitigated their properties. This played a significant role in the success of the CWPP development process. At the time the CWPP development process convened, community actors already had a working knowledge of the scientific and technical information required to undertake a CWPP planning process, and the agency actors were familiar with local values and concerns.

An important collaborative capacity in the East Portal case was the community members' receptivity to learn about forest management and wildfire mitigation, and their willingness and ability to absorb scientific and technical information from the agency actors. We will discuss this human capital capacity later in the paper. The community actors were aware of wildfire risk due to large wildfires that had recently burned in their region. They were also aware of the mountain pine beetle epidemic that is rampant just across the Continental Divide, as this is a well-known issue in Colorado and mountain towns in particular are extremely concerned about potential negative impacts.

This local awareness led to community concern for wildfire risk as well as interest in forest health and management. While none of the community actors had a background in forest ecology, these individuals were all retired from demanding careers that required great amounts of personal capacity to quickly learn and take action. Therefore, all four community actors had the personal capacity and the motivation to learn and digest new information related to forest ecology, fire behavior, and wildfire mitigation in order to protect their communities and steward their forests.

Laura, one of the CSFS actors, described the community's willingness to learn:

*“[The community members] are very interested to learn about that because they want to do the right thing. That’s what it really comes down to, is these people want to strike the balance between managing their properties for forest health as well as for fire reduction. So they want to learn as much about it as possible.”*

George, one of the subdivision A actors, explained that his subdivision is composed largely of academic-minded people who appreciated access to scientific and technical information, and had the capacity to understand this type of information:

*“We chose to use the good science rationale, and what we said was, experts tell us this is what we’re supposed to do, and it’s not just [George] with his layman’s opinion, if we have the foundation of good scientific, technical information that supports the course of action, will you [support mitigation projects]? Well, [the community members] are a bunch of academics, so they said sure.”*

George’s local knowledge of his community led him to understand that local support would not be gained through personal appeals to neighbors, and that he needed to provide supporting scientific information. This was true in each community in the East Portal case; it was critically important for the community members to have access to scientific and technical information in order to understand and support the need for wildfire mitigation. Chris, one of the subdivision A actors, emphasized the role that information sharing and collaborative learning plays in gaining local support:

*“I don’t mind someone telling me what to do, but I’ve got to know why they want me to do it, and why it needs to be done, and I’ll do it.”*

Steve, the youth camp actor, echoed this statement:

*“I have not seen any landowner in this area who’s walked up and said, you’re not touching my place. They want the knowledge and the information. And that’s how we approach it, we’re not going in and saying, you’d better cut your trees down or you’re going to burn this whole valley down. We’re presenting it to them as, we’re doing this and this, let us give you information and you think about it... We can’t make them do it, but we can sure present them with the information that says, not only are you doing the better thing for your forest around your home, but you’re preserving your property and everybody else’s property.”*

The community actors played a key role in sharing agency-provided information with their communities. While scientific and technical information was required to explain the need for mitigation to the community, the involvement of local actors in sharing this information was also critical, in that it lent local credibility to the process. Community members trusted the validity of this information because they trusted the community actors who assisted the agency actors in sharing the information. Community actors took advantage of local networks that agency actors would not necessarily have had access to in sharing this information. This demonstrates the manner in which networks facilitate collaborative learning.

Both the county and CSFS actors had strong pre-existing capacity for working with communities, as their jobs focus on providing assistance and resources to communities in managing private lands and mitigating wildfire risk. Laura, the current CSFS actor, emphasized the community outreach element of her job:

*“Because of the services that the CSFS offers and what our role is to help private landowners, we have contact every day with a landowner... We are working very closely with most of the communities in the county.”*

The federal agencies have a different mission in managing public lands, and providing outreach and assistance to communities is not a major focus of either agency. In the East Portal case the NPS was unique in that actors from the agency were motivated to provide assistance and information to the youth camp regarding thinning techniques. This was in the NPS’s best interest as the youth camp shares a border with the agency.

While the fire authority has a strong capacity for working with the community as they interact with residents on a daily basis, the communities in the East Portal region are

not included the fire protection district, and the fire authority played a more minor role in sharing information.

Prior to and during the CWPP process actors from the CSFS, NPS, county, and fire authority shared information with the community actors regarding forest ecology, fire behavior, wildfire fire mitigation, and local wildfire response. The county, CSFS and community actors played the largest role in sharing this information with the community. The CSFS and county actors spoke at HOA meetings and community events, and also shared information one-on-one with property owners as they conducted property wildfire risk assessments, in which the agency actors visited properties and rated the wildfire risk according to specific indicators. The community actors shared information with their communities formally through the HOA as well as informally through neighborly discussion.

The property wildfire risk assessments provided an especially effective forum for collaborative learning, as it created an experiential learning opportunity for community members as the agency actors demonstrated hands-on the concepts of wildfire mitigation and forest management. This type of experiential, active learning is a key element of collaborative processes, and research shows that individuals, adults in particular, respond more positively to experiential learning situations. Daniels and Walker (2001) discuss the importance of utilizing adult learning techniques as part of collaborative learning. They emphasize that learning should be personally relevant to the individuals involved and actively engage individuals in a manner that allows for reflective thinking in order to facilitate informed, deliberative decision making.

Information regarding forest ecology and fire behavior played a major role in assisting the agency actors in explaining the need for forest thinning. This information helped the community members understand the interconnection between wildfire and forest health, and how properly conducted thinning can mimic the effects of fire and improve forest health. The agency actors explained the beetle epidemic to the community actors, and the potential for mitigating it. They also helped the community understand and identify invasive weeds. The majority of this information sharing took place through discussions and during walks through the forest; again, these hands-on learning experiences were highly effective.

Information regarding wildfire mitigation was primarily shared by the county and CSFS. The NPS also played a role in sharing this information with the youth camp. While the forest ecology and fire behavior information provided the community members with an understanding of *why* mitigation was necessary, the information regarding wildfire mitigation described information *how* to conduct defensible space and proper tree thinning. This combined knowledge provided community members with the capacity to understand their risk as well as to act to mitigate that risk.

Wildfire mitigation information was shared mainly through conversations between the agency actors and community members during property wildfire risk assessments, as well as during the implementation of mitigation projects. Steve, the youth camp actor, explained how the NPS taught his organization about forest thinning:

*“We learned from them, because they are protecting their forest...So learning from them and them teaching us how to thin and go through and learn the correct procedures, they show us how to do that. In most cases you can walk through the forest and not tell that we’ve been there and thinned. [The county actor] showed us that, the NPS showed us that. We’ve all taken walks together.”*

Again, this emphasizes the benefit of experiential learning in building knowledge and skills. Chris, one of the subdivision A actors, shared a similar story:

*“The education we had on defensible space probably was hands-on, [the county actor] coming out. People can tell you and show you pictures and movies, but until they walk you into your forest and say, here’s what we need to do—and [the county actor] actually did this, and it was neat, he took ribbons and put them around trees, and said, step back and look and tell me if you think you’re going to miss those trees. And he’d tell us why things needed to be done. So I think most of our education came from getting people up here and having face-to-face talks...And I think the good thing that comes out of that is you get to form a bond or a friendship with the person, you gather trust in him, and it makes it a lot easier to sell your program.”*

Chris not only described the educational benefits of experiential learning, but also pointed out how collaborative learning processes can build and strengthen networks and relationships between actors through the process of sharing and discussing information. Kevin, the USFS actor, described how the trust that was established between the county actor and the community facilitated the CWPP development process:

*“The communities really like [the county actor], because he’s personable, he’s dealt with them all, he knows them all personally. So the trust level with [the county actor] was really high, so [the community members] always looked to [the county actor] to provide a lot of guidance. [Without this pre-existing trust] I think we’d still be working [on the CWPP]. Because there was already an immediate trust level. And that’s what we’re really finding, is before you can really do anything with CWPPs, with communities and agencies, you’ve got to get to know each other and build a trust level.”*

This is a powerful statement, in that the USFS actor recognizes the need to establish trust and good working relationships in order to successfully complete a CWPP development process. The actors in the East Portal case were fortunate that this trust existed prior to the CWPP process.

The county and local fire authority actors also shared information regarding local wildfire response with the community. This information was important in explaining to



the community how mitigation helps fire responders defend private properties during wildfire response events. As the county actor conducted property wildfire risk assessments with community members he explained why certain properties would be considered indefensible in the event of a fire, and this led to conversations regarding how to make the properties more defensible from a fire fighter's perspective.

Community actors described how access to this type of information helped the community understand the need for mitigation, and emphasized the personal capacity of the agency actors to relate relevant information directly to the community in a manner that captured their attention and helped them understand the bigger picture. This is an extremely important skill to have in a collaborative process, as stakeholders must perceive information as being personally relevant in order to better understand and support its content. George explained:

*“[The other subdivision A actors] and I knew [the county actor’s] personality, and people skills, and technical competence. And that was really important, the technical competence to justify on a rational basis what you’re doing. His ability to take that and apply it in doses that we could consume, presuming that there was at least a nucleus of people already in the community who had the heart for it, but politically could not understand the technical scrutiny, to say, what [George] is saying is the truth, we’re going to do it this way because. Who the heck is [George]? But [George] has [the county actor] behind him. [The county actor] was the source of initial grant money, and the guy who went around to each of the houses and did the public service.”*

This statement also demonstrates that while the community actors contributed local legitimacy, the scientific and technical information and financial resources that the agency actors provided also lent legitimacy of the proposed mitigation projects.

Collaboration between community and agency actors was critical throughout the CWPP process, in order to attain the maximum amount of available information, resources and support. The information that was shared was critical, but the process of sharing the

information was equally critical. Experiential learning facilitated community understanding of the information and how it related to them, and the participation of the community actors in sharing the information within their communities through the use of local networks lent local legitimacy. The agency actors possessed the interpersonal and communication skills necessary to share complicated information in a straight forward and relevant manner, and the community members possessed the willingness and cognitive abilities to learn.

As a result of the collaborative learning that occurred prior to the CWPP development process, actors from subdivision A and the youth camp immediately understood the benefit of creating a CWPP for the region, and their expanded scientific knowledge allowed them to jump into the planning process with little need for further explanation of scientific information. The previous collaborative learning experiences also built and strengthened relationships and formed trust between the agency actors and the community, so that it was easy for the agency actors to gain local support for the CWPP.

#### Harris Park

The fire authority and the CSFS engaged certain interested communities in collaborative learning regarding wildfire mitigation prior to the CWPP process. While some of the subdivisions were engaged in collaborative learning prior to the CWPP process (such as subdivision A), and others were engaged at the end of the CWPP process (such as subdivision B), the collaborative learning processes involved sharing the same information in the same manner regardless of when they occurred. Therefore, for the

sake of simplicity we will discuss community collaborative learning in the “Process” section of this paper.

There was one instance of information sharing that was unique to the Context phase. When the fire authority completed their community risk assessment, they hosted community meetings to share the results of the assessment. The CSFS actor attended these meetings to provide information regarding fire behavior, and was therefore aware of the work the fire authority had been doing. Tom, the CSFS actor, described these meetings:

*“We had had as part of this—and here’s another kind of leg-up that we had with the concept, was through their fire district pre-planning that [the fire authority] had done, they had hosted six community meetings in their process to show people their overall hazard and to show them the rating of their home, because that has a lot of impact if you show a map of the entire fire district and your home is red, and maybe your neighbor is yellow or green, so they can see what their piece of it is in the overall... And that was kind of the tone of those meetings, I would give a little talk about the overall fire behavior.”*

These meetings provided a baseline of knowledge for community members who attended regarding fire behavior and wildfire mitigation and response. The meetings also provided the CSFS actor with an awareness of the work the fire authority was doing in the community. This contributed to the CSFS’s local knowledge, as he knew which communities were interested in wildfire mitigation, which benefited him during the CWPP process. The CSFS also shared information with the fire authority prior to the CWPP process regarding forest health and fire behavior, and the fire authority utilized this information in working with the community on mitigation projects.

It’s important to note that the fire authority’s community risk assessment was created by an outside consultant, so the actual process of creating the risk assessment did

not provide for a collaborative learning experience. Collaborative learning occurred in the context of sharing the completed plan with the community and gaining local input.

### Lake County

Community members in the Lake County case were not engaged in collaborative learning regarding wildfire risk and mitigation until the “Process” phase of the CWPP development process. However, collaborative learning regarding forest ecology occurred between the key community actor and the USFS during the Science and Information Workshop. The Lake County Forest Project also provided an opportunity for community collaborative learning, as community members discussed their values for their forests and how engaging in active forest management could potentially produce benefits to the local economy. These experiences provided a baseline knowledge of forest ecology and local forest values, which assisted during the CWPP process.

Susan, the key community member, explained how the Forest Project provided stakeholders with the opportunity to gather and discuss important local issues related to their forests:

*“The fact that we did have meetings, that we sat there and talked about forests, which I doubt ever happened before in this community, it raised awareness, it raised our radar concerning forests, it was on the community radar from then on... At that time, the big point was do we want to continue meeting about this, do we want to keep talking about these issues, and if so, to what end, what goals do we want to see come out of this. And everyone at the time whole-heartedly agreed that we need to keep talking about it, that we need to explore the economic benefits, although most people thought it wasn’t going to go anywhere. But they were really interested in exploring, what is the relationship between this forest and this community.”*

### Commonalities across the cases

While collaborative learning occurred in each case during the previous collaborative experiences, it was the most extensive in the East Portal case. However, in each case collaborative learning provided community members with a baseline knowledge of wildfire risk and mitigation in the East Portal and Harris Park cases, and forest management in the Lake County case. This information assisted the community members in engaging in the CWPP process.

The collaborative learning process built relationships and trust between agency and community actors in all three cases (we have not yet discussed how this occurred in the Harris Park case; we will discuss in detail collaborative learning that occurred prior to and during the Harris Park CWPP process in the following section of this paper). As a result of this trust the community members perceived the agency actors as credible and legitimate and were immediately willing to participate in the CWPP process (although community members were not engaged until the end of the development process in the Harris Park case).

In the East Portal and Harris Park cases, collaborative learning that occurred prior to the CWPP process primarily entailed the agency actors sharing scientific and technical information with the community, and was one-way for the most part. Collaborative learning was more mutual in the Lake County case in the context of the Forest Project, as community members discussed their values for their forests and potential economic benefit that could be drawn from the forests.

### ***Issue Framing***

Benford and Snow (2000) define issue frames in the context of collective action as “action-oriented sets of beliefs and meanings that inspire and legitimate the activities and campaigns of a social movement organization” (p. 614), as participants “negotiate a shared understanding of some problematic condition or situation they define as in need of change” (p. 615). Issue framing provides a lens for individuals to view an issue according to specific characteristics that relate to values and beliefs.

Issue framing was a major tool in the collaborative learning process, as agency actors strategically developed their messages in order to gain community support for mitigation. Actors selected the types of information necessary to support their messages, and in each case multiple different frames focusing on different types of information were used to gain support from community members with a wide range of values. Issue framing helped determine how community members perceived their risk from wildfire, and how they understood the need for mitigation and for a CWPP.

### East Portal

Issue framing occurred in the East Portal case prior to the CWPP development process, during the collaborative learning processes associated with the previous mitigation efforts. As we previously discussed, pre-existing community awareness of wildfire risk and the need for mitigation was extremely beneficial in convening the CWPP process and gaining community participation and support, as community members immediately supported the need for a CWPP. Issue framing played a key role in forming this awareness.

Community members must be aware of potential wildfire risk before they can consider how wildfire might affect their values, and in the East Portal case the CWPP core team had the advantage of working with communities that already possessed this awareness. There was strong community awareness of the threat of wildfire in the East Portal region prior to the CWPP development process. A major reason for this awareness was the recent occurrence of two large wildfires in the region. Roger, the local fire authority actor, explained how these wildfire events motivated community interest in wildfire mitigation:

*“I think you have to look back at the fires that we had in 2000, is when we first started becoming aware that there was a danger in the area, and that’s when grants were made available to property owners through the CSFS and [the county actor]. And we worked some on that, but a lot of the property owners even after the Bobcat fire which was ten, twelve miles from here, they couldn’t see the smoke, so it really didn’t get started until after the Big Elk fire, which when they saw the smoke rolling in over these hills and it came within a mile and a half of one of our subdivisions, that everybody kind of woke up and said this is a real concern for us. Then we started having property owners and HOAs contact us wanting to know what they could do, and through that is where the East Portal group kind of started.”*

The local fire authority had been hosting wildfire awareness programs and discussing wildfire risk within the community since the Big Elk fire in 2004, which contributed to increased community awareness. The community actors understood that their communities faced wildfire risk, and this concern led them to engage in community mitigation efforts. The fact that two of the subdivision A actors are retired fire fighters, and the youth camp actor is a current volunteer fire fighter, contributed greatly to this awareness.

One of the main issue frames that interviewees discussed was the significance of mitigation in protecting life and property from wildfires. Life and property were

identified by community actors as being the most important values-at-risk during the CWPP development phase. This issue frame includes the concept that mitigation is necessary in order to create defensible space around properties, as well as to assist fire fighters in defending the community and individual properties. Community members learned from the county local fire authority actors that a property determined to be indefensible will not be saved in a wildfire response effort. George, one of the subdivision A actors, described the impact of this information:

*“[The county actor] said that we’ve got three problems, access, access, and access. But there are some things that you can do [to increase access]. The second startling principle was like a hammer, [the county actor] is very tactful and has a very statesman like way of saying, the question was, do you understand that there’s a ranking system by law that fire departments in a mutual support arrangement can utilize to designate homes and other properties that are to be defended in the event of a catastrophic fire, the so-called green dots, and the red dots which is you choose to ignore the stuff we’re asking you to do, and if there’s a fire we’re not coming. That point got through.”*

This frame includes the concept that private property mitigation is the responsibility of the homeowners, and that community members must play a role in assisting the agencies to defend their communities.

Paul, the subdivision B actor, described how local word-of-mouth spread this frame from subdivision A to his subdivision:

*“I think maybe in the background people got to talking about it, that [subdivision A] is cutting trees and cleaning up their roads so that the fire department can get up there.”*

Information regarding wildfire preparedness and response as well as fire behavior facilitated the formation of this issue frame, as community members came to understand how wildfires burn and what they can do to create defensible space on their properties, as well as assist fire response efforts. This frame was highly effective in capturing local



attention because it led community members to perceive that they faced a threat to life and property that needed to be prevented.

The other main issue frame focused on the benefits of mitigation in improving forest health. George, a subdivision A actor, described his community's values for their forests, and how these values led him and the other actors to explore the need for wildfire mitigation:

*“When we moved here, recognizing that people come to Estes for the mountains-- and the forests, and the flora and fauna, are certainly an integral part of the quality of life that you look to. As an organization, the HOA, the three of us [subdivision A actors] were relatively new, we've got all these warm and fuzzy words in the [HOA] articles of incorporation, and the by-laws talk about maintaining the environmental balance and quality of life in our mountain community—what does that mean? Structurally? And we have green space, and we started to see things like trees dying, and pretty much everybody in [subdivision A] comes from some place else, so they're relatively new, they've been signing checks for somebody to spray the trees, but never really understood why. And most of us were raised in the age of the Smokey Bear mentality, where fire is bad, and it can be controlled by human beings. We began to ask ourselves, we live on five miles of private dirt road, what happens if there is a fire? How do we get out? Are we doing the right thing?”*

Information regarding forest ecology influenced the community members in shifting their frame of thought from their original “fire is bad” mentality to an understanding that forests in their region rely on fire to regulate forest health. As a result of the collaborative learning process, the agency and community members ultimately shared an understanding that the forests surrounding the community are unhealthy due to a century of fire suppression and are therefore more susceptible to catastrophic events. This frame provided a shift from the old Smokey Bear frame that George described, that “fire is bad and must be eliminated”. The new forest health frame recognizes the importance of wildfire in regulating forest growth and composition, and that fire suppression results in unhealthy forests. This frame influenced the community's support

for wildfire mitigation, because locals perceived mitigation treatments as a mechanism for mimicking the effects of wildfire and restoring forest health.

The community members were also greatly concerned about the mountain pine bark beetle epidemic, which has affected the forests directly across the continental divide. In fact, community members appeared to be just as concerned about beetles as they were about wildfire. Their concern was based on the potential for beetle-killed trees to be a fuel source as well as the loss of forest aesthetic value. The scientific information that the agency members shared led the community to understand the relationship between thinning and a healthier forest, which supported the community's mitigation goals.

The forest health issue frame was highly effective in providing individuals who were interested in being good forest stewards with a rationale for thinning trees, especially in cases in which the threat to life and property issue frame did not provide adequate reason. Many residents who initially resisted mitigation because they believed that removing trees would negatively impact their forest ecosystems shifted their perception to support mitigation because they learned how it would improve forest health. The local concern regarding the beetle epidemic especially assisted this frame's impact.

The concept of "sense of place" also played a role in issue framing. Each of the community members discussed why the region they live in is special, including the aesthetic and economic benefits of the forests for personal enjoyment and tourism, as well as wildlife habitat. These values caused initial resistance in subdivision A and subdivision B, as individuals opposed mitigation because they were afraid of the potential impacts to aesthetics and wildlife habitat. However, the forest health issue frame

capitalized on these values, and led community members to understand the need for mitigation from a forest stewardship perspective, as they learned the connection between thinning and a healthy forest ecosystem. The information-sharing process was critical in helping community members to understand how mitigation could help protect their values for the forests. This led to a shift in framing from “mitigation threatens local forest values” to “mitigation will protect local forest values”.

Issue framing was an important tool in gaining local support for the community mitigation projects and later the CWPP. Agency actors strategically shared information that refocused community members’ values so that they supported the need for mitigation. At the time the CWPP began, community members were already aware of their wildfire risk and understood the need for mitigation, as perceived through frames that focused on protection of life and property as well as forest health and stewardship.

### Harris Park

Just as collaborative learning occurred in the Harris Park case during the “Pre-existing Contextual Capacities” in some subdivisions and the “Process” phase in others, issue framing also occurred in both phases, according to when collaborative learning occurred. Again, for the sake of simplicity, we will discuss issue framing in the Harris Park case in the “Process” section of this paper.

### Lake County

Issue framing in the Lake County case did not occur until the “Process” phase, when community members became actively engaged in collaborative learning regarding wildfire risk and mitigation.

### ***Human Capital***

Human capital “includes the skills, education, experiences, and general abilities of residents” in a community (Kusel, 2001). This refers to the capacities contributed by individual actors in collaborative or collective action efforts. While we discuss human capital in the “Context” section of the paper, it played a role throughout the CWPP development process as well.

### **East Portal**

Community human capital played an important role in facilitating mitigation projects prior to the CWPP process, as well as the CWPP process itself. A majority of the interviewees discussed how personal qualities of community actors contributed greatly to the networks and relationships that were formed and the mitigation work that occurred prior to the CWPP process. The community actors demonstrated leadership qualities, the ability to absorb scientific information, and enormous amounts of motivation and determination.

One of the subdivision A actors, Chris, explained how his fire-fighting background led to his involvement:

*“When we moved out here full-time, word got out that I was a retired deputy fire chief, and [the community members] said, wow, perfect guy to [engage the community in mitigation activities], because he knows everything about fire. Well, wildland fire fighting and wildland control are totally different than*

*municipal. It's two different ball games. One thing I had going for me was one of the guys who was my partner on the fire department built a home two doors down, so we were able to feed off of each other and we took dual control."*

Chris and his friend possessed prior fire response capacity, and even though they were inexperienced in wildland firefighting, their backgrounds made them naturally inclined to learn about wildfire risk and fill community leadership roles. The third subdivision A actor is an individual who had recently retired from a high-power position in a natural resources-related corporation, and he was accustomed to learning quickly and supervising projects.

These three individuals had a history of filling leadership roles in their previous careers, and they used their leadership skills to take action in their community. Because they were retired, they benefited from time as a resource capacity. They contacted the CSFS and county actors to learn about wildfire mitigation, and with agency assistance began a campaign to treat a particularly dense area of forest along their road. They provided the state and county actors access to their local networks and invited them to speak at HOA meetings and community events, and they successfully worked to persuade the HOA and their neighbors to support the proposed project. After their successful implementation of the road thinning project, the CSFS actor suggested that they work towards earning a "Firewise Community USA" status, and they achieved this goal in 2003. Chris, one of the subdivision A actors, emphasized the importance of motivated community individuals in accomplishing collective goals:

*"I think the important thing is that you get enthusiastic people behind these initiatives, and if you get the right people from the homeowners standpoint—I think every HOA has got to have one or two people who want to get involved and get something started. But it gets contagious if it's done the right way."*

The youth camp actor also contributed human capital in convening the CWPP process. He is a retired police chief from an urban area, and he was accustomed to supervising emergency response and community safety situations. When he and his wife moved to the East Portal area he formed networks with the youth camp, and shortly after became their safety specialist. The youth camp actor is also a volunteer fire fighter with the local fire authority, which provided him with an understanding of wildfire risk and the need for mitigation. He formed vertical networks with the county, CSFS, and NPS in order to access resources and information to assist in mitigating the youth camp property. He gained the youth camp board of director's support and began thinning along the border that the youth camp shares with the NPS, as well as creating defensible space around structures.

Subdivision B had not collectively addressed the wildfire issue prior to the CWPP process, and it was therefore the subdivision B actor's role to start from scratch in gaining support for the CWPP. Fortunately the subdivision's awareness of wildfire and the need for mitigation had increased since the previous failed community mitigation efforts, due to two wildfires that occurred recently in the vicinity, so there was no great amount of resistance as there had been in the past. However, there was not much active support, either, and the subdivision B actor was largely alone in his efforts. Kevin, the USFS actor, praised the subdivision B actor's motivation despite the apathy he has faced:

*"[The subdivision B actor] has been singularly interested in doing this. He's adamant about getting things done, and in fact [subdivision B] received a grant to do defensible space and thin some of their green space in between the [national] park and some of the homes."*

Several of the agency interviewees described the impressive leadership actions that the community actors demonstrated. The subdivision A and youth camp actors were

so enthusiastic about their subdivision's progress that they began discussing the possibility of encouraging neighboring subdivisions and businesses to conduct wildfire mitigation efforts prior to the CWPP process, and they were immediately on-board when the CSFS and county actors approached them about convening a regional effort.

The community actors also contributed local legitimacy that was critical in helping the agency actors garner community support for the CWPP. Information regarding wildfire mitigation and later the CWPP was more readily received within the community when it was shared by fellow community members, or agency actors who were backed by fellow community members.

The agency actors also contributed human capital through their interpersonal skills and willingness and ability to work with community members. We have already discussed the county actor's ability to share information and build positive relationships with the community. George, one of the subdivision A actors, explained how the original CSFS actor's personality facilitated collaborative CWPP development:

*"It's more about personality than it is about anything else. [The CSFS actor] has a way about him, he has good people skills. He is enthusiastic about his assignment and what he wants us to do, and he makes you feel good about your enthusiasm, and he kind of stokes it in you. And he delivers. I don't know of anything that they've promised that didn't come. And that's important."*

Chris echoed George's statement:

*"So I think the biggest part with [working with] the agencies would be to have somebody in there who you feel you can work with and trust. I mentioned [the county actor and the CSFS actor]. Somebody who has enthusiasm, number one, and somebody who you're willing to trust that they're going to do what they say...[the county actor] has that personality, and I think he knows how to finesse people, and that's important, without getting them mad. He's got that sense of humor that he can make somebody smile when they're mad. And that's the type of person it takes to get something like that done."*

The agency and community actors possessed human capital that facilitated the CWPP process. Each of the community actors had held careers that required them to take on great responsibilities and learn and act quickly, and they were extremely motivated to understand their wildfire risk and take action to mitigate. They used their leadership skills to establish vertical networks with the agency actors in order to leverage external resources to inform their communities about wildfire mitigation, and they utilized local horizontal networks to share information with their communities and garner local support. The agency actors possess personalities and skills conducive to explaining technical scientific information in layperson's terms, as well as to establish trust within the community. These capacities facilitated active community involvement during the CWPP process, as agency actors knew to contact these exceptional community actors, and the community actors were motivated to participate in CWPP development under the guidance of the trusted agency actors.

### Harris Park

Human capital played an important role in facilitating community involvement prior to the CWPP process. Community members contributed leadership and local legitimacy, and assisted in gaining local support for mitigation. Subdivision A became involved in mitigation projects through the efforts of a motivated community member who moved to the subdivision from California several years ago, and was concerned about wildfire risk due to the prevalence of fires in California. He contacted the fire authority and formed a relationship with them, and invited them to speak at HOA meetings in order to encourage his subdivision to get involved in mitigation projects. He



became an HOA board member during his first year in the community and played a large role in motivating the board and his community to take mitigation actions. He also assisted in creating a board FireWise director position in 2004. At the time we conducted interviews, he was the HOA president, and was in frequent communication with the fire authorities regarding wildfire issues. The fire authority contacted this individual when they hosted the CWPP review meetings, and he agreed to be the community actor. This subdivision A actor, Pete, described his community's capacity for wildfire mitigation and the leadership role he has filled:

*"I took a hands-on interest at the very start, prior to being president of the board, I performed other functions on the board, and one of them, and I told myself that I always want to be involved in anything having to do with wildland fire safety, wildland information. So for most of the four years that I've been on the board I've been active in something that has to do with that, so [both of the fire authority actors] know that, so if there's going to be a meeting and they want somebody from our neighborhood they'll call me and I'll call our FireWise director on the board."*

The CSFS actor explained that community leadership has been critical in the successful planning and implementation of the demonstration area in the subdivision he has been working with since prior to the CWPP process. The HOA president and another subdivision member have played key roles in gaining community participation and buy-in. He discussed the importance of locating motivated community members and gaining their assistance and support:

*"And people like [the HOA president] are really critical, you have to find these people who are willing to take it on and become passionate about it...You go to their HOA meetings, and you think the real movers and shakers are the officers, and a lot of times there's a few people who really make all of the decisions who are sitting in the back row. And so you've got to find those people and after you go to three or four of the meetings and you listen to the discussions, you can pick up on who they are. So that's what I'll do, I'll go, and I'll give them some little five minute talk and hand out a bunch of cards, and then just sit and listen and pay attention to the people who are really driving the decisions and driving the*

*discussions. And then I go up to them and say, you and I need to get a cup of coffee. And they're typically the ones who become the main advocates."*

Tom strategically located community members with high levels of human capital in order to leverage their resources and support, because he recognized the need to gain the assistance of local advocates in order to achieve community buy-in for wildfire mitigation projects.

While networks between the fire authority and the community played an important role in facilitating community buy-in and support for the CWPP, these relationships were catalyzed through the human capital possessed by local leaders. These individuals were willing to form relationships with the fire authority and CSFS, and to act as liaisons to their communities, and they assisted the CWPP core team in gaining community support and accomplishing implementation. While local leaders played a role in all three of the CWPP processes that we studied, their role was particularly critical in the Harris Park case. Because community actors were not included on the CWPP core team, the agency actors did not have the opportunity to build trust and positive relationships with community members during the CWPP process as the agency actors did in the other two cases. The agency actors relied on local leaders to help gain support for the CWPP after it was completed before implementation could occur.

### Lake County

Human capital played a role in the events prior to and during the Lake County CWPP process. All of the interviewees discussed the importance of community members' leadership skills in convening the CWPP process and developing the plan. The majority of this discussion pertained to the role that the key community member played,

as she volunteered to facilitate the development process and used her leadership and organizational skills to keep the process moving forward. She was a PhD student during this time, studying forest ecology and collaborative resource management. She contributed her knowledge regarding lodgepole pine ecology in science presentations to the community, and collaboration skills while facilitating meetings. Her collaboration facilitation skills were critical in helping different actors work together, and she explained technical and scientific information to the community members in a way that they could understand. Another important capacity that the key community member possessed was time; she volunteered an enormous amount of her personal time to participating in the CWPP process. Michelle, one of the CSFS actors, explained the diverse skills that the key community member brought to the process:

*“She was the facilitator, she made sure that all of the right questions got asked, she made sure that people understood what was going on, her background in ecology was priceless because she had the latest news on the study of lodgepole ecology, and she’s a very good speaker, she could pull things together really well. I think she did a great job facilitating and then pulling the whole written plan together.”*

Group facilitation skills were not focused on in the other cases as a key capacity; it may be that these skills were more critical in the Lake County case, as actors were continually working with new community members as they worked their way from subdivision to subdivision. Every CWPP meeting involved a different group of community members with different values and concerns, and the CWPP core team had to share scientific information with a wide range of individuals. This did not occur in the East Portal or Harris Park cases, both of which involved the same core group of individuals throughout the CWPP process. We will discuss later the concept of tailoring a CWPP process to meet the capacities unique to a particular context.

Several of the community actors had backgrounds in natural resources management either through their profession or personal interests. One of the subdivisions involved in the CWPP is a trout club, and residents in this subdivision were extremely interested in ecology. Individuals with backgrounds in natural resources management had an advantage in absorbing the scientific and technical information provided by the agency actors.

Interviewees in the Lake County case also discussed the value of relying on the leadership skills of subdivision actors to motivate other residents to attend CWPP planning meetings and to remain in contact with the core team. Dave, one of the subdivision actors, described his role in getting his subdivision involved in the CWPP process:

*“Essentially there was a notice or article in the paper, the Herald-Democrat, that I happened to pick up, and I went to the first meeting last year. And I came back to the board and said, we probably ought to be involved in this, because A: there’s a lot to be learned, and B: there might be some economic benefit out of it. And so we assigned some people to it, to go to it and follow up on it. And then we used my house as a meeting place.”*

The meeting Dave attended was one of the first general public CWPP meetings, before the CWPP core team adopted the strategy of neighborhood meetings. Dave and the community actors who attended these initial general public meetings provided critical resources to the CWPP core team, as the team relied on their motivation, leadership and networks to initiate neighborhood meetings in their subdivisions.

This example illustrates the importance of relying on local networks to gain community involvement. Information can carry more legitimacy when it is conveyed by one’s neighbor than by an outside agency actor, and community members have access to internal horizontal community networks that agencies do not necessarily possess. The

CWPP core team discovered that community participation was much greater when a leader from a subdivision hosted the meeting and invited neighbors to attend. The meetings were more accessible, and the community members were empowered from the beginning because as the hosts, the meetings were on their terms.

The local government leaders who were involved in the CWPP process also contributed human capital, as they used their leadership positions to raise public awareness about the CWPP and to gain community support. These leaders informed city and county boards of the progress and talked one-on-one with residents to encourage support. Dan, one of the local government actors, described his role in raising community awareness and involvement:

*“One of the benefits of my participation was maybe I actually helped increase participation. I don’t give myself credit for that, but maybe. Since I did keep up with what was going on, I was better able—because I talked about it at every city council meeting, and every county commissioner meeting that I would go to.”*

This demonstrates the ability of local government actors to recruit more participation and support than if the agency actors were working alone, as local legitimacy and access to community networks contribute to this capacity.

The personalities of the actors were critical to the success of the CWPP process. Several interviewees strongly expressed their beliefs that the process may not have been as successful without a group individuals willing to work together cooperatively. Collaboration does not come naturally to everyone, and working together with different stakeholders to produce a common goal requires a willingness to be open-minded and learn from one another. The actors in the CWPP process all contributed this collaborative capacity. Rick, one of the subdivision actors, described his observations of this capacity:

*“Everybody [on the CWPP team] seemed to be on the same page, they all meshed, they all enjoyed working with each other. And I think that carried over into the HOA meetings, as far as I could tell from the hearsay. I don’t remember any negative comments about meeting with HOAs.”*

The community members in Rick’s subdivision perceived the positive working relationships between the CWPP core team members, and this assisted in gaining community trust and support. The community members understood that the CWPP core team members were all on the same page and shared the same message.

Actors in the CWPP process possessed human capital that contributed greatly to the capacities required to successfully navigate the CWPP development process. Leadership skills facilitated the ability to motivate and convene actors, facilitation skills contributed to positive group dynamics and collaborative discussion, and receptivity to working collaboratively contributed to positive working relationships and information sharing and learning that are essential functions in developing a CWPP.

#### Commonalities across cases

In each case community and agency actors contributed human capital that facilitated collaboration prior to and during the CWPP process. One of the most critical forms of human capital was leadership demonstrated by the community actors. These individuals were motivated to learn more about wildfire risk and mitigation and created networks with agency actors in order to access information and resources. In each case community actors played a role in sharing information with their communities, as they provided agency actors access to local horizontal networks in order to share information, and they lent local legitimacy to the agency actors and scientific and technical

information. Community actors motivated their fellow community members to become involved in wildfire mitigation implementation and to support the goals of the CWPP.

Many of the community actors benefited from backgrounds in natural resources management, fire fighting, or leadership-oriented careers that assisted them in understanding the need for wildfire mitigation, motivating community action, and understanding scientific and technical information. Many of the agency actors benefited from prior experience working with communities (the CSFS and fire authority actors in particular), which assisted them in collaborating with communities prior to and during the CWPP process. In all three cases the agency actors demonstrated willingness and ability to collaborate with community actors, with the exception of the USFS actors in the Harris Park case, who had little contact with the community through the CWPP process.

### ***Context Section Summary***

In all three cases, previous collaborative experiences allowed for the formation of vertical and horizontal networks that facilitated collaborative learning prior to the CWPP process, as well as convening and working through the CWPP development process. Human capital, particularly that possessed by community members, played a critical role in initiating and implementing collective efforts prior to the CWPP process, as well as enlisting community involvement during the CWPP process. Human capital also played a role in garnering community support for CWPP goals. Collaborative learning that occurred in each case provided community members with a baseline knowledge of wildfire mitigation and forest management. In each case, the experiences that occurred and the capacities that were preexisting as well as newly formed prior to the CWPP

process helped set the stage for the CWPP development process. Agency actors did not need to begin from scratch in convening the CWPP process, as the majority of actors were already in place and baseline information already shared..

## **Process Capacities**

Several capacities emerged as critical to the success of collaborative CWPP development. Table 2.4 provides a summary of these capacities.

### ***Scaling Up***

A main goal of the HFRA in mandating collaboration between different stakeholders in addressing wildfire mitigation is to affect wildfire mitigation at a landscape scale across multiple jurisdictions. We studied the extent to which each of the three cases addressed wildfire mitigation at a landscape scale as a result of the CWPP process.

### **East Portal**

The East Portal CWPP is part of the greater goal of the LCCG to plan and implement wildfire mitigation treatments in critical areas throughout Larimer County. The purpose of the LCCG is to allow the different agencies the opportunity to strategically coordinate efforts across the county. The East Portal CWPP also compliments the goals of the Front Range Fuels Treatment Partnership, whose goal is to coordinate wildfire mitigation across the northern half of Colorado's Front Range. Several of the CWPP participants are involved with this partnership.



Table 2.4: Process Capacities Identified in the Case Studies

| Key Capacities                   | Elements Contributing to Capacity  |
|----------------------------------|--|
| Scaling Up                       | <ul style="list-style-type: none"> <li>• Community members are aware of the landscape scale goals of the CWPP and understand the benefits of participation in the CWPP in protecting their community and their region</li> <li>• CWPP actors coordinate their planning with other mitigation efforts in the region</li> </ul>  |
| Community Involvement Techniques | <ul style="list-style-type: none"> <li>• Utilize pre-existing local networks to directly invite community representatives</li> <li>• Utilize the human capital offered by key community members to gain community involvement and share information with the community through local networks</li> <li>• Hold CWPP meetings in local venues</li> <li>• Utilize local credibility/legitimacy of community representatives to gain general community support</li> <li>• Agency representatives are willing to share power, and guide rather than lead community members through the planning process</li> <li>• Collaborative learning processes are critical to facilitate active community involvement and support</li> </ul>  |
| Collaborative Learning           | <ul style="list-style-type: none"> <li>• Participatory discussion</li> <li>• Agency actors are willing to share power, guide and not lead</li> <li>• Experiential learning opportunities</li> <li>• Sharing scientific and technical information as well as local knowledge</li> <li>• Sharing information regarding agency policies, capabilities, limitations</li> <li>• Sharing risk assessment information</li> <li>• Communication skills; ability to explain complicated information in a clear and relevant manner</li> <li>• Group facilitation skills</li> <li>• Conflict mediation skills</li> <li>• The CWPP core team crafts a common message to share with the general community</li> <li>• Use of maps, aerial photos, historic photos, and other visual aides</li> <li>• CWPP templates and guidelines; providing clear guidance to community members</li> <li>• Utilize human capital of community representatives to disseminate information through local networks, act as community liaisons, and use local legitimacy to gain community support</li> </ul> |
| Issue Framing                    | <ul style="list-style-type: none"> <li>• Protect life and property, community members take responsibility</li> <li>• Restore forest health</li> </ul>  |

A majority of the interviewees in the East Portal case explained that the CWPP was the logical next step in the evolution of wildfire mitigation planning. The CWPP increased the scale of the community's efforts beyond subdivision projects and coordinated them with the federal agencies' efforts. Laura, the current CSFS actor, explained how the process evolved:

*“Prior to HFRA the CSFS was told to promote FireWise and FireWise standards as a means of getting communities to protect themselves. So [the original CSFS actor] had talked with all of these communities in the East Portal area. [Subdivision A] is the only FireWise community in the county. That whole group was starting to work towards becoming FireWise under [the original CSFS actor's] and the LCCG's direction. FireWise was the buzz-word around here for a while, so that's what their goal was then. And that was five years ago. And then as HFRA got passed, the focus has turned to wildfire plan development. So they are shifting their focus from becoming a Firewise region to developing a CWPP. They really had a lot of the information already as a group, it was just trying to help them understand what a CWPP could help them do, and how to funnel that information into a document that would fit the state standards.”*

The concept of expanding the mitigation efforts to include the entire Spur 66 region arose organically in discussion among the actors from the county, state and federal agencies, and the community. The county and CSFS actors were important bridges as they worked with the federal agencies as well as with the community. The USFS district office for this region is particularly proactive in planning mitigation treatments in areas where there is active community interest in mitigation. The LCCG provided the state and county actors with the opportunity to share information with the USFS regarding the work already being conducted in the Spur 66 region. The CSFS and county actors knew that the subdivision A and youth camp actors were interested in expanding their efforts to outside of their individual communities, and so they invited the community actors to attend a meeting with the agency actors to discuss the potential for convening a regional

effort. Chris, one of the subdivision A actors, provided key insight into the organic manner in which the CWPP process was convened:

*“We started working on FireWise in 2003, and then I think the CWPP had started—it mostly started as a coalition, not to put a CWPP together, it was more, let’s sit down and talk about the problems and concerns on Spur 66, with no intent of doing a CWPP. And the CWPP developed out of the various meetings that we had...And between [the CSFS and county actors], they saw what we were doing as a coalition and said—the CWPP was a new thing and he said we don’t have a lot of information on it, but we would like to at least get it started on Spur 66. And the idea was to show that these various agencies could work together, and we could get a CWPP done and hopefully expand it throughout the county.”*

While community wildfire mitigation had already been occurring in the East Portal region prior to the CWPP process, the CWPP process brought a new level of complexity to the previous community mitigation projects. It directed the focus of wildfire mitigation to a regional scale, and led the community actors to consider mitigation planning outside the boundaries of their own communities. It also shifted the emphasis from planning and implementing one localized project at a time, to strategic long-term planning for multiple projects across a large scale. The convening of the East Portal CWPP process demonstrates the strategy of leveraging off of previous small-scale successes in order to undertake greater projects.

### Harris Park

The Harris Park CWPP planning area is located in a region that has seen a great amount of activity regarding forest restoration and wildfire mitigation planning and implementation. The Upper South Platte Restoration Project had begun prior to the Harris Park CWPP with a focus on restoring a critical Denver watershed after catastrophic wildfire damage, and involved the same USFS actors who participated in the

Harris Park CWPP, as well as the CSFS. The South Platte CWPP was completed prior to the Harris Park CWPP and involved the same USFS actors as well as the CSFS (although different CSFS actors); this CWPP planning area is in close proximity to the Harris Park CWPP area. The USFS began the 285 Bailey-Conifer Hazard Reduction Project prior to the Harris Park CWPP; this project is an effort to treat USFS land along the 285 corridor, and the Harris Park CWPP is part of this planning area. Therefore, the Harris Park CWPP became part of larger efforts already being implemented in the region. The Front Range Fuels Treatment Partnership extends these efforts to an even greater scale, and several of the actors involved in the Harris Park CWPP are also involved in the Partnership.

Many of the interviewees explained that the CWPP was the next logical step in combining local and federal goals into a regional effort. The CSFS actor knew that the USFS wanted to focus treatments on federal land in the same region that the fire authority and CSFS were working with interested communities, and after discussion with the federal and fire authority actors the CSFS actor assisted in convening the CWPP process in 2004. He explained as follows:

*“And then the USFS had looked at this area and knew, because of their new direction a few years ago with the National Fire Plan, to start treating around communities, the USFS knew that this 285 corridor was a big deal, so we all got together—the CSFS and the USFS, and I knew what [the fire authority] was doing so we brought them in right away. And all three of the agencies really developed the idea together...That background from the Upper South Platte made it really obvious to me, it was a relatively new concept but because of our history and our working together, when the CWPP concept came out and talked about having to have federal land managers, it was like, we’ve got all of the moving pieces already, and when I went to them they said, we were going to call you, so everybody was on the same page, and it made it easy.”*

Thus, the previous collaborative experiences involving the USFS, CSFS, and fire authority actors provided these actors with the collaborative capacity to convene the CWPP process and increase the scale of individual agency efforts.

While the CWPP expanded the efforts of localized community mitigation projects, the community members we interviewed did not focus on the concept of increased scale, and instead focused discussion on small-scale projects within their own subdivisions. This may be due to the fact that they did not participate during the CWPP development process and do not fully understand the purpose and benefit of a CWPP. The community actors perceived their local efforts as complimenting the CWPP, but did not discuss plans to strategically implement mitigation projects according to the CWPP recommendations.

### Lake County

The actors in the Lake County case did not have the benefit of previous small scale mitigation projects in the county to build from in convening the CWPP process. However, the Lake County Forest Project and the Science and Information Workshop indicated to the CWPP actors that the community was interested in forest management issues and receptive to organizing to discuss these issues. The success that the federal and state agencies had experienced working with residents in Chaffee County provided impetus for expanding their efforts into Lake County. Neil, one of the USFS actors, explained:

*“And what [the previous experiences did], was it started bringing the pieces together. We knew that HFI was out there, HFRA, we knew Good Neighbor was working down south in Chaffee, and we knew that we had the ability here to bring people together to start some management in Lake County, and not having to*

*depend on the work in Chaffee County. So that's how it came about. So that flowed up from the south and got people energized and involved in it."*

The federal and CSFS actors were aware of the need to address landscape scale wildfire mitigation, and had past successes in Chaffee County upon which to build. The CSFS actor addressed the need to focus on a regional scale when he discussed his desire to reconvene the Upper Arkansas Wildfire Council. The federal and CSFS actors continued to focus on the need to increase the scale of wildfire mitigation throughout the CWPP process.

#### Commonalities across the cases

In each case the individual CWPPs are being complimented by wildfire mitigation being either planned or implemented across the larger landscape. This is especially evident in the East Portal and Harris Park cases, which are part of a larger picture of landscape scale mitigation treatments across the northern Front Range. The agency partners played a key role in tying communities into these larger efforts, and community members in the East Portal case expressed their understanding and appreciation of how their involvement is part of a bigger picture. The CWPPs we studied appear to fulfill the goals of HFRA in addressing wildfire mitigation at a landscape scale.

#### ***Community Involvement***

The degree and manner of community involvement varied from case to case. However, as we will discuss in this section, regardless of when it occurred community involvement was critical in each case in order to gain community support for the CWPP.

## East Portal

Actors in the East Portal case highlighted community involvement as being critically important to the success of the CWPP process. A majority of the actors interviewed explained their beliefs that the CWPP process needed to be driven by community values and that the agency actors were there to provide guidance rather than to direct the plan. Actors explained that community participation was essential in gaining local buy-in in order to implement the CWPP, and that if the agency actors had simply created a mitigation plan for the community without local participation, the community may have rejected the plan. Tom, the fire authority actor, expressed the need for community participation:

*“I wish we had more people like that. If it wasn’t for their involvement, this wouldn’t go anywhere. The property owners who want to protect their properties and reduce their risk, they’re the ones who really have to get it started. We can’t do it for them. We can assist them with that, but they have to want to do it, because it’s their properties. When you get a group together like the East Portal group, we didn’t all agree at first on certain things, but we all came together and knew that our basic premise on what needed to be done out there, and we were willing to work together towards that, and determined what were priorities.”*

As Tom explained, the community members were motivated to become involved in the CWPP process because they understood the need to take personal responsibility for mitigating their properties. We already discussed how the collaborative learning process in the East Portal case allowed agency actors to frame the need for mitigation in a manner that was personally relevant to the community members, and this motivated the community members to take responsibility for their properties. We also discussed the benefits of prior mitigation experiences in providing the community members with background knowledge of wildfire risk and the need for mitigation, so that they immediately understood the benefit of a CWPP. The prior mitigation activities were

facilitated by the human capital possessed by the community actors, who had backgrounds in fire fighting, risk prevention, and problem-solving, and were naturally inclined to be motivated to seek more information about wildfire risk and mitigation. The community actors also had the advantage of time as a capacity, as the subdivision A and B actors were retired, and the youth camp actor was involved in the CWPP process as part of his job as safety specialist.

The CSFS and county actors contributed the capacity to convene a community-inclusive CWPP development process by utilizing their pre-existing community networks to invite the community actors. As a result of their previous experiences working with the community, they knew which community members would be interested in participating in the CWPP development process, and they did not have to spend time and resources searching for local actors. As a result of the previous community mitigation projects the community actors trusted and respected the agency actors, and they were enthusiastic about expanding their efforts across the region. CWPP core team meetings were held either at the fire authority's headquarters or within the Spur 66 community, which was convenient for the community actors and encouraged their attendance.

It is important to recognize that the agency actors were willing to share power with community members in developing the CWPP, to the extent that they perceived their role as secondary to the role of the community actors in creating the content of the CWPP. The agency actors jointly determined that their role was to provide scientific and technical information and support to the community members in order to assist them in creating a plan. This required the agency actors to facilitate the planning process in a manner that they were guiding and not leading, and they had to provide appropriate



information and resources. This highlights the importance of group facilitation skills as a necessary capacity. Some of the agency actors we interviewed explained that it was a challenging task to guide the community members through this process, especially considering that there was very little information available at the time as to how to prepare a CWPP. We will further discuss this in the following “Collaborative Learning” section.

The agency actors relied on the community actors to share local knowledge and values. We will discuss this further in the “Collaborative Learning” section.

One of the major parts of the CWPP document is a map showing the location of community values at-risk. The USFS A actor provided the community actors with aerial maps of their subdivisions, and asked them to locate community values at risk on the maps. The use of maps was a great asset to facilitating community involvement, and we will discuss their importance as a capacity tool in the “Collaborative Learning” section.

The community actors explained that they undertook the task of identifying local values without the assistance of their HOAs or other residents, and that their communities trusted them to make good decisions. Again, this speaks to the local legitimacy that the community actors brought to the process. The community actors from subdivision A and the youth camp had the benefit of a great deal of support from their communities. The community actor from subdivision B did not have the benefit of this support, and he explained that while he did not face any resistance, he also was not offered any support from his fellow residents:

*“My community was uninvolved. And since in this process we didn’t have any organized opposition, it worked out okay. I bombarded them with letters and materials for nearly four years, I guess some of them must have read them.”*

This demonstrates critical role of community human capital, as the subdivision B representative put a great deal of effort into sharing information with his community, despite the challenge of community apathy.

The community actors acted as liaisons to their communities, and shared information regarding the CWPP development process with their HOA boards and fellow community members. The youth camp actor shared information with his organization's board of directors. Relying on the community actors to share information contributed to local credibility, as community members trusted the community actors and respected what they had to say. Community actors also provided access to pre-existing local networks, which facilitated efficient dissemination of information throughout the community; there was no need to re-invent the wheel in determining how to best spread information throughout the community. We will discuss this concept further in the following section. George, one of the subdivision A actors, made a powerful statement explaining the importance of empowering community members with scientific and technical information that they can disperse throughout their community utilizing local networks and their local credibility:

*"It's a yin and yang thing. You need somebody in the community who has the heart and passion for it, and creates the environment, but will be rejected because of his pedestrian competency. That has to be melded with someone who is outside of the community, and has the technical competence. So you take the internal enthusiasm, I'm speaking to you as a neighbor and have good scientific proof and rationale for what I'm going to tell you we ought to be doing. You marry those two and you've got a deal. If you have only one or the other, you've got nothing."*

This quote demonstrates how the interaction of agency-provided information and community members with leadership skills and local legitimacy created a greater capacity for sharing information with the community and gaining local support.

### Harris Park

The strong networks between the different agency actors prior to the CWPP process facilitated successful agency-agency collaboration during the CWPP process. The networks between the community and the agency actors were not as strong; there was no discussion of pre-existing networks and relationships between the community and the USFS, and the networks that existed between the community and the fire authority and the CSFS did not exist with every subdivision. It was not as easy for the agency actors to collaborate with the community during the CWPP process as it was for them to collaborate with each other. The agency actors faced a challenge in gaining community participation during the CWPP process; they used traditional invitation techniques of local press releases and mailings to inform residents of the CWPP meetings, but they did not achieve community participation. It may be that these invitation techniques were not personal or persuasive enough to motivate community attendance. Several interviewees explained that they assumed the lack of attendance was due to the fact that many of the residents commute to Denver and may lack the time to attend meetings. Thus, time may have been a resource gap that inhibited community involvement. We discussed earlier in this paper the potential negative impact of the independent and isolationist attitudes of many community members. Another potential reason for the lack of community involvement is that the community has a deep level of respect for the fire authority, and trusted them to represent community interests without the need for community actors present during the planning process. This highlights the capacity of the fire authority to provide a background of networks and positive relationships with the community, as well

as local legitimacy. The federal and CSFS actors perceived the fire authority to fill the role as local actor, as the fire authority certainly possessed local networks and local credibility. Whatever the reason for the lack of community involvement during the development phase, the agency actors would later realize that community involvement is imperative in order to successfully implement the CWPP.

The community did become involved at the end of the development phase, when the core team was making plans to implement the CWPP and needed to get community permission to treat the highest priority subdivision. The fire authority actors utilized their pre-existing networks to invite community actors to meetings to review the CWPP. They directly contacted individuals who they had worked with in the past, and if they did not have a specific community contact they contacted the HOAs. They contacted the actor from subdivision A and asked him to attend, due to their previous networks with this individual and his community. The subdivision A actor accepted due to his interest in mitigation and the pre-existing relationships he shared with the fire authority. His community's previous experience working on wildfire mitigation projects with the fire authority led the subdivision to be immediately supportive. This subdivision had pre-existing capacity for wildfire mitigation and already understood the basic need for the CWPP, as Pete, the subdivision A actor, explained:

*"Yes, I agreed with [the CWPP]. There was really nothing that I didn't agree with because prior to these meetings beginning we had had some discussion and one or both of [the fire authority actors] had been to HOA meetings talking about related subjects and property mitigation, and both of these people live up here, both of them have property, none of them want to lose all of their trees, none of them were talking about clear-cutting, which is something that scares property owners. I never once had any issue with what they wanted to do with the CWPP, and I still don't."*

As we discussed in the East Portal case, in the Harris Park case the CWPP process benefited from prior mitigation activities that were initiated by a motivated community member with leadership capacity.

Subdivision A accepted the CWPP because it complimented mitigation work that they had already been doing, and did not pose a threat to their values. However, the CWPP team faced an obstacle when the fire authority presented the CWPP to a different subdivision in the CWPP planning area, subdivision B, that did not have pre-existing relationships or networks with the fire authority or the CSFS, and had no previous experience with wildfire mitigation. We will refer to this subdivision as subdivision B. The team ranked this subdivision as a higher-risk community and the CWPP action plan targeted it as the first subdivision in which to focus mitigation efforts. In order to fund this effort, the fire authority applied for a 50/50 matching grant through the CSFS and worked out an arrangement in which they would provide the match by doing the mitigation work themselves. The subdivision was not asked to provide money or labor; they were simply asked to grant their approval for the fire authority to treat their properties. The situation became much less simple when subdivision B initially denied permission because they did not want to cut down any of their trees and did not perceive any rationale for mitigating their properties. Karen, the subdivision B actor, described this situation:

*“So we had the highest risk assessment, so they decided to start with us. And at first, when I went to the first meeting, it sounded mandatory, and I told them, you are not going to get permission to go onto people’s property and cut down whatever the heck you feel like. And they said, well but we know what trees [are the correct ones to cut], and I said, I’m just telling you. I’m telling you you’re not coming on my property, you’re not going on anybody’s property if you think you’re going to cut down whatever trees you feel like. And so they kind of just looked at me. I mean, it’s private property, and that’s all there is to it. So they*

*said, I guess we need to go and regroup. And I said fine, and I left. And then they had another meeting, and then they came to the conclusion that they would let each homeowner walk the property with the fire department actor, and between the two they would agree on what trees to chop down, and they would explain why.”*

The fire authority had to engage in a collaborative learning process with the subdivision and build relationships with the residents in order to establish trust and gain community support. As they walked each property with the landowners, they shared information regarding forest ecology, fire behavior, mitigation techniques, and local preparedness and response. We will later discuss how issue framing played a role in this process. The community members had the opportunity to learn as well as to share their and values and concerns, and trust was established between the community members and the fire authority actors through the process. Eventually the subdivision and the fire authority agreed to terms for mitigating the subdivision, and the fire authority carried out the treatments.

This example illustrates the critical importance of engaging the community in a collaborative learning process in order to share scientific and technical information with the community, and for the community to share their values and concerns with the agency actors. Whether this process occurs prior to the CWPP process, during the process, or at the end of the process, it absolutely needs to occur in order to gain community support. This also provides the opportunity for issue framing as a tool for presenting information in a manner that is personally relevant to locals. Once again, community members must be aware of wildfire risk and understand how mitigation compliments their values before they can be motivated to take action. This example also illustrates how the collaborative learning process built networks and positive

relationships between the community and agency partners that facilitated CWPP implementation. We will discuss the collaborative learning process in the following section.

The fire authority held CWPP review meetings at the fire authority headquarters as well as in the subdivisions. One of the actors observed that community attendance was greater at the meetings that were held in the subdivisions. This demonstrates the effectiveness of holding meetings in a location that is easily accessible and familiar to community members. By hosting meetings in a community member's home or a community center, locals become involved in the invitation process and are more likely to encourage their neighbors to attend. This lends local legitimacy to the process, and also utilizes local networks and leadership.

The method of utilizing networks to directly contact community members and HOAs was effective in gaining attendance at the meetings to review the CWPP. It is interesting to consider if community members would have participated during the planning process if the core team had used this direct invitation technique in the beginning. We asked the community actor from subdivision A whether he would have liked to have been more involved in the planning process, and he answered as follows:

*"The fact that we were included in that information from [the point at which the community members learned about the CWPP] on, I have felt close to the development and have been privileged to some of the communications of the development of the CWPP. Since then, I feel like I'm a part of it. And if [the fire authority] asked me to serve on a committee, I might do it. But a lot of us are pretty busy in trying to get our community to develop a FireWise mentality. A lot of us are involved in a lot of kinds of groups, and I'm not so sure that they would need me to be on a committee. However, to be a part of any kind of dispersion of information, I would certainly always want to be included in that. Do I see any kind of a benefit to that—probably, because I would think that there are some people that by being a part of the planning process, could take fresh information to their communities. So as I'm answering this question I guess I'm kind of*

*changing my mind, that maybe I could see where there would be an advantage to having lay-people in the community as part of maybe a subcommittee of the CWPP.”*

The subdivision A actor recognized the role that he has played in dispersing information to his subdivision, and he recognized the value of his role as a liaison for the CWPP team. He also mentioned time as a resource gap that might pose a barrier for community members to become more involved. His subdivision has been busy with its own mitigation activities, and he did not initially see the need to be directly involved in the CWPP process. However, after giving it more thought he reconsidered and appeared interested in becoming more engaged. It is hopeful that the subdivision A actor will become more actively engaged in future CWPP meetings as the CWPP continues to be implemented and is updated annually.

One of the USFS actors explained that the lack of community participation throughout the development process did not cause problems, and several of the core team members we interviewed emphasized that the fact that their plan is being implemented is a major measure of success. Again, the team perceived the fire authority as representing local values. Tom, the CSFS actor, described the need to work with the fire authority in order to ensure that local values were included in the plan:

*“[The fire authority] brought their base assessment information, so as a product, but really what they brought was their link to the local community. And I keep saying that over and over, but it’s critical to have people who are available and part of the community on a day-in-day-out basis, to be propped up as a leader for this process. And really, that’s what we did with the public and a lot with the media, is this is a [fire authority] driven deal. I didn’t want it to be a CSFS product, it needs to belong to the community and to the fire district for it to have any staying power... In my opinion, without the fire district’s willingness to take on that figurehead role and be that actor and provide the link to the community, we wouldn’t have had a process. They to me are the number one key player in this.”*



This statement reflects the goal of the Harris Park CWPP as being driven by the fire authority. This is in contrast to the East Portal and Lake County cases, in which the goal was for the CWPP to be community-driven. The Harris Park CWPP core team intended for the fire authority to act as the community actor and provide local input, and therefore the lack of community involvement did not prevent the planning process from moving forward. The fire authority's local knowledge as well as the trust they had established within the community facilitated the approval of the CWPP by the majority of the community. Once again, this highlights the capacities that the fire authority provided. However, as we already emphasized, active community participation was critical before the CWPP could be implemented.

#### Lake County

The Lake County CWPP core team initially held general public meetings in an attempt to include community participation, but they were discouraged by low community attendance. However, these early meetings identified interested community members who became part of a CWPP task force, and these individuals assisted the CWPP core team in creating risk assessment criteria and motivating their communities to host CWPP meetings. These individuals demonstrated human capital in their motivation to attend the public meetings, as well as leadership abilities in representing their subdivisions, and later motivating their subdivisions to become involved. This highlights the importance of utilizing the skills of local leaders to share information regarding their communities and motivating community involvement, as well as to provide access to local networks.

Several months after these first meetings, actors from the CSFS's state CWPP core team visited the group and recommended that they contact individual community members that they already knew and ask to hold meetings in each subdivision, rather than holding general public meetings. This technique was highly successful, and there was great community participation at these neighborhood meetings. This indicates the importance of utilizing an invitation method that leverages community networks, leadership, and local legitimacy. The CWPP core team actors used their vertical networks to contact community actors, and the community actors utilized their leadership skills and motivated their fellow community members to attend meetings through the use of horizontal community networks and local legitimacy. Residents were more likely to attend these meetings because they were held in a local context and on local terms.

At the community CWPP meetings, the CWPP core team asked each subdivision to identify their values at-risk and create action items that were specific to their subdivision. The team allowed the community members to drive the process, and offered information and advice when necessary. This demonstrates the willingness of agency actors to share power and provide appropriate information at the appropriate time in order to assist the community members. Interviewees explained that the agency partners, the USFS actors in particular, deliberately took a back seat throughout the planning process in order to let the community members drive the effort and secure ownership of the plan. Dennis, the fire authority actor, described the willingness of the USFS to step back and let the community take control:

*“[The USFS actors] were there from the beginning, they weren’t there to drive it in any particular direction, they were there to see that a meaningful CWPP came to fruition. And I really do believe that they want to take into account to the maximum degree possible, the desires of the community...They made the point of*

*saying that, we are not driving the CWPP, they made it very clear to understand that this is not our project. We are here to help, to make sure that this project comes to fruition, offer whatever expertise we can provide, ensure that we understand [community] desires, so that we can incorporate those as we continue to develop plans for the forest.”*

Alex, one of the CSFS actors, echoed this statement:

*“To get buy-in from the county, [community members] need to be writing it, they need to be coordinating it. It’s not my plan, it’s the community’s plan. I’m just there, our role isn’t to write the plan, our role is to provide technical assistance, and help with the collaboration.”*

Susan, the key community member, explained how the independent nature of the residents in the county as well as the contentious history of controversial natural resource issues made community participation critical to gaining local support.

*“I’ve lived in this community long enough, and I’ve studied this community long enough, analyzed it, to understand that it has a complex relationship with mother nature...on the one hand, there appeared to be a very nature-oriented valuation going on in this community. On the other hand, we’ve got tailing piles everywhere, we’ve got acid mine drainage, and people almost knocked out the guy who said we should clean things up, back in the 80s and 70s. So how does that work? I knew that it was complex, and I knew also that because this community felt banged about by all these larger powers, these federal and corporate interests, that you have to treat them gently, and you have to give them power. You’ve got to let them know that they’re important, and what they think is important. And if you didn’t do that, this thing was going to fail right off the bat.”*

The core team empowered the community actors by providing them with information and guiding them through the planning process. We will discuss this further in the “Collaborative Learning” section. As in the East Portal case, group facilitation skills were required as a capacity for the CWPP core team to actively engage subdivision actors in crafting their own plans. The key community member provided critical collaboration facilitation skills throughout the CWPP process, as she led meetings, assisted community members in understanding complex scientific information, and

helped the agency actors engage the community members in collaborative learning. We will discuss her role further in the “Collaborative Learning” section.

#### Commonalities across the cases

The collaborative efforts that occurred and the networks that formed prior to the CWPP process between the agency and community actors were critical in engaging community involvement during the CWPP process. Agency actors were able to extend specific invitations to community members with whom they had previously collaborated, and the community actors were ready and willing to participate. Even in the Harris Park case, the fire authority used their community networks to contact specific community members and HOA representatives at the end of the CWPP development process. In the East Portal and Lake County cases the agency actors understood the importance of letting the community members drive the planning process, and they shared power and took a back seat, providing guidance rather than taking control. The major contribution of community members was to provide information regarding local values in the context of wildfire risk and mitigation, which we will discuss further in the “Collaborative Learning” section.

#### ***Collaborative Learning***

While some collaborative learning took place prior to the CWPP process regarding wildfire mitigation and forest management, collaborative learning that occurred during the CWPP process was unique in that it addressed the benefits of wildfire mitigation planning at a landscape scale. Collaborative learning that occurred during the

CWPP process also had a greater emphasis on the sharing of community knowledge and values.

### East Portal

Information sharing and learning that occurred between subdivision A and the agency actors as well as the youth camp and the agency actors prior to the CWPP development process laid the foundation for collaborative learning during the CWPP process. This previous collaborative learning process involved the agency actors sharing scientific and technical information with the community members in order to explain the need for mitigation. When the CWPP process began there was no need to begin from scratch in sharing this information. The majority of collaborative learning that occurred during the CWPP development process involved how to create a CWPP, and how to craft it so that it was driven by local values and concerns. This emphasized the community actors as providers of resources in the form of information regarding local values, as well as local support.

The East Portal CWPP was one of the first completed CWPPs in Colorado, and the actors involved had very little previous experience or external resources available to assist them in determining how the development process should unfold and what the end result should look like. The CWPP core team struggled for several years to define their goals for the plan, and the agency as well as community actors described the challenge of ensuring that the process was community-driven.

The community actors felt that they did not have the knowledge or skills required to create a CWPP without significant assistance from the agency actors, and the agency

actors grappled with how to guide the community through the process so that the community members were contributing the majority of the content. And without a template or guidelines, no one was quite sure what the content should include. George, the subdivision B actor, described these challenges:

*“The impression I got was that we were being led to put this plan together, that the state couldn’t do it, that we were supposed to come up with it ourselves...But then right at the last couple meetings they figured out what we needed to do, take these maps, take a list of all your assets, post them on the map. Fine, I can do that...And if it had been that way when we first started, it would have been done the first year we started, 2002... I guess you could charitably say that it was an educational process of forming a CWPP.”*

While the CWPP core team actors had pre-existing knowledge and experience regarding planning and implementing localized projects, they initially lacked the capacity to shift to a larger scale and create a formal community-driven plan for addressing regional wildfire mitigation projects across private and federal lands. During the period of time that the CWPP core team grappled with this challenge, the LCCG and the CSFS also separately deliberated over creating policies and standards for creating CWPPs. The CSFS and the LCCG ultimately provided capacity tools when the CSFS defined CWPP standards, and the LCCG created a CWPP template. These tools facilitated the “ah-ha” moment that George described, when the agency partners were able to provide clear directions to the community actors as to what information they needed to gather and how to present it. It is important to note that while this capacity assistance came from outside of the CWPP core team, the agency actors in the CWPP process are members of the LCCG, and the CSFS is represented on the CWPP core team. Therefore, the CWPP agency actors accessed these capacity resources through their own agency horizontal and vertical networks.

The community actors faced the challenge of identifying and ranking their local values-at-risk, and determining actions to mitigate their risk. George, one of the subdivision A actors, described this process:

*“It was really probably a three-hour brainstorming session. What’s the most important thing on the mountain? My house. Would you say structures are a high priority? Yes. What else? How do you get water and power to your house? You need the quality of life. Where are the reservoirs, the pumps, the powerlines, the transformers, roads, the bridge, access and egress. It came to a head that public safety and personal safety, structural integrity, infrastructure, and then the historic structures, wildlife, streams. The gut-check was, what’s more important, your kids or the elk? The elk ranks second...I think we developed eight categories of assets, tangible or intangible. The wilderness environment, flora, fauna, homes, lives, infrastructure. Once we got those eight categories identified and put some examples of what fell into those eight categories, my home, my garage, a restaurant, a business, then the tough part was trying to decide high, medium or low. Gut check, if you had to make a choice, you’re [the fire authority actor], and you see the world like he does, what are you going to save first? And there was a certain innate sense of a common purpose.”*

The agency actors provided the community actors with maps to identify local values and prescribe treatments. This was an effective learning tool because it provided a simple, visual mechanism for capturing critical elements of the plan, and it was easy for all of the actors to comprehend. This strategy overcame the obstacle of how to include community involvement, as it provided the community actors with straightforward tasks to complete: drive around their communities, identify their values at risk and mark these values on a map, and decide what projects to implement in order to mitigate wildfire risk to these values.

This process lent local legitimacy to the CWPP and highlighted the leadership skills of the community actors, who took on this responsibility on behalf of their communities. The agency actors provided capacity assistance to the community actors in this process by using their scientific and technical knowledge (such as information

regarding forest ecosystems) to guide the community actors through considering what types of local values to consider, and then how to create and prioritize action items to accomplish protecting their identified values (such as ecologically appropriate thinning treatments). Again, this required group facilitation skills, as the agency actors provided the community members with relevant information, engaged them in collaborative discussion, and captured the community members' ideas and input. Unlike the Lake County case, in which the key community member was specifically identified as filling the role as group facilitator, no one actor in the East Portal case was credited with this role, and it appears as though all of the players contributed group facilitation skills. This may be due to the fact that the CWPP actors had worked together for several years and had strong positive relationships and had already shared a great deal of information, so that much less formal group facilitation was required. Also, the East Portal CWPP meetings involved a small number of individuals on the core team, whereas the Lake County CWPP meetings involved the core team as well as large groups of community actors that changed from subdivision to subdivision, making formal group facilitation critical.

The USFS filled a capacity requirement by providing aerial photographs overlaid with maps of each community, and the agency actors asked the community actors to identify these values on the maps. The community actors drove around their subdivisions and drew circles or points on the map indicating the location of each value. They later discussed with the CWPP core team the mitigation prescriptions that would help protect their values. Maps were a critical resource in completing this task because it allowed the community members to visually and spatially locate their community values and compare



these locations with elements that contribute to fire risk, such as fuel loading, in order to determine appropriate mitigation treatments. Thus, they were able to interact with the information on terms that they understood and in a relevant manner.

The USFS actor provided further resource capacity assistance as he took the hand-marked maps to the GIS specialist at his agency and had GIS maps made, with GPS-specific locations where possible. The completed maps were used to support CWPP action items. Paul, the subdivision B actor, described this process:

*“We got a topographical map, we got the platted properties and put that on there, overlay that with the state’s fire risk categories. And then people like me and [subdivision A] and the [youth camp], go out and make a list of everything you know of in your area that is an asset that would be at risk in case of a fire. So you list roads, and power lines, and water facilities, and watersheds, creeks, and houses...It seemed intuitively obvious. Wildlife, the elk come through here. So we came up with a list of 25 or 30 things which we marked on our copies of the map, and then one of the other guys took it back to the cartography department and they put it all on the map, numbered, we came back together and then we proof-read the map.”*

The community actors used their knowledge of their local landscapes in order to accomplish this task.

Another new element of information sharing and resource capacity during the CWPP development process was risk assessment information contributed by the USFS. The agency had conducted a hazards analysis for the entire county and created a map to visually display this information, and the USFS actor provided a copy of the East Portal area map to the team. The hazards analysis took into account variables such as fuel loading, geography, and density of human structures. The map allowed community members to view the fire hazard ratings for different parts of their region. The aerial photo maps of the subdivisions that the USFS A provided allowed community actors to view the density of fuels in the area. These capacity tools assisted the community

members in better understanding their wildfire risk by visualizing that risk, and guided them in selecting areas to prescribe treatments. However, it's important to note that the community was uninvolved in the process of determining wildfire risk, as it was already provided for them by the USFS. It's interesting to consider the results of a further potential opportunity for collaborative learning if the community had been engaged in the process of determining wildfire risk.

Information regarding USFS policies, abilities and limitations played a critical role during the CWPP development process. The CWPP core team faced challenges in discussing community actors' recommendations for mitigation on federal land due to a lack of community understanding of federal policies and limitations. The majority of the interviewees discussed a particular issue regarding the limitations on the NPS to treat land adjacent to subdivision B. This area was proposed for wilderness designation, and the NPS was unable to commit to prescribing mitigation treatments for that area. The issue was further complicated by the fact that the NPS is not bound by the HFRA. While the agency has been a good neighbor in the East Portal region and treated its property wherever possible, its policy limitations are different and more restrictive than the USFS. This created tension between the NPS and subdivision B, as subdivision B hoped to apply for a grant that required commitment from both parties to treat both sides of the property line. Kevin, the USFS actor, intervened and helped explain the NPS limitations.

The USFS actor contributed to collaborative capacity when he demonstrated conflict mediation and communication skills necessary explain NPS limitations and resolve the issue. Matt, the county actor, described the USFS actor's ability to clearly communicate these limitations:

*“[The USFS actor] was good because he explained the NPS role, and he did well explaining the limitations of the NPS. He explained it in normal terms to the other people because [the NPS actor] couldn’t.”*

Matt highlighted USFS A’s ability to explain complicated federal policies in a manner that could be easily understood. This is a key capacity required for collaborative learning.

The USFS actor also had to explain his own agency’s limitations in prescribing treatments in certain areas due to topography. While the East Portal region is part of a larger-scale area that the USFS has targeted for wildfire mitigation, most of the USFS land that is directly adjacent to the East Portal communities is on steep slopes or ridgelines, where forest thinning would not be feasible. Matt, the county actor, described how the USFS explained these limitations to the group:

*“[The USFS actor] knew that this was part of the USFS new planning area, even though there’s not a lot of treatments proposed [around the East Portal communities] because it’s kind of inaccessible...He was flat-out honest, there’s some areas we can’t treat, and stuff like that...the USFS land is all up high on the ridgelines, and you’re not going to get much bang for the buck. So there really wasn’t a whole lot that the USFS could do.”*

Due to the ability of the USFS actor to clearly communicate in layperson’s terms, the community actors ultimately gained an understanding of USFS policies and limitations, and the process moved forward.

A major capacity tool that the team utilized throughout the CWPP process was pre-existing community networks as a means to spread information throughout the community. Both of the subdivisions have HOAs that the community actors were actively engaged with, and the HOAs provided social infrastructure to share information. One of the subdivision A actors had been president of his HOA in the past, and the subdivision B actor was president at the time we conducted interviews. The community

actors invited the CSFS and county actors to speak at HOA meetings and community events. The community actors included CWPP information in their newsletters and talked to residents one-on-one. This again highlights the importance of community human capital in providing access to community networks, as well as emphasizing the importance of using pre-existing networks to share information and gain buy-in. Chris, one of the subdivision A actors, described the various community networks for sharing information:

*“We had our [HOA] meeting, but then there was also, I do a quarterly committee report, and in that report it says what we did and asks for them to let us know if they have any inputs or thoughts. And that’s how we disseminate the information. The report would get mailed out in the general minutes. All of the communities on the mountain would submit their reports along with their financial report, the president’s letter, etc, and everybody gets a copy of it. The other thing we’ve done is we have a [subdivision A] website, and you can download all of the minutes and all of the committee reports and stuff like that. We also have an e-mail system where if we’ve got something really important that needs to get out, we can e-mail the majority of our members about it. That’s basically how the information gets out.”*

The community actors acted as liaisons to their communities throughout the process; human capital continued to be important throughout the development process, as information regarding the CWPP was spread and support for the CWPP was gained through the efforts of the community actors. This was particularly important in subdivision B, as this community had not been as involved in previous mitigation activities. Paul, the subdivision B actor, described his efforts in sharing information with his community and gathering support for the CWPP:

*“We kept saying, we’re doing this fire thing and we’re getting together with [subdivision A], and we kept bringing it up and kept bringing it up, and I think maybe the attitude across the Front Range changed during that time, and there was nobody here who was really willing to fight to stop it, I think was the truth of it. Because we never really did a big effort, we never had community meetings and discussions to do a big effort to try to convince people why this was a good*

*idea. We sent them a lot of literature, maybe they read it. And they knew we were going to these meetings at the fire house, and we kept putting out things like the people who are in the CWPP, and I always emphasized that...So it was like, if you're not in this thing, you're getting left out...So I think it was a project whose time had arrived, other than anything where we got everybody together and showed them logically why this was a good idea. I think the opposition to something like this is illogical."*

The subdivision B actor did not have the community support behind him that subdivision A had, but he did not encounter resistance, either. As Paul explained, it seems that community peer-pressure played a role in convincing his subdivision to consider mitigation, as residents became aware that the rest of the Spur 66 region was engaged. This is an important concept that indicates that community members are more receptive to pressure from their neighbors than from agency actors, due to greater local legitimacy.

A unique aspect of the East Portal case was the creation of an interagency Wildland Urban Interface (WUI) Education Coordinator position located in the Estes Valley community. This position was created during the time that the CWPP process was occurring, and was funded for two seasons. Three of the agencies represented in the CWPP process collaborated to provide the capacities to create and maintain this position. The NPS provided grant funding that was allocated through the CSFS, so that the educator was considered a CSFS seasonal employee. The fire authority provided office space for the educator. This individual was responsible for educating the public regarding wildfire risk as well as mitigation, and she attended community events and provided information to subdivisions, and conducted property site inspections. Roger, the fire authority actor, explained the benefit of the Education Coordinator, as well as how she assisted him during the CWPP development process:

*“It’s really a true interagency position that we’re all working together to supply, to get this information out to the public...She’s very busy, doing a great job, and we wish we could pay for her full-time. She’s really brought a lot of awareness to homeowners groups and property owners in the area... We brought her into [the CWPP meetings], I think it was the end of last year, attending some of the meetings so she had some information about what was going on with this group.”*

The WUI Education Coordinator contributed to information sharing capacity, and like the community members, was able to use local networks and her local legitimacy to share information with the community. While she was sharing the same types of information that the agency actors provide, she is a local resident and a member of the community, which immediately earns her greater trust and respect from the community.

The collaborative learning process was critical to the success of the CWPP development process because it resulted in a common pool of knowledge that all of the CWPP actors drew from in developing the CWPP, and created a common message among actors as to why it was important to develop a CWPP. The collaborative learning process also established local legitimacy for agency actors, as community members built relationships of trust through the sharing of information and learning. Kevin, the USFS actor, described how this process benefited him as a USFS actor:

*“Communities don’t always trust the USFS for whatever reason. So having [the county actor] saying the same things that we’re saying, and the CSFS, is instant credibility, especially with [the county actor] because they like him already, and him saying, here’s my friend from the USFS, we’re all saying the same thing. That really helped out.”*

The collaborative learning process was the center of the CWPP development process. The previous mitigation experiences resulted in community knowledge of fire risk, wildfire mitigation and forest ecology, as well as networks between community and agency actors. These networks facilitated convening the CWPP development process, and the previous collaborative learning experiences provided baseline knowledge for the

community members to draw from as they helped develop the CWPP. Collaborative learning during the CWPP development process was facilitated by previously established positive working relationships between players and the receptivity of players to learn from each other, as well as the willingness of agency players to act as assistants rather than leaders. Agency actors continued to provide scientific and technical information as guidance, and the USFS contribution of maps provided a critical tool for capturing the local values and prescribed treatments that composed the meat of the plan.

These combined capacities resulted in the creation of a CWPP that was community-driven with agency support. The CWPP core team leveraged previous collaborative learning experiences, networks, and the success of previous mitigation projects to advance wildfire mitigation from a community to a regional level. While the CWPP development process was facilitated by a number of different capacities filled by actors involved in the CWPP process, the process itself as well as the plan resulted in increased community capacity, as we will discuss in the “Outcomes” section.

### Harris Park

Collaborative learning occurred mainly among agency actors during the planning process and focused primarily on wildfire risk assessment. The USFS had completed a previous landscape fire risk assessment for 645,000 acres, which includes the CWPP planning area. This assessment provided twenty-seven GIS layers of resource information that was given to the consultant to use in the fire behavior modeling and GIS mapping. The fire authority also contributed to providing risk assessment information from the previously completed risk assessment for the twenty subdivisions in their

district. These risk assessments provided valuable resource capacity in allowing the CWPP team to visualize risk across region and prioritize areas for mitigation treatment.

The team used the fire authority's risk assessment information paired with the USFS risk assessment to determine where the combination of private and federal land risk was the greatest. The fire authority and CSFS also contributed their local knowledge of the general attitudes of each subdivision regarding wildfire mitigation and working with government agencies, in order to determine which subdivisions would most likely support CWPP implementation. The team combined this information with the risk assessment in order to prioritize the twenty-two subdivisions for treatment. The CSFS explained how this system will allow the team to reassess community support in the future and reorganize the priority list accordingly:

*“So what we did, is we went through and did all of the science part, fire behavior stuff, and broke it into these 22 compartments. So we’ve got a list of one through 22 which is the most likely burn to the least likely to burn. And then we created social rankings based on our meetings with the communities, and then also a lot of understanding from [the fire authority actors], saying yeah, these people will cut trees, we’ve done it with them in the past. So [one of the subdivisions] is actually number one socially, and then these other two communities right next to it, so these are the top three, and that’s why this is the number one federal treatment area [next to these subdivisions]. We don’t have a true composite score of the science and the social aspect, we’re running them concurrently so that we can shuffle, because the social piece changes. When we sit down next year, it’s not unlikely that community E has said no, we’ve decided we don’t want to do anything this year, so we take F and go to them next, and they say yes or no. So we have to interact continually with them because the social piece changes.”*

This strategy demonstrates the CWPP core team's ability to adaptively re-prioritize treatment areas on an annual basis. The team recognized the need to continue to increase their local knowledge and maintain their vertical local networks in order to strategically target treatment areas into the future. They also recognized that the CWPP is a living document that must be reviewed and revised on a regular basis. Maps



provided by the state and federal agencies as well as the consultant were critical in sharing and organizing this information in a visually and spatially based form that made planning more efficient.

The CWPP team hired the same consulting agency that the fire authority had used to complete the previous subdivision risk assessment to create GIS maps, run fire behavior models that contributed to the risk assessment, and draft the CWPP document. The CSFS provided the funds to hire the consultant. The Harris Park case is unique out of the three we studied in that it is the only one that used a consultant. This filled a time capacity need for the CWPP core team; both the USFS and the CSFS have GIS and fire behavior modeling capacity, but did not have the time to commit to completing these tasks quickly. The CWPP core team also had most of the information necessary to complete these tasks, due to the USFS's previous risk assessment. One of the USFS actors explained that the CWPP core team provided the consultant with the majority of the necessary information that was used to create maps and run models:

*“And [the CSFS actor] hired a consultant, and we told him right up front, we have all of this information so we don’t want to get charged for it. So they brought their local knowledge of the issues involved and their information to the table, as did everybody else. An important point here is that a lot of times contractors will come in and copy our information and charge us for it. But we were right up front with the contractor who came in to help, especially with the planning that the state was doing and the modeling, we weren’t going to let them charge us for the information since it was our information.”*

Similar to the East Portal case, in which the USFS provided the risk assessment information for the CWPP planning area, the fact that the risk assessment was prepared by an external entity indicates a potential missed opportunity for a collaborative learning experience. Although the CSFS, USFS and the fire authority provided the information

for the risk assessment, there was a lack of collaborative discussion that went into the preparation, particularly on behalf of the community.

The CSFS and fire authority engaged the community in collaborative learning processes prior to as well as at the conclusion of the CWPP development process. The fire authority and CSFS actor had been sharing information with communities like subdivision A regarding forest ecology, fire behavior and wildfire mitigation and response for several years prior to the CWPP process. Communities such as subdivision B who had not previously participated in wildfire mitigation projects were engaged in collaborative learning processes after the CWPP was complete and the fire authority presented it to the community for approval.

Information-sharing between the fire authority, the CSFS and the community both prior to and after the CWPP development process focused on information that helped to explain the need to mitigate. We will discuss the strategic use of information in order to affect perception of an issue in the “Issue Framing” section of the paper. This information was critical in gaining community support, as Karen, the subdivision B actor, explained:

*“And really getting more information [was helpful]. Initially all they wanted to do is say, we want to do fire mitigation and this is what we need. Well, that’s not enough for people...It’s our property and you just can’t come out here, you can’t just tell people, this is what we want to do. You need to tell them why. We’re not children, we’re not going to do it because you say so.”*

The two community actors who we interviewed discussed forest ecology information as being critical in explaining to them the need for mitigation. While the CSFS actor shared forest ecology and fire behavior information with several communities in the area, the two community members we interviewed had been engaged by one of the

fire authority actors. The fire authority actor was effective in this process due to his local networks and legitimacy within the community. He provided forest ecology and fire behavior as well as information regarding wildfire response and mitigation techniques. He initially gained forest ecology and fire behavior knowledge from the CSFS actor, who is effective in sharing information with partner agencies and the community because it is part of his regular duties as an employee of the extension-based CSFS. The fire authority actor possessed the ability to comprehend this information and to communicate it to the community in a manner that the community members could understand and relate to.

The forests surrounding the subdivisions are mainly ponderosa pine, and the residents learned that the forests are now overgrown and unhealthy due to a century of wildfire suppression. Photos served as a particularly useful visual resource in expressing this information; the fire authority showed residents a series of photos of the same area of forest from the early 1900s to the present so that community members could visualize the difference in forest density over the past 100 years. Karen, the subdivision B actor, explained how this information helped her understand the need to thin the forest:

*“And then they also showed us how the forest looked 50 years ago, 20 years ago, and now, and a lot of people now think it’s beautiful because it looks like a carpet, but that’s not how it’s supposed to be. And they explained why, and that was very helpful also.”*

This example demonstrates the importance of visual aides in sharing information.

The information that the fire authority actor shared was important because it provided community members with the understanding that an overgrown forest puts them at greater risk of catastrophic fire, as it is more difficult for fire fighters to contain a crown fire than a surface fire. Interviewees also discussed information regarding fire

behavior as an important resource in explaining how mitigation can minimize the risk of crown fires.

The fire authority also shared information regarding local wildfire preparedness and response with the community, and they were highly effective in using this information to motivate community action because they presented it in a manner that was locally relevant. It was a wake-up call to residents when they learned that their properties or subdivisions may be considered indefensible by the fire authority due to lack of proper ingress/egress and defensible space. Karen, the subdivision B actor, described how this information helped her community understand the benefit of mitigating private properties:

*“And they also showed us that if you have mitigated you get a certain color dot at your house, and if you don’t you get a different color. And when there’s a massive fire they have to go where there’s fire mitigation first. So that was another huge thing.”*

The fire authority and CSFS actor shared information regarding wildfire mitigation so that community members could take the appropriate steps to create defensible space around their homes and thin trees in their subdivisions. This type of information-sharing was the most widely discussed by the interviewees. The fire authority and CSFS actors shared information regarding wildfire preparedness/response and mitigation primarily through property wildfire risk assessments, which provided the opportunity for experiential learning. Pete, the subdivision A actor, discussed this:

*“[One of the fire authority actors] provides a service where he will come in and assess your property and mark trees, and he does it for nothing. He has been out to most of our homes—certainly the ones on the [HOA] board, a lot of the members have had him and his team come out and do the assessments.”*

Property wildfire risk assessments provided the opportunity for hands-on experiential learning and one-on-one relationship building with community members. As Pete indicated, the fire authority has the financial and time resource capacity to provide this service at no charge to the community, thus eliminating financial burden.

After the team developed the CWPP, the fire authority actors shared information regarding the CWPP with the community and gathered input. They were effective in this role due to the trust and local legitimacy they hold with the community, as well as their access to local networks. In working with the community prior to and at the completion of the CWPP development process, the fire authority strategically relied on community leaders to serve as liaisons to their communities, and to share information through horizontal community networks. Pete, the subdivision A actor, explained the importance of using pre-existing community networks to share information:

*“The best way to get communication to a community is not to depend on a newspaper, but to get some of the community leaders to pass the information on in ways that the community is used to receiving information. In our case, our newsletter and e-mails are probably the most affective way of communicating.”*

This statement emphasizes that personal, neighbor-to-neighbor networks are much more effective in sharing information within communities than impersonal mechanisms such as local newspapers.

As we discussed previously, the collaborative learning process was critical in gaining community buy-in. This was clearly demonstrated as subdivision A, which had already been through the collaborative learning process with the fire authority, immediately supported the CWPP, whereas subdivision B, which had not been previously engaged, resisted. It was only after subdivision B and the fire authority went through the collaborative learning process that the subdivision agreed to allow the fire authority

access to treat their subdivision. This process provided subdivision B residents with relevant information that motivated them to support action, and allowed them to share their local values and concerns with the fire authority. It also created networks and positive relationships between residents and the fire authority, which led the residents to trust the fire authority.

While the Harris Park CWPP process did not formally engage the community in discussing local values (the fire authority filled this task), local values have been addressed by community members in the projects that have been implemented. This was apparent in the case of subdivision B, as it was important to the residents that they explain their concern for keeping enough trees to preserve the aesthetic forest value. The subdivision had the final say over which trees the fire authority's crew removed.

In the case of subdivision A, the on-going community mitigation projects have been community-driven with the fire authority's assistance. While it is not possible to say if direct discussions have taken place to identify local values, it is likely that due to the locally-driven nature of the projects, local values are being addressed.

These are the main examples of how community values affected the CWPP action items. The other possible example of this is that the core team considered the willingness of different subdivisions to support mitigation as they prioritized areas for treatment. While this did not entail a discussion of specific local values, there was at least consideration given to community willingness to become involved.

The fire authority and the CSFS demonstrated the capacity to be receptive to local values and concerns and learn from the community members. They also possessed the capacity to share these local values with the USFS. Therefore, while the USFS had very

little contact with community members, limited to NEPA scoping meetings for federal projects, the USFS was aware of local values and concerns.

Alan, one of the USFS actors, described how his prior experiences with the Upper South Platte Watershed Restoration Project and the South Platte CWPP demonstrated the important role that scientific information-sharing plays in building community trust and gaining credibility:

*“What we did that I think built trust, in the NEPA process for the South Platte process is that in the beginning of all of our public involvement meetings, [a actor from a federal research facility] would talk for about an hour or so about the science behind what we were doing. That really helped us as we got into the project discussion, after [the researcher’s] discussion about the science behind what we were doing. So that was really critical. And we realized with the Harris Park CWPP, we brought science to that planning process, and the science also helped us in the planning as well the implementation. What we did is develop the idea that there’s science behind what we’re trying to do, the science behind the treatments and the fire ecology. That helped us. That really was the key for Harris Park. That’s almost like developing that pre-existing trust.”*

The Harris Park case demonstrated how information sharing during collaborative learning processes helped provide legitimacy and credibility for the need for wildfire mitigation. It also was an avenue for re-framing community perception from negative to positive regarding wildfire mitigation, and facilitated the building of trust between community and agency actors.

The collaborative learning process provided the CWPP core team with the opportunity to share and combine pre-existing risk assessment and fire behavior information. The core team members also provided scientific and technical information that was utilized in gaining community support for the CWPP. The collaborative learning process provided community members with the opportunity to access information from the fire authority and CSFS that explained the need for wildfire

mitigation, as well as to share their local values and concerns. This process resulted in positive relationships and trust between the community and the fire authority and CSFS. The collaborative learning process ultimately resulted in CWPP development and implementation.

### Lake County

The CWPP core team in the Lake County case had a very structured approach to information-sharing at neighborhood meetings. They organized their collective knowledge regarding forest ecology, fire behavior and local fire preparedness and response into a Powerpoint presentation that they presented at every meeting. The key community member utilized the information gathered during the Science and Information Workshop assist in creating her portion of the presentation. The object of this presentation was to provide the residents with enough basic information to make educated decisions in creating their mitigation plan. This demonstrates the capacity of the core team to organize and package strategic pieces of information in order to draw specific conclusions. We will discuss this further in the “Issue Framing” section of the paper. The core team actors continued to provide scientific and technical information throughout the meetings as the community members formed action items and priorities. As we discussed earlier, the CWPP core team understood that the community would require clearly explained relevant scientific information and reasoning, shared in an interactive manner. The key community member relied on her educational background in collaborative resource management in order to guide actors at each neighborhood meeting through a collaborative learning process.



The Science and Information workshop contributed greatly to the forest ecology and fire behavior presentations, as it provided cutting edge information for the team to share. This information was a huge resource and contributed greatly to the capacity of the CWPP core team to provide legitimate, credible scientific information to the community.

Forest ecology information focused on the uniqueness of the high-altitude lodgepole ecosystem that exists in much of Lake County, as well as how the history of mining has impacted it, and how the mountain pine beetle epidemic, which is affecting the neighboring counties, could potentially impact it. Fire behavior information was used to explain the nature of crown fires and how lodgepole pines evolved with their particular fire regime. Again, the Science and Information Workshop was critical in contributing to this information pool.

Information regarding local fire preparedness and response familiarized residents with the fire authority, its equipment and abilities. It also raised local awareness of the fact that mitigation is necessary in order to assist fire fighters in accessing and defending private properties. Dennis, the fire authority actor, summarized the benefits of sharing this information with the community:

*“I think that the [community members] who we’ve had the opportunity to work [on the CWPP] with within the various subdivisions have a much better understanding of how fire works in this ecology, how it can affect the community, how it can affect their subdivision, their neighbors, and how the fire department is going to respond, and what is our role going to be.”*

Discussion of wildfire mitigation techniques came into play during the creation of action items, as community members learned from the agency actors about types of treatments that would be most effective and appropriate in different areas. Property

wildfire risk assessments do not appear to have played as great a role as a tool for sharing information as they did in the East Portal and Harris Park cases, and only one individual in the Lake County case mentioned that property wildfire risk assessments were conducted in his subdivision. This may be due to the fact that unlike the other two cases, very little wildfire mitigation had occurred previously in the county; it is possible that property wildfire risk assessments have become more of a common tool as the Lake CWPP is implemented.

Information regarding risk assessment was important during the CWPP process. The CWPP core team empowered the community members to determine their own perception of their wildfire risk, rather than presenting them with an agency-generated risk assessment. The team provided the subdivisions with the list of risk assessment criteria that they created previously with the community task force in order to provide some form of guidance. Susan, the key community actor, described this process:

*“And then after that we had an organic discussion about what does risk mean, what is high-risk, and we defined what that means. And then we said, what areas, because we had to prioritize, so we looked at all the neighborhoods according to how we all had decided how the neighborhoods were in this community, and the group decided first of all, what were the criteria for identifying risk, and based on those criteria, which communities met the high-risk criteria. It was pretty structured, but they decided everything, I only facilitated.”*

The risk assessment discussion was an important part of the CWPP planning process, and a huge indicator of the core team’s willingness and ability to empower the community. The CWPP team presented the community with clear objectives and criteria that assisted residents in producing results. Community members had the opportunity for critical thinking as they learned about factors that contribute to wildfire risk, and considered how these factors related to their communities. This resulted in much more

meaningful community awareness and understanding of wildfire risk than if the agency actors had provided a risk assessment for them. This type of participatory learning experience was a key part of the collaborative learning process, because it allowed stakeholders to interact with information in a manner and context that is directly meaningful and relevant to them. It also allowed them to be participants in the learning process, instead of merely recipients of information.

The USFS shared information regarding its policies, capabilities and limitations with the core team and the community. This information-sharing was important because it provided the USFS the opportunity to explain the scientific reasons behind their management actions in order to increase community understanding and trust in them. In one case a subdivision originally did not support the USFS's plans to treat an adjacent area of forest because the residents were concerned about potential erosion caused by machinery. The federal actors explained their plan to use a method that has low ecological impact, and ultimately gained the subdivision's support. The USFS also informed community members of their capabilities and limits, which assisted the community members in recommending treatments on federal property. This eliminated misunderstanding that is a common cause of friction between communities and federal agencies.

The CWPP core team presented objectives and guidelines for crafting each subdivision's lists of values-at-risk and action items in a manner that was clear and easy for the community members to follow. The core team asked the community members to share their local knowledge and values with the agency actors. Community members explained their values for fish and wildlife habitat as well as for their homes and

community infrastructure. The agency actors benefited from learning this information, as it gave them a greater understanding of the local ecosystems as well as of community values. The CWPP core team deliberately structured the planning process so that community members, and not the core team, created the action items according to their values and concerns. Again, the capacity of the CWPP core team to understand the need for the community to drive the plan, and the team's willingness and ability to engage the community in collaborative learning, led to success in the Lake County case.

The CWPP core team actors demonstrated many types of capacities in their ability to conduct the CWPP process so that it was community-driven with agency support. The key community member utilized group facilitation skills in her ability to incorporate different types of information and perspectives into a deliberative planning process. She also possessed the ability to explain scientific and technical information in a manner that community members could understand. One of the community actors described the key community member's ability to facilitate a collaborative process:

*"The [key community member] brought the ability to pull [all of the information] together, and help everybody explain it all, and, she was excellent at dealing with listening to people and allowing them to speak. There's a neighbor over here, he used to work as a fish biologist. Articulate, but long-winded. So she was able to take a person like him, or a person like [another community member], who is a water geologist, and enable them to get their questions out and get an answer and make them feel like they'd been a part of the system. She did a great job with that. You have four or five people up here who have an extensive knowledge about ecology, and water resources, and forests, and on a very technical level. And then you've got all of us like myself who do other things, and we're aware of [ecological information] but we don't have the in-depth knowledge, and she was able to answer very in-depth questions and still keep us active. That's a real challenge. If she hadn't been here, it would not have come off as well."*

The key community member lent local legitimacy to the process, as community members trusted what she had to say because they perceived her as one of them. She also

brought credibility because she is a scientist, and provided access to cutting-edge information. One of the CSFS actors explained her capacity in this regard:

*“She gave a presentation on ecology of lodgepole pine, which was scientifically based, and it wasn’t the [USFS] talking to the group, it was a non-agency, non-state person saying, here’s what lodgepole do in the event of a fire. Here’s the natural history of lodgepole. I think that was huge. It was unbiased. It was science, they could say, she’s a scientist, she’s not just rambling because she wants wood to get cut, or trying to support her job.”*

The rest of the CWPP core team actors also contributed capacity in their ability to share information with the community, and encourage community members to ask questions and incorporate local input. Michelle, one of the CSFS actors, explained the core team’s method for incorporating community participation during CWPP community meetings:

*“The meetings varied from subdivision to subdivision. Some meetings we had five people, and some meetings we had thirty people. So in the bigger meetings we would break them up into groups, give them maps, ask for their comments, and then we’d all come back together and they’d present each group’s thoughts and comments, and their maps that they’d drawn on. And at smaller meetings it was more like a conversation. We went around the room and people discussed things. One person would say, this is what I’d like to see, and go around the room and either agree or disagree. And then after that conversation would go on for a while, you’d take notes throughout the meeting, and at the end of the meeting we’d say, this is what we got out of this, is this what you guys agree to? And everybody was able to say yes, no, whatever. So after the presentations it was conversations as a group or in groups.”*

Molly, one of the USFS actors, also explained this process:

*“We invited them to ask questions, and we started capturing ideas and thoughts that they had, and as we discussed all of this information they started thinking that they needed dry hydrants, or they needed to widen their roads, they needed to figure out how to work with absentee landowners. And so we started capturing all of this information that they were coming up with. And then we also provided them with a map of their subdivision, one where you can see all of the vegetation.”*

The CWPP core team strategically organized and facilitated meetings in order to empower community participation. They adapted the structure of each meeting according to group size, and facilitated discussion that allowed them to capture community member's ideas. They provided the opportunity for large groups of community members to work in small groups in order to increase the ability of individual community members to ask questions and give input, particularly those individuals who are hesitant speaking before a large group. The core team was also effective in capturing community thoughts and ideas that organically surfaced during discussion.

Maps provided a critical learning tool during the planning process. The team provided the community with maps of their subdivisions to assist them in planning their action items. Residents drew circles on the maps to indicate where and what type of treatment they recommended. Dan, one of the local government actors, described the benefits he witnessed of using maps at the community meetings:

*“At the meetings that I attended, especially some of the last ones, there were maps up all around the room, and people were going over and pointing to their house, which lot their house was on, and they knew what was going to be happening in their whole HOA.”*

Maps also created an obstacle to the CWPP core team. The county did not have GIS capability at the time the planning process was underway, and a professor at the local college offered to create the necessary GIS maps with his class. However, this offer fell through and the federal and CSFS had to take over this task, which was difficult because there was a great lack of available geo-spatial information.

As in the other two cases, the core team relied on pre-existing community social infrastructure to share information with the subdivisions. They used their pre-existing networks to identify subdivision actors to contact, and they relied on the leadership skills

of the community contacts to arrange a meeting place within the subdivision and to gather community attendance. Susan, the key community member, described the importance of utilizing community networks:

*“We wanted to take advantage of the networks that exist within that neighborhood...There was something organic about it. For example, by the time we went to [one of the subdivisions], the neighborhood further north from that, and I think another teeny neighborhood, had both caught on to the fact that we were going to have this whole afternoon with [the subdivision]. And they just showed up, [they heard about the meeting] through the networks. That’s a neighborhood, so that became a neighborhood—[those three neighborhoods]. There’s something organic about that, and you use that.”*

The core team relied on the community members who attended the meetings to spread the word to residents not present and gain their support. The local government actors took this information-sharing to a higher level as they shared information regarding the CWPP with city and county boards. Again, these examples demonstrate the importance of human capital as well as using pre-existing community networks in sharing information with the community.

#### Commonalities across the cases

Collaborative learning was a key element of the collaborative CWPP development process in each case; the Harris Park case in particular illustrates the critical need for community involvement in collaborative learning at some point prior to, during, or after the CWPP development process in order to gain community support for implementation. Scientific and technical information provided by agency actors helped community members understand wildfire risk and the need for mitigation. Information provided by community members regarding local knowledge and values assisted in creating an implementation plan that effectively addressed local concerns, and also provided insight

for agency actors as to community knowledge and values. Wildfire risk assessment information was valuable in each case, although the Lake County case was the only one in which the community and agency actors participated in creating risk assessments, as an added element of the collaborative learning process.

In the East Portal and Lake County cases the agency actors demonstrated a willingness to share power with the community members during the CWPP development process, and they shared complicated information in a manner that the community could understand and relate to. Experiential learning opportunities were highly effective in sharing information with the community members in a relevant and hands-on manner. Community members provided access to community horizontal networks in order to share information within their communities, and they utilized their leadership and local legitimacy to garner community support.

### ***Issue Framing***

#### **East Portal**

As we discussed in the “Pre-existing Contextual Capacities” section of this paper, the majority of issue framing in the East Portal case occurred prior to the CWPP process, through the collaborative learning processes that accompanied the previous mitigation projects. These issue frames continued to play a role throughout the CWPP development process, as the CWPP core team discussed amongst themselves and with the community the benefits of increased protection of life and property as well as large-scale forest health when mitigation is addressed at a regional scale.



### Harris Park

The communities in the Harris Park CWPP region had an awareness of their wildfire risk prior to the CWPP process. As in the East Portal case, this awareness grew in response to several large wildfires in their region, including the Buffalo Creek fire in 1996 and the Hayman fire in 2002. Walter, one of the USFS actors, described this pre-existing community awareness:

*“I think they had a good background because of all the recent large fires. One of them was right there by Bailey in 2002. They evacuated Bailey and probable half of those subdivisions. They knew about fire.”*

As a result, at the time that the CWPP process convened the community was aware of their wildfire risk, and some communities had taken their awareness a step further and gained the knowledge and the skills necessary to take action from the fire authority and the CSFS. The fire authority also contributed to this raised awareness during the community meetings held at the completion of their community fire risk assessment.

Despite this heightened awareness, a majority of the interviewees explained that many residents were still unmotivated to mitigate, or were even resistant, at the time the CWPP process began. Some locals perceived wildfire mitigation as negative, and feared that thinning their forests meant clear-cutting. Tom, the CSFS actor, described the local misconception regarding logging:

*“There are a lot of transplants along the Front Range from other parts of the world, and the logging that we did in the ‘80s in the northwest, there’s a hangover around here on that, because they hear logging and they think large, square clearcuts.”*

The collaborative learning process was critical in shifting these negative frames to a new perception of the positive aspects of wildfire mitigation. Interviewees explained that in many cases residents changed their perception after witnessing first-hand what a thinning project looks like, and observing that thinning will not destroy a forest if done correctly. Bob, one of the fire authority actors, described how a particular experiential learning opportunity resulted in a shift in local perception:

*“And a couple of [residents] said I don’t want [to mitigate], and then when treated their neighbors’ properties they decided they wanted it after all. Because they saw it wasn’t clear-cut.”*

Karen, the subdivision B actor, also emphasized the value of first-hand experiential learning:

*“That’s something that is a peer-type thing. You can’t tell somebody to do something, they’ve got to see the results of something and then they pass it on from neighbor to neighbor. It’s kind of hard to explain to somebody that you’ve got to cut these trees and these trees around your house, because it’s kind of hard to visualize what it will look like. But if somebody’s done it, then they can see what it looks like”*

Karen pointed out the effectiveness of community peer-learning and the local legitimacy that it provides. Community members are more likely to believe and agree with other residents than with an external agent. Bob as well as Karen described the benefits of experiential learning through observing an area that demonstrates wildfire mitigation in order to understand what a mitigation treatment entails.

During interviews the agency and community participants discussed the need for wildfire mitigation using various types of issue framing. The most commonly discussed frame was that wildfire mitigation is necessary in order to protect lives and property. This includes the concept that homeowners must mitigate their properties and their subdivisions in order to provide sufficient access to fire fighters and to increase the

ability of fire fighters to defend their properties and homes. Karen, the subdivision B actor, discussed the wildfire issue using this frame as follows:

*“Truly, if there’s a fire on this hill, we’re all going to lose our homes. So people thought, if it happens it happens, there’s nothing we can do about it. But [the fire authority] explained how if they can keep it on the ground by thinning trees, they can fight it. So it was a lot of information that we were not aware of.”*

The fire authority actors directed local attention to the ability to protect life and property through mitigation when they shared information regarding wildfire response capacity as well as the effectiveness of mitigation in creating defensible space.

Information regarding need to mitigate in order to provide access for fire response vehicles, and the need to create defensible space around homes in order to assist the fire authorities during wildfire suppression efforts, was effective in leading community members to understand that they have the ability to take action to defend their community. It also provided community members with the understanding that if they don’t take action, their homes and properties are much more likely to be impacted by wildfire, and the fire authority is much less likely to respond.

A second frame relates to forest stewardship, as participants discussed the need to restore the Ponderosa pine forests to their historic condition. Residents in subdivision B were much more receptive to the need for mitigation when they perceived it through a forest health frame. Forest ecology and fire behavior information led community members to understand that their forests were unnaturally dense due to a century of wildfire suppression, and that they needed to take action to restore the health of their forests. As mentioned in the previous subsection, historic photographs helped illustrate this concept. Residents perceived cutting trees as more acceptable when they understood how it benefited forest health, as opposed to just community wildfire protection. Sam,

one of the fire authority actors, explained the critical role that ecological information played in gaining community understanding and support:

*“The only thing that really persuaded some people was, typically the average person thinks that when the settlers came out here this place was all thick with trees, and that they had to clear a lot of land. The reality is just the opposite, the trees were a lot thinner because they were the bigger, better, hardier trees that benefited from the fires that came through naturally. So it was thinned out back then. And I have pictures that I got from the USFS that start back in 1900 and it shows someone standing in front of a tree, and then ten years later shows the same spot with more trees, and twenty years later with even more trees. And people look at that and learn, and that helps.”*

There is some concern in the region about the mountain pine beetle infestation, which is affecting areas to the west of the Harris Park region. This issue relates to fire risk, as beetle-killed trees can create fuel. This issue is perceived as a threat to mountain communities, and it added an additional element of urgency in explaining to the community why mitigation is necessary to protect forests and communities from catastrophic events. Pete, the subdivision A actor, described this concern:

*“Pine beetle infestation as a fuel risk has been talked about. In fact, we brought a guy in to our [HOA] meeting who works for the USFS and he’s stationed in Fairplay, and he talked about the mountain pine beetle and the ips beetle and the problems they’re having in Summit County and Route County and Grand County, and what it means in terms of forest fire risk.”*

The concept of sense of place was discussed by the subdivision B actor in relation to the forest health frame. The subdivision B actor explained that her community initially resisted CWPP implementation because residents did not want to lose their trees. Karen, the subdivision B actor, explained these local values for the forest as follows:

*“People who live up in the mountains, you live up here because of the trees. If we didn’t want trees, we’d move back to Pueblo. And most of the people who live up here came from communities that were not forested.”*

Karen later explained the great value that she and other residents have for their homes and their properties, and how these local values required the need for information-sharing:

*“It’s my property, I’m going to be here for the rest of my life. And it took a lot for most of us to get up here. It’s our fifth or sixth home, and we finally could afford to get up here and retire, so the property means a huge amount to us.”*

It appears as though the residents initially perceived mitigation through a frame of loss of forest aesthetic values. The issue framing techniques utilized by the fire authority during the collaborative learning process led the community to understand that thinning does not mean clear-cutting, and that it helps restore the forests to historical conditions. As the community’s frame shifted to understanding the issue through a more positive forest stewardship frame, they eventually supported the need for mitigation.

### Lake County

The Lake County case is unique in that a majority of interviewees described a lack of community awareness of wildfire danger prior to the CWPP process. There are a few reasons for this. As we discussed previously, the majority of the county’s forests are still relatively young, and are just now reaching the prime age for catastrophic wildfire. As a result of these younger forests, there have not been any large wildfires in the history of white settlement in the county, and this led to the local misconception that wildfires are not a threat. A common local misconception is that due to the high altitude, there is not enough oxygen to sustain a wildfire. The fact that the climate is cooler and snow covers the ground for a greater percentage of the year than other wildfire-prone regions in

Colorado also contributes to this misconception. Dennis, the fire authority actor, described this lack of local awareness regarding wildfire risk:

*“A lot of the biggest misconceptions that have been out there and that I have run into on several occasions is the belief that at our altitude, there is not enough oxygen to support fire. Related to that was the belief, and I think that this was just human nature, that it’s not going to happen to us. Because we haven’t seen a lot of big fire, and they certainly have seen it around the state, but they say, well it hasn’t happened up here, it hasn’t happened in my lifetime, therefore it’s not going to happen.”*

Unlike in the East Portal and Harris Park cases, in which the majority of the community perceived some degree of wildfire risk, the Lake County CWPP core team couldn’t immediately launch into the reasoning for creating a CWPP at community meetings; they first had to build the community’s awareness of wildfire risk. The Lake County case was unique in that the core team used a highly structured Powerpoint presentation to provide a great amount of information to the community. It was critical for the Lake County CWPP core team to give this presentation because they had to start from ground zero in raising community awareness of wildfire risk. Without a formal, detailed description of forest ecology and fire behavior to lead community members to understand wildfire risk, information regarding the need for mitigation would have lacked a relevant context. The Lake County CWPP core team’s strategy of allowing community members to determine wildfire risk for themselves was also a useful tool in raising awareness, as we discussed the benefits of using this participatory learning technique earlier in this paper.

The most commonly discussed frame was that wildfire poses a threat to life and property. Neil, one of the USFS actors described how information that was shared with the community contributed to this frame:

*“[The fire authority actor] is a dynamic person who brings the reality of large fires into the crowd, and not to scare them, but to show what can occur, to show what with treatment what can occur...[The fire authority] would bring their engines out, they would bring their brush trucks out. One subdivision, they can't even get in there. So that opens the minds pretty quick. And through the CWPP, that was one of their initiatives that they would like to see accomplished, is better access for the fire department. It's not just cutting trees and piling brush. It's dry hydrants, better access, and that is a theme with the three major subdivisions that we deal with, those are the common themes. Water, what are you going to do for water. If you have to fill up, it takes them an hour to make a round trip with a nurse tanker, and a lot can happen in an hour if you've got a going fire.”*

The information that the fire authority shared with the community regarding local wildfire preparedness and response led community members to understand that they could take action to defend themselves and their properties from this threat.

The threat of wildfire to life and property was the most commonly discussed frame in all three cases in our study. However, the Lake County case is once again unique in that due to the forest type and fire regime that characterizes the majority of Lake County, mitigation is less effective in protecting communities than in the Harris Park and East Portal regions. Unlike healthy ponderosa pine forests, which in most regions of Colorado are adapted to wildfires that remain on the ground and do not destroy the majority of large, mature trees, the lodgepole pine and spruce-fir forests of Lake County evolved with catastrophic wildfires that burn through the crowns and impact large scale regions. The strategy behind mitigation in ponderosa pine forests is to thin the trees to a more natural state so that wildfires remain on the ground, which are much easier for firefighters to contain and extinguish. Lodgepole and spruce-fir forests are naturally dense, and applying the same types of large-scale thinning treatments to these forests as are prescribed for ponderosa pine forests is ecologically unsound, and is unlikely to mitigate large scale wildfires. Therefore, mitigation prescriptions and their effectiveness

are very different in lodgepole pine and spruce-fir forests. As a result, there is no guarantee that mitigation will help wildfires remain on the ground, and once a wildfire climbs into the crown, they become virtually impossible for firefighters to control without natural intervention (i.e. rain, shifting winds, topography).

The CWPP core team was honest with the community in explaining the limitations of the effectiveness of mitigation, and the community members we interviewed stated their understanding that mitigation will not necessarily save their homes. It was interesting that the community members nonetheless were willing to mitigate their properties, believing that some action is better than no action. This may largely be due to the issue framing that took place as the fire authority presented information regarding their capacity to respond to wildfires, and encouraged residents to mitigate their properties in order to improve the fire authority's ability to respond. The community members understood that mitigation may slow a wildfire or at least provide time for evacuation and space for fire fighters to reduce risk to properties.

The issue frame of forest stewardship was also discussed. Again, the fact that Lake County's forests are largely lodgepole pine and spruce-fir as opposed to ponderosa pine made this frame more complex than in the other two cases. Whereas thinning, when done correctly, improves forest health in ponderosa pine ecosystems, it does not improve the health of lodgepole and spruce-fir forests. Mitigation techniques must mimic natural events in order to benefit forest health, and in the case of lodgepole and spruce-fir forests, wildfire kills large areas of trees in catastrophic crown fires. The CWPP core team shared forest ecology and fire behavior information with the community members to help them understand that while thinning trees may be effective to create defensible space



around homes, clear-cuts and patch cuts most closely mimic natural forces in treating large forested areas. This is quite a shift in cognitive framing from the popular notion that clear cuts are destructive and unnatural.

The concept of “sense of place” appears to have played a role in community members applying a forest stewardship frame. Several interviewees explained that many residents involved in the CWPP process are concerned about wildlife habitat, and fish habitat in particular as many residents enjoy fishing as a past time. One of the subdivisions exists specifically as a trout club, and a resident in another subdivision is a member of Trout Unlimited. Therefore, these residents were particularly concerned about the impact of wildfire and wildfire mitigation on stream quality. The USFS had to ensure the trout club subdivision that any mitigation activity would not negatively impact fish habitat before the residents would agree to support the recommended federal treatments, and even then the HOA appointed actors to monitor the federal actions. Dave, the actor from this subdivision, explained this situation:

*“It was very widely brought up is, this is a trout club. So whatever the USFS does in terms of thinning, not on our property but around our property, needs to be very sensitive to the ecological fish habitat. We have some very educated people as far as fish habitats. They felt they were listened to.”*

The sustainability of the local economy provided another issue frame. The local economy is based on tourism, as Leadville is surrounded by prime locations for outdoor summer recreation, and it also hosts a ski resort that attracts winter visitors. A wildfire could reduce the aesthetic quality of the area, as well as burn the town. Dan, one of the local government actors, explained this concern:

*“It boils down to the economy. People come up here to see green trees, not burned ones. If we have a big wildfire, Time Magazine might come up here to take pictures of it, but then they’re gone, and nobody else is coming here in July.”*

*So then all of these small businesses suffer really bad, and close down, and once they close, they're gone. These businesses are operating on a shoe string, and a 50% hit in a summer's revenue will put most of them out of business."*

#### Commonalities across the cases

In each case issue framing served as a tool for agency actors to explain complicated scientific and technical information to community members in a manner that was relevant, complimented local values, and facilitated community support. The two main issue frames in each case were : 1) wildfire mitigation helps protect lives and property, and community members must take responsibility for mitigating their properties and communities; and 2) wildfire mitigation helps restore forest health. In the East Portal and Harris Park cases, preexisting community awareness of wildfire risk facilitated community adoption of these frames. In the Lake County case the CWPP core team had to first provide the community with awareness of wildfire risk before introducing these frames, in order to provide appropriate context for the general need for wildfire mitigation.

#### ***CWPP Development Process Section Summary***

The collaborative learning process was a key element of the CWPP development process in all three cases. Information was shared between agency and community actors that explained the need for mitigation as well as the need to address local values and concerns. Issue framing was an effective tool utilized by the agency representatives during the collaborative learning process in order to appeal to community values and craft a commonly supported message regarding the need for wildfire mitigation. While community participation varied from case to case, community engagement in

collaborative learning was critical at some point in order to gain community support. In each case, the nature of community involvement and the collaborative learning process varied according to the CWPP core team's capacity to involve the community and collaboratively learn from one another.

### **Outcome Capacities**

While our study didn't specifically study the implementation phase of CWPP development, we were able to collect information that described capacities that were created as a result of the CWPP development process. The following capacities are outcomes of the collaborative CWPP development process that emerged from our cases. Table 2.5 provides a summary of these capacities.

#### ***Knowledge Community***

As a result engaging in collaborative learning prior to and during the CWPP development process, community members possess new knowledge that they can draw on to implement the CWPP as well as other collective goals. They also know that they can utilize their new and strengthened vertical networks to contact agency actors for further resources and assistance.

#### **East Portal**

The collaborative learning processes that occurred prior to and during the CWPP process resulted in an increase of the community's understanding of forest ecology, fire behavior, mitigation techniques, and local preparedness and response. The collaborative

Table 2.5: Outcome Capacities Identified in the Case Studies

| Outcome Capacities                                      | Elements Contributing to Capacity  |
|---|--|
| Knowledge Community                                     | <ul style="list-style-type: none"> <li>• Community has new knowledge regarding forest ecology, fire behavior, wildfire mitigation, and local preparedness and response</li> <li>• Community knows how to access further resources and assistance from agency actors through the use of networks</li> <li>• Agency actors are aware of community knowledge and values</li> </ul>  |
| New and Strengthened Networks and Working Relationships | <ul style="list-style-type: none"> <li>• Horizontal (community-community), and vertical (community-agency, agency-agency)</li> <li>• Community can access resources and assistance from agency actors</li> <li>• Agency actors can access resources and support from community members</li> <li>• Community actors provide agency actors access to horizontal networks in order to share information and gain support</li> <li>• Community actors utilize horizontal networks to gain access to local resources and support</li> <li>• Residents in communities involved in the CWPP are sharing information and motivation with uninvolved communities</li> </ul> |
| Scaling Up  | <ul style="list-style-type: none"> <li>• The CWPP implementation action items compliment other mitigation activities in the region</li> <li>• CWPP actors hope to continue to expand efforts in the region by motivating uninvolved communities</li> </ul>   |
| Potential for Sustainable Collective Action             | <ul style="list-style-type: none"> <li>• Community members possess the knowledge to address collective issues</li> <li>• Community members can utilize horizontal networks to collectively organize to address issues</li> <li>• Community members can utilize horizontal and vertical networks to access resources, assistance and support necessary to plan and implement collective goals</li> </ul>  |

learning that occurred during the CWPP process resulted in an increase in the community's understanding of USFS policies, formal recognition of specific community values threatened by wildfire risk, and an understanding of how collaborative wildfire mitigation planning can achieve landscape scale results. This knowledge gain resulted in an increase in the CWPP core team's ability to implement the CWPP as well as to accomplish other future goals.

One type of knowledge gain was the increase in the community actors' knowledge regarding forest stewardship. This was indicated by the community actors' ability to speak knowledgeably about forest ecology and health during interviews, as well as the agency actors' accounts of witnessing community members utilizing their new knowledge. Paul, the subdivision B actor, discussed his knowledge of the ponderosa pine ecosystem:

*"You realize that a huge stand of ponderosa pine, all of them 2-3 inches in diameter close together, is not healthy, and either the beetles are going to kill it or it's all going to burn down. But if you go in and return it to a more natural state by thinning, and the kind of thinning [the CSFS actor] talks about is where the guys walk in with the chain saws and drag the logs out by hand, not the kind where you run a bulldozer in."*

This statement also indicates Paul's understanding of how to conduct thinning in an ecologically sensitive manner.

Another aspect of community social learning was the increase in knowledge regarding mitigation and wildfire response. Prior to the CWPP process the community actors from subdivision A and the youth camp had already used this knowledge to lead localized mitigation efforts, which increased the ability to defend their individual communities from wildfire.

As a result of the prior mitigation experiences and the CWPP process, the community members know that they can contact agency actors for information, resources, or access to grant funding. This is a key element of community capacity, as community members possess vertical networks that they can use to access external information and resources.

While a majority of community knowledge gain regarding wildfire mitigation occurred prior to the CWPP process, the CWPP process directed community members to apply this knowledge in a new context. The CWPP process took wildfire mitigation to a greater scale by increasing the community's capacity to protect their region, and not just their personal properties and subdivisions, from wildfire, as the community actors collaborated with each other and the agency partners to coordinate mitigation efforts across boundaries. It shifted their focus from tackling small-scale ad hoc projects within their individual communities to strategic large-scale wildfire mitigation planning across multiple jurisdictions. Community members had to apply their knowledge to think in terms of landscape scale, and understand how their local forests are part of a greater system. We will discuss further in the "Potential for Sustainable Collective Action" section how this knowledge has motivated the community actors to engage other communities in wildfire mitigation.

The CWPP process also provided the community actors with the opportunity to make recommendations for treating federal lands, which required them to understand agency policies, abilities, and limitations. Despite the challenges associated with this particular learning process, the community actors ultimately gained an understanding of agency abilities and limitations, as Steve, the youth camp actor, explained:

*“[The CWPP development process] has been slow, and that’s because you’re dealing with so many agencies, and each agency has their own rules, that even the people we work with say I wish we could do that, but it may take a year for us to be able to do that. So we’ve learned that it’s a slow, slow process. It’s a slow process but you know what, the public education teaches the community that, you can still mitigate your own property, and [the agencies will] give you the tools and education of what trees to take out, how to do it, how many feet back you need to treat from your property line. It’s slow, we’re getting there, and I haven’t seen us back up.”*

Steve touched on a key point, in that while a CWPP provides the opportunity for community members to make recommendations for mitigation on federal land, a major focus remains on private land treatment, and what the community can accomplish with agency assistance. While the collaborative learning process included discussion of federal land treatments, the main emphasis was on empowering the community to treat their own private land. Steve also brought up the point that USFS policies and procedures may limit the ability to mitigate on federal lands. In the East Portal case, the NPS was unable to commit to planning mitigation treatments on land adjacent to subdivision B due to the potential listing of this area as a roadless area. Additionally, federal agencies must undergo the public review process outlined by the National Environmental Policy Act before implementing most mitigation treatments. These limitations can potentially erode the goal of landscape scale wildfire mitigation. However, the East Portal community members were willing to proceed with planning mitigation treatments on their private lands despite their knowledge of these limitations.

The CWPP process provided community members with the opportunity to expand their pre-existing knowledge to address wildfire mitigation at a local as well as regional scale. The community actors demonstrated that they possess the knowledge necessary to understand the need for wildfire mitigation and carry out mitigation projects. They also

know how to access resources and assistance from agency partners in order to implement mitigation projects, as well as to access information and resources to assist in forest health projects. The community members gained an understanding of the federal agencies' policies and limitations, and how these factors affect the federal agencies' abilities to compliment private land mitigation projects.

### Harris Park

The collaborative learning process resulted in knowledgeable community members who possess information and access to networks to help them address wildfire issues and implement mitigation projects, as well as accomplish other natural resources related projects. While learning opportunities were critical in empowering the community to understand their forests and mitigate their properties, only a minority of actors discussed their significance. This may be due to the fact that, again, the interview questions focused mainly on the planning phase, and community involvement in the Harris Park case was recognized as being important in the implementation rather than the planning phase.

The community members who engaged in collaborative learning processes gained a better understanding of forest stewardship. The information that was shared regarding forest ecology and fire behavior led them to understand that the forests in their region evolved with wildfire, and that thinning helps protect the forests from catastrophic events such as wildfire and beetle epidemics. Pete, the subdivision A actor, demonstrated his new knowledge of ecological information:

*“One presentation that [one of the fire authority actors] has shown two or three times shows what the area looked like 100-200 years ago. That’s just amazing.*



*And he would say, this is what it should look like now, but here's what it really looks like. And it's all dense and thick instead of open meadows and so forth. Forest fires [historically] happened, and they happened on a cyclical basis, and then in the last hundred years we pretty much put a stop to that because we moved from urban to forested areas, and were not the least bit interested in cutting our trees, and thinning the forest. But now we're learning the importance of that."*

The community also demonstrated knowledge regarding wildfire mitigation.

Subdivision A had been putting this information to use prior to the CWPP process as they implemented community mitigation projects. The subdivision B actor described how this new information would assist them knowing how to mitigate their properties in the future, she replied:

*"Yes [the information will assist us]. Because we got that much information. There were a couple guys in charge of the tree falling and they know how to cut down a tree without killing every other tree around. They were very helpful, they would stop and talk to the homeowner while they were doing working. They were very informative."*

A majority of interviewees discussed an increase in general community awareness of wildfire danger and the need to mitigate. While much of the community was already aware of wildfire danger prior to the CWPP process, the information that was shared during the process further informed the community. They became aware that they should be concerned about wildfire risk and mitigating their properties even when smoke is not in the air. They observed mitigation treatments and through the process of experiential learning learned that thinning is not clear-cutting, and that the forests still look aesthetically pleasing after being thinned. They became exposed to the concept of the CWPP and landscape scale wildfire mitigation planning, and the CSFS and one of the USFS actors expressed their beliefs that the community will be more involved in future efforts due to their increased awareness.

The CWPP process also provided the opportunity for the community to share local values and concerns, particularly in subdivision B. Local values were shared in the context of implementing projects, as residents in subdivision B directed the fire authority as to which trees to remove, and subdivision A continues to implement mitigation projects that they plan themselves.

### Lake County

The collaborative learning process resulted in an increase in the community's awareness of wildfire risk and knowledge of how wildfire interacts with their forests, as well as how to mitigate risk. The community also gained a better understanding of the unique ecology of their forests, as well as forest health issues.

Increased community awareness of wildfire risk was perceived by the CWPP core team as a major outcome of the planning process. Susan, the key community member, explained how community awareness of both wildfire risk and the benefits of the CWPP has been increasing, and how this relates to increased community capacity:

*“The good news is with the facilitation they have had, they’ve gotten off to a great start, to the point where neighborhoods are coming to them, and saying we want to be a part of the CWPP process. So that’s great, it’s taking a life of its own. That’s a sure sign that capacity is building, things are happening, networks are forming, information is being sought, awareness is raised. This is really cool.”*

This example also demonstrates the importance of local networks in sharing knowledge, as news of the CWPP has been spreading word-of-mouth throughout the county.

A majority of interviewees described how the community members gained an increased knowledge of their forests, and understand the realities and potential impacts of wildfire and forest health issues, such as the mountain pine beetle epidemic. They

understand that their forests evolved with cycles of wildfire, and that the forests are approaching the age that wildfires and other catastrophic events become a factor. Dave, one of the subdivision actors, demonstrated this knowledge:

*“If we have a dry year like we did two or three years ago, and you get a lightning strike, and a good wind storm, you can have thousands of acres going in the wrong direction. You don’t have to look very far, just look out the window and it’s all filled with trees, and this type of forest, as we learned—and that’s one thing this whole process has taught everybody, is you’re dealing with lodgepole pine forest, this is how it lives, this is how it dies, and then rejuvenates itself, and we are in that period of time when a fire is almost inevitable.”*

Community members relayed an understanding of how wildfire behaves in lodgepole pine, and that a catastrophic crown fire may still occur despite their mitigation efforts. They explained that taking action to mitigate is better than not taking any action, and that it could help defend them from smaller fires.

The key community member described how the newly gained community knowledge regarding forest ecology and fire behavior led some subdivisions to prescribe patch cuts and clear cuts. These types of treatments have historically met with local disapproval in the region, which demonstrates the impact of this information in re-framing the community’s perception.

Community members also expressed their knowledge regarding wildfire mitigation techniques, including how to create defensible space and treat the forests in order to mitigate against wildfire, and also how to prepare for a wildfire event by ensuring that they will have an evacuation route or a safe zone, access for fire fighter vehicles, and water supplies on site. Dave, one of the subdivision actors, explained his community’s goals for mitigation:

*“And we as a board of the trout club, which is basically like the HOA in [our subdivision], that’s what we’re fighting right now, is trying to get individual*

*homeowners to say, you've got to take down some trees, you've got to clear some areas, you've got to have defensible spaces. We've got to go out and, that's one of the things we're going to be doing, is walking around here and saying, okay, this particular road is too narrow, you can't get a fire truck through here. We need to clear some trees from both sides of the road."*

Agency actors learned about community values and local knowledge as a result of the community-driven structure of the planning process. Alex, one of the CSFS actors, explained how the community members contributed information that the agency actors would not have known:

*"Homeowners who live in that subdivision may say, everybody likes to walk through there, and that's where we'd really like to keep it thick, or the deer really like to hang out there in the winter time, and there's a bedding area in the summer time because it's nice and shady, and if you open that up they're going to lose their shade, and they're not going to stay there. Those types of on-the-ground insight that they have by living there, we don't have. And by talking to them and getting that basic understanding, and it's not really too hard to understand, thinning the trees, but it does take a little time, but once they understand it, they can say, well, we see where it would be beneficial over here, and here, but not here."*

Dan, one of the local government actors, shared a similar observation:

*"There were objectives that were discovered within each of the HOAs that might have been completely overlooked had somebody just taken a list to them and said, this is what you need to work on."*

The collaborative learning process resulted in increased knowledge of community members and agency actors, which facilitates the potential for agency actors and community members to implement the CWPP. The community is aware of wildfire risk and what they can do to mitigate that risk, and the agency actors are better positioned to assist the community with private land implementation because they have knowledge of local values and concerns. This knowledge combined with community knowledge of agency policies also increases the potential for local support for treatments on federal lands.

### Commonalities across the cases

Information shared during the collaborative learning process resulted in an increase in the community's knowledge regarding wildfire risk, forest ecology, fire behavior, local preparedness and response, and wildfire mitigation. Community members also know that they can utilize their vertical networks to access resources and assistance from the agency actors. The communities in the East Portal and Harris Park cases applied this knowledge prior to the CWPP process in order to implement subdivision mitigation projects. The community members in all three cases can utilize this knowledge to help them implement the CWPP.

The agency actors gained knowledge of local knowledge and values, although this learning wasn't focused on as much in interviews as was the community learning. However, this information sharing was important because it helped the agency actors to better understand community concerns and goals, which provided the agency actors with necessary insight to assist the community in creating implementation action items.

### ***New and Strengthened Networks and Working Relationships***

#### East Portal

The community wildfire mitigation activities that took place prior to the CWPP development process resulted in the creation of horizontal and vertical networks that community members can utilize to access resources and information. These networks were strengthened during the CWPP development process, and expanded to include

vertical networks between the community the USFS A, as well as horizontal networks between the individual communities.

Horizontal networks were formed between the three communities during the CWPP process as well as within the community in general. Chris, one of the subdivision A actors, explained how a resident in a community outside of the East Portal region learned about their CWPP and contacted him for information:

*“[This resident] called me one day and had heard about the CWPP, and this was before I had met her. I told her what it was all about and who [of the agency actors] she should talk to, and I’ve never had [any of the agency actors] call me and say not to refer people to call them. They’ve always been very helpful.”*

This resident and Chris created a horizontal network between their communities, and Chris provided the resident access to his vertical networks by informing her of which agency actors to contact for further assistance. This individual who Chris described later worked with the East Portal community actors on the fire house ballot initiative (which we will discuss in the “Potential for Sustainable Collective Action” section), and the agency actors later began working with this individual on a CWPP for her community.

Steve, the youth camp actor, shared a similar story of how the CWPP process resulted in new horizontal and vertical networks:

*“There are people who I work with who belong to different HOAs, and they tell me about their [wildfire risk] problems, and I tell them who [of the agency actors] to call.”*

The collaborative learning processes that occurred prior to and during the CWPP process contributed to building networks and trust between the community and agency actors. Chris described the trust that was built between the community members and agency actors as a result of the previous community mitigation activities:

*“I think most of our education came from getting [agency] people up here and having face-to-face talks. I would say again, it was mostly hands-on, face-to-face education. And I think the good thing that comes out of that is you get to form a bond or a friendship with the person, you gather trust in him, and it makes it a lot easier to sell your program.”*

Kevin, the USFS actor, explained how the CWPP process created new networks and ultimately positive relationships between himself and the community members:

*“With me, I was kind of the outsider. The trust level wasn’t there to begin with, but now I can call any one of them up and talk to them and they know who I am, and we definitely know each other now.”*

While a majority of these networks and positive relationships existed prior to the CWPP process, the CWPP process resulted in expanded networks that included vertical networks between the community and USFS, vertical networks between subdivision A and B and USFS, and horizontal networks between the individual communities. The CWPP process resulted in the formation and expansion of networks necessary to address wildfire mitigation at a landscape scale. The community members know that they can utilize these networks to access external information and resources from the agency actors, and that they can collaborate with other communities through the use of horizontal networks.

#### Harris Park

The CWPP process resulted in stronger vertical networks between the agency actors and the community. The vertical networks that formed between subdivision B and the fire authority are a prime example of this. Karen, the subdivision B actor, explained that as she got to personally know and trust the fire authority actors, and she respected the

information they presented her. This motivated her to assist them in gaining the support of her subdivision. Karen explained:

*“And then what also helps is when we walked the property with the firemen, the [residents] became friends with them, and then you don’t want your friend to be hurt in a fire.”*

Vertical networks also strengthened between the agency actors. Although the USFS, CSFS and fire authority had positive working relationships existed prior to the CWPP process, many of the agency actors we interviewed described how the CWPP process strengthened these relationships.

There was no discussion regarding an increase in horizontal networks within subdivisions. The two subdivisions we studied already had strong pre-existing networks within their communities prior to the CWPP process. We were unable to determine if any of the subdivisions that we did not study saw an increase in networks as a result of the CWPP process. There was also no indication of horizontal networks that formed between subdivisions. The subdivision A and B actors did not know each other, and the subdivision B actor stated that subdivisions “pretty much keep to themselves.” The subdivision A actor knew through conversations with the fire authority about mitigation efforts that have occurred in other subdivisions, but he did not discuss any contact that he had personally with these subdivisions. It is interesting to speculate if inter-community networks would have been built if subdivision actors had been brought together as part of the planning process at the beginning.

It appears as though the collaborative learning process contributed to building networks between the community and agency actors by creating a dialogue through which relationships were built. This process established trust between the community



and fire authority and CSFS actors, and strengthened networks between agency actors. Many interviewees discussed the importance of sharing information to gain credibility, trust and buy-in.

### Lake County

The most frequently discussed networks and relationships that were created as a result of the Lake County CWPP process were those between the agency and community actors. Community members explained that they now know that the CSFS can provide them with access to grants, and that they can talk to the USFS regarding their questions and concerns about federal land management.

Dave, one of the subdivision actors, explained how relationships improved between the community and the agency actors as a result of the inclusion of community involvement during the CWPP process:

*“I think [relationships] between the community and the agency have changed tremendously. Because they felt that, A: they were involved, and B: there was a process that they could have some control over.”*

Dave’s statement draws attention to the fact that while in the past, natural resources-related issues have created controversy and left community members as helpless bystanders, the CWPP process actively engaged community members and gave them control over the process. This allowed for networks and positive relationships to form, as agency actors assisted community members in crafting their own community-driven CWPP.

Horizontal networks were strengthened between community members. One example of this is the conversation that is occurring within the community regarding the

CWPP, as subdivisions who are not involved learn word-of-mouth through horizontal community networks about the work that other subdivisions are doing, and contact these subdivisions to find out how to get involved in the CWPP. Dave, one of the community actors, described how networks have strengthened within his subdivision:

*“We’ve probably gotten to know our neighbors better, we’ve met mostly everybody, I think every body knows who everybody else is.”*

Susan, the key community member, explained how the CWPP process created an opportunity for individuals to meet and get to know each other:

*“The big things are that people who never used to talk to each other are talking to each other. And it’s not that they disagree with each other, it’s that they never had an opportunity.”*

As we discussed previously, the combination of isolationist and libertarian attitudes of many of the Lake County residents had discouraged many residents from interacting with other residents or agency actors in the past. The CWPP provided an opportunity for community members and agency actors to work collaboratively and build relationships and networks. It has also created discussion within the county, as communities that are not included in the CWPP seek information from communities that are. Community members involved the CWPP process now have access to vertical networks of individuals who they can contact when they need resources or information, which is a major capacity outcome.

#### Commonalities across the cases

In all three cases, vertical networks formed between community and agency actors as a result of the CWPP process. These networks led to the creation of trust and positive working relationships, which was a particularly important outcome in the Lake

County case in which the community had previous negative experiences dealing with government agencies. This was also a major outcome in the Harris Park case, in which networks and relationships that formed between subdivision B and the fire authority provided the community with trust in the fire authority that was essential in gaining their support for CWPP implementation.

Horizontal networks within and between communities were a major outcome in the East Portal and Lake County cases. Not only are community members sharing information with their neighbors and encouraging CWPP participation within their communities, but they are also sharing information regarding the CWPP with other communities. The dissemination of information and encouragement through horizontal community networks has resulted in the expansion of the CWPP effort across a larger scale in both of these cases.

### ***Scaling Up***

#### **East Portal**

Actors in the East Portal CWPP process discussed their awareness of how their work will affect regional wildfire mitigation. The agency actors discussed their desire to see the entire Estes Valley as well as the WUI regions of Larimer County covered by CWPPs or mitigation plans. The LCCG plays an important role in coordinating these efforts, and the county-wide risk assessment map that the USFS A created is an important tool in strategically focusing efforts in high-risk areas.

Community actors discussed their understanding of how their local efforts tie into a greater scale, and they expressed a desire to see their efforts in the Spur 66 region motivate activity throughout the valley. They have even been assisting other communities in initiating their own CWPPs, as we discussed earlier.

This demonstrates the important role that the CWPP process plays in creating community awareness of the concept of landscape-scale mitigation. Prior to the CWPP process the subdivision A and the youth camp actors understood the benefit of the work they were doing within their own communities, but the CWPP process provided them with an understanding of the greater benefits of regional mitigation work. This understanding can be considered a measure of the community's capacity to protect their values from wildfire, as they understand that mitigation is most effective at a landscape scale.

### Harris Park

Several agency actors in the Harris Park CWPP process emphasized the greater scheme that the CWPP is part of. We previously discussed efforts such as 285 Bailey to Conifer project and the Front Range Fuels Treatment Partnership, and how the Harris Park CWPP compliments these efforts.

While enormous achievements have been made in the region to accomplish landscape scale treatment, implementing large scale treatments can be challenging. Tom, the CSFS actor, described how funding and time create challenges:

*“What we have to be able to do is to do larger scale treatments. Doing 100 acres here, 100 acres there, isn’t going to get us—we have to get to the point where we’re treating 2,000 acres under a single contract. Because it takes just as much time to administer a 2,000 acre contract as it does 100 acres. So we all kind of*

*had to pull back and look at what we had capacity to really do, and unfortunately it's much less than we all want to do. It's because of money but it's also—it's money in the end because it's capacity through the individual organizations, meaning if they said, all I have to do 100% of the time is work on Harris Park, then that would be great. Or hire another person that I can supervise, then the amount that we could treat would go up significantly. We just don't get to dedicate as much as our time to this as we would like to, to increase the scale."*

Time and financial resources present a challenge to implementing large-scale treatments, and the treatments prescribed for the Harris Park CWPP are not as large as the agency players would like them to be.

While the community benefited from collaborative learning processes even though community actors weren't involved during the majority of the planning process, there appears to be one area in which the community's outcome capacity may have been greater if they had been involved. This relates to community understanding of the scale of the CWPP, and how subdivision-scale efforts fit in to the bigger picture.

The community members we interviewed understood the benefits of their efforts being complimented across a regional scale. However, they did not discuss an awareness of mitigation work that has occurred across the Front Range or how their work ties into any efforts outside of the CWPP. Both subdivision actors talked about their involvement only in terms of their own subdivisions, and did not focus on the greater regional scale that their efforts fit into. The residents in subdivision A had already been doing mitigation and plan to continue with their work, and the fact that there is now a CWPP does not seem to have affected their goals. The actor from subdivision A explained that his subdivision understands how their work fits into the bigger picture of the CWPP, and how the presence of a CWPP supports the subdivision-level work they have been conducting:

*“I think the CWPP confirmed the need to continue our effort and increase them. Because really, what would really impact a community is, once they get to our community in terms of thinning USFS property adjacent to our community, that’s the time that we would really need to step up and target specific properties. But if we’re already encouraging people to mitigate their property in advance of this, then we’re going to be a lot better prepared to work with the specific CWPP when it comes to our communities.”*

It appears as though subdivision A actors perceive the CWPP as being external, but complimentary, to the work they have already been doing. The actor from subdivision B stated that it is unlikely that her subdivision will work with the fire authority again in the future, as the fire authority took care of the major treatments and the residents feel confident that they can remove new trees in the future themselves. The CWPP was the force that caused the mitigation work in subdivision B, but there does not appear to be any motivation for the subdivision to be involved with the CWPP in the future. In both of these cases the community actors discussed mitigation at the scale of their own community rather than at the regional scale of the CWPP. It is interesting to consider if the community perception of scale would have been different if they had been more actively involved during the CWPP development process.

### Lake County

The majority of interviewees did not discuss increasing the scale of Lake County’s CWPP efforts to include other regions. This may be due to the fact that the CWPP covers the entire county, which is a greater area than the CWPPs in the other cases, so that the Lake County CWPP inherently addresses a landscape scale. The fact that residents in subdivisions included in the CWPP have been sharing information regarding the CWPP with other subdivisions and encouraging involvement in the CWPP

indicates that community members understand the benefit of increasing the scope of CWPP treatments beyond their own subdivisions and throughout the county.

A few of the actors discussed their desire to increase efforts to a greater regional scale. Alex, one of the CSFS actors, discussed his desire to reconvene the Upper Arkansas Wildfire Council in order to address regional wildfire issues. He also discussed his desire to use the Lake County CWPP as a template for developing a CWPP in Chaffee County.

#### Commonalities across the cases

The CWPPs in all three cases are part of a larger scale of wildfire mitigation efforts. This is most evident in the East Portal and Harris Park cases, which benefit from the great amount of wildfire mitigation activity occurring along Colorado's Front Range. The community members in the East Portal and Lake County cases are aware of the CWPP goal of landscape scale treatment, but this does not appear to be evident in the Harris Park case. This may be due to the active community involvement during the CWPP development process in the East Portal and Lake County cases, and the lack of this until the end of the process in the Harris Park case.

#### ***Potential for Sustainable Community Collective Action***

In each case, the CWPP process resulted in the outcome of a knowledge community and new and strengthened networks and relationships. These capacities combined provided the community in each case with the ability to organize and take action. This is the ultimate goal of a CWPP, and is an indicator of increased community

capacity. Not only does the community possess new information and networks, but community members know how to apply this information and utilize networks in order to implement action.

### East Portal

As a result of the previous mitigation activities and the CWPP process, the community members have a baseline knowledge that has already assisted them in implementing mitigation projects prior to the CWPP process, and they possess vertical and horizontal networks that they can utilize to access external resources.

The collaborative learning processes resulted in increased community capacity to steward their forests and protect their communities from wildfire. The sharing of forest ecology information led to increased community capacity to manage the health of their forests. Chris, one of the subdivision A actors, explained his understanding of this information:

*“The trees were probably the biggest educational point for us, because we knew nothing about how a pine bark beetle functions or what it takes to kill a pine bark beetle. Now we know, 25 degrees below zero for a few days will kill them...Noxious weeds, I had a bunch of them here that I had transplanted to grow in my driveway and I didn’t know. We were trying to keep on top of a lot of stuff, and we had some person who comes up here two weeks out of the year, saw some noxious weeds and reported us to the county, rather than pulling them like most of the full-time residents do. So now we have a contract with the same guy who does our tree spraying, he’ll come out and if there’s a patch of weeds they’ll spray it and take care of it. Noxious weeds are probably the hardest things to figure out, to get education on. In doing the CWPP that was one of the things we talked a lot about, was noxious weeds along the Spur 66 corridor. There was a lot of talk about what could be done about that. We don’t have a formal association for that area, but we talked about maybe getting some grant money to get out there and spray some of that.”*



This demonstrates how the previous mitigation activities and the CWPP process led to discussion of general forest health, and created the potential to organize to control invasive weeds as well as to mitigate wildfire at a regional scale

George demonstrated how his community's knowledge of forest ecology and mitigation enables them to manage their forests and protect their community:

*"Once somebody says it to you, and you walk through a heavily dense, unmanaged pit, or maze of trees, and you have somebody show and explain that the trees are unhealthy, and what would happen if there is a fire, do you recognize that it's not only fire mitigation but it's forest health? So all of a sudden now we get 30, 40 people twice a year and we go out with saws, and we don't cut down the big ones unless they're diseased."*

The subdivision A residents have applied forest ecology and mitigation information in bi-annual community mitigation projects, in which they use their knowledge to thin trees in an ecologically sensitive manner. This demonstrates the community's capacity to implement mitigation projects, which is the ultimate goal of a CWPP.

Matt, the county actor, described how the community's engagement in wildfire mitigation projects and planning opened the door for community collective action regarding other types of forest management issues:

*"Talk to the community members and they'll tell you the benefits of their involvement. Like [subdivision A], they're now part of this forest health group, and they've got all these citizens showing up to help and do things, and there's much more of a community bond. So wildfire may have been a gathering point, but it's just the tip of the iceberg."*

This is an important observation because it demonstrates the potential for CWPP planning processes to lead to future community collective efforts. Community members have utilized their new knowledge and networks to achieve goals beyond wildfire mitigation.

While much of the community capacity to implement projects developed prior to the CWPP as a result of the previous collaborative learning experiences, the CWPP process also facilitated new community capacity. The networks that formed between the community actors led to an increase in community capacity to address wildfire defense issues in their region. A major example of this was a campaign for a new fire house to be built in the Spur 66 region. The community actors were concerned about the lengthy response time for fire fighters to reach their region in the event of a wildfire. This discussion emerged during the CWPP meetings, and it resulted in the community actors rallying general community support for a ballot initiative for a new fire house to be voted on in the upcoming local election.

Although the ballot initiative failed, the community actors continue to work with the NPS on the possibility of constructing a new fire house on the agency's property that would house one engine for the Spur 66 region. The USFS B was aware of the community's desire to have a fire house in the region as a result of his relationship with the community actors that formed through the CWPP process. Therefore, when his agency began exploring the possibility of building a fire house on agency property, he brought the community actors in on the discussion. At the time we conducted interviews this plan was still in discussion.

This community effort provides evidence of increased community capacity to organize and address collective community concerns. The CWPP development process created networks between the East Portal communities, and the community actors used these networks to convene and implement their campaign. This highlights a major capacity outcome of the CWPP process; the community members already had networks

with agency actors prior to the CWPP process, but networks between communities did not form until the CWPP process. The CWPP process has led to the formation of networks with communities who were not involved in the CWPP, as we discussed previously. Residents of other subdivisions have been learning about the CWPP through community networks, and contacting the East Portal CWPP community actors for information. The CWPP community actors have assisted these individuals by providing access to their information and vertical agency networks, which increases the capacity of the uninvolved communities to become involved.

The CWPP process also provided community members with the ability to conduct wildfire mitigation planning and implementation at a landscape scale. This is evident in the efforts of the community actors to assist other neighboring communities to create their own complimentary CWPPs.

George provided an interesting perspective as to how his involvement in the pre-CWPP fire mitigation activities as well as the CWPP process has given him a network of individuals who provide information and services that assist him in protecting his values:

*“It makes sense if you think of concentric circles, it’s me at the center of the universe, and I want to know a little about fire mitigation and protecting myself from emergency catastrophic situations. We’ve got [the fire authority actor] who began to stimulate this discussion of access. Then we went to [the county actor] and he came up and toured the mountain and did an inventory, and that was the second concentric circle. And the third concentric circle was the USFS and NPS. It’s a bulls eye of concentric circles, all of which are inter-related and coordinating back and forth, and the information is flowing back and forth, all focused on me. All of the resources are coming to me and protecting my house.”*

This is an eloquently stated example of how George understands that his capacity to protect his values from wildfire has been strengthened as a result of the networks built and the information shared throughout his work with the agency partners. As a result of

his experiences, George recognizes that there are resources available to assist him in protecting his property, and he knows how to access them in order to implement action.

### Harris Park

The collaborative learning processes and networks that formed between subdivision A and the fire authority prior to the CWPP process motivated subdivision A to undertake on-going mitigation projects with the assistance of the fire authority. The fire authority assisted the subdivision A actor in initiating the community mitigation work, and now the subdivision oversees its own projects and collaborative learning through the HOA board-appointed FireWise director position. The subdivision continues to work towards achieving “FireWise community USA” status. However, it is important to emphasize that subdivision A was engaged in these activities prior to the CWPP development process, and it does not appear as though the CWPP process resulted in the creation of any new capacity for subdivision A, other than to focus sustained action and to provide the knowledge that their work is being complimented on a landscape scale.

Subdivision B demonstrated an increase in wildfire mitigation and forest management capacity as a result of the CWPP development process. Karen, the actor from subdivision B, described her community’s plan to monitor the subdivision for new tree growth and conduct their own future thinning projects:

*“There is one person’s property that all of a sudden has got all kinds of three-foot high pine trees, all these babies, and it felt like it was overnight. So we all talked, and we all got together on a Saturday and we’ve already thinned them... So we’ve made an agreement amongst ourselves that we’ll check our trees and we’ll just keep it thinned, and we won’t have a problem.”*

As a result of the networks that formed between subdivision B and the fire authority as a result of the CWPP process, subdivision B residents are now aware that they can contact the fire authority to assist them with concerns or questions regarding wildfire threats to their community, as the Karen described:

*“There are campgrounds on both sides of us on USFS lands, I hate that. So we also talked about what they were going to do to control [campfires] better, and what we could do because during the summer when it was really dry and there were no-burn days, we could look down our hill and see campfires. So [one of the fire authority actors] told us to call them, and so that information helped. There is a guy across the mountain range from me who thinks he can burn whenever he wants to, and my neighbor called [the fire authority actors] and they came up and sat on her porch to make sure what he was doing, and then they went and made him put it out. They’re just the nicest group of guys.”*

The vertical networks and trust that formed between the fire authority and subdivision B increased the capacity for CWPP implementation, as they resulted in local support for the proposed fuels reduction treatments. As we have repeatedly emphasized throughout our discussion of the Harris Park case, this first phase of CWPP implementation was successful due to the networks that were formed and trust established between the fire authority and subdivision B as a result of the collaborative learning process.

While subdivision B’s involvement in the CWPP process increased their ability to manage and thin their forests, we discussed previously the lack of interest that the subdivision B actor demonstrated in becoming further involved with the fire authority on new projects, or in playing an active role in assisting overseeing CWPP implementation. Therefore, the CWPP process resulted in the awareness, knowledge and skills necessary for subdivision B to periodically manage their own forests. It also provided subdivision B with networks with the fire authority that residents can utilize to access assistance in

the case of wildfire threat to the subdivision. However, that is the extent of the capacity that formed. Unlike in the East Portal case, the subdivisions did not form new horizontal networks between communities, and they did not form networks with the USFS. While the CSFS worked with several subdivisions in the region, subdivisions A and B worked only with the fire authority, and did not establish vertical networks with either the state or federal agencies. The community members are focused on their own small-scale projects, rather than the landscape-scale goals of the CWPP.

The CWPP process strengthened the networks between the agency actors involved in the development process. Alan, one of the USFS actors, described how the strengthened relationship between his agency, the CSFS, and the fire authority has already produced benefits:

*“The USFS had a review yesterday of how we were implementing HFRA. And I asked [the CSFS and fire authority actors] to participate with me, and they were in total participation, and were really into talking about and sharing information about how we’ve been working together and how this working relationship is. And in the end, it boils down to this: we have a responsibility on the USFS land to treat the land, and [one of the fire authority actors] has a responsibility to protect his community, and that’s the end, you can see that happening, coming together on that. They were very professional, very supportive and very informative to the USFS review team yesterday, about what’s happening in the community, what’s happening on the forest, how we did our planning. There’s a whole other depth to our relationship now. I suspect if we have another large fire, it’s going to be so easy to work with the departments.”*

Bob, one of the fire authority actors, explained how agency collaboration during the CWPP process has led to landscape-scale treatment planning:

*“All of this stuff ties in together. [The CSFS actor] is working with landowners [in an area outside of the CWPP area] to thin all this, so it’s like this huge combined project. If we weren’t together, we wouldn’t know that they were thinning this. For all of the future projects we’re in touch, and we know what’s going on. There’s a lot of coordination that we wouldn’t have had. We wouldn’t have known they’re working on [the state land]. And they call us and ask for our crew to help them out.”*

Alan and Bob described the ability of the agency actors to collaborate and assist one another in achieving the collective goal of landscape scale treatment. The agency interviewees focused on this capacity as the true successful outcome of the CWPP, and were unconcerned by the lack of active community partners. Once again, the fire authority was considered by the core team to be the local actor.

It is interesting to consider how the CWPP will be updated and continually implemented over the years, and if the community will gain a greater awareness of the regional scale of the CWPP. One of the CWPP goals is to create a Wildland Urban Interface citizen's advisory council that will work with the fire protection district to identify and implement future projects. Tom, the CSFS actor, explained the ultimate goal of engaging the community more actively in future CWPP revisions and projects, and how it will be important to continually work with community leaders and share information with new residents:

*"We've built a list of all of the HOA leadership from all of the 22 communities, and [one of the fire authority actors] and I are talking about doing this fall, having all 22 of those communities send a actor to a barbeque that we're going to do at the fire district, and just talk about stuff, here's what we've done so far, and talk about the planning process. Because with the turnover in these communities, residents have an average shelf-life of about three years, so people don't last long. And what that does for our education process is we're in this continuous loop of always having to be out there and hopefully finding new very interested, very talented people who will carry the torch for a couple years before they move. So what happens when these transitions in these HOA groups, there's never any formal passing, so the plan we gave the guy from [one of the active subdivisions], if he moves, will end up moving with him, and the new person will have absolutely no background."*

Tom recognizes the need to continue to share information and resources with communities, as new residents continue to move into the area and HOA leadership turns over.

While the CWPP recommends action items for subdivision residents to implement, such as creating defensible space, the interviewees focused on the fire authority's work to treat subdivisions as the main thrust of initial CWPP implementation. Increased community participation is a future goal of the CWPP. Whereas in the East Portal and Lake County cases, the CWPP process was the mechanism for involving community participation, in the Harris Park case the CWPP is a mechanism for involving future community participation.

### Lake County

The networks that formed and collaborative learning that took place throughout the CWPP planning process resulted in increased capacity for the agencies and the community to collaboratively implement CWPP mitigation in the Lake County case. The agency actors described how their new and improved relationships with the community have already assisted them in implementing projects that might have previously been appealed. Molly, one of the USFS actors, described the benefit of these new relationships:

*"It definitely gives us a point of contact. Whenever we're trying to do projects, whether they're associated with the CWPP or just trying to get information out, we have somebody [in the community] to call who knows who we are, we don't have to explain it, and that helps. And it gives [the community members] a sense, too, that they know who to call or who to contact when they have questions. And it doesn't have to be related to what we're doing for CWPP. It's that they actually have a contact within the agencies, that when they have a question, whether it's regarding a project we're doing or just forest health, they have a place to start. So it's opened up those lines of communication."*

Michelle, one of the CSFS actors, explained how she as well as her agency have benefited from new relationships:



*“I got to know some of the fire fighters and I’ve actually gone out on wildfire incidents with some of them. So that was neat. I guess it’s just also good, as far as [the key community member] goes, she’s a resource for us, and it’s nice to know that if I have a question about lodgepole ecology I can send her an e-mail and she’d be willing to help. And as far as the community, I’ve got to know a lot of the subdivisions, a lot of the HOAs, we’re actually starting to do work inside subdivisions now as a result of all of this.”*

The new knowledge that community members gained regarding forest ecology has increased their capacity to collectively address forest health issues. Neil, one of the USFS actors, described how community members in one of the subdivisions have been putting their new knowledge to use:

*“It was neat, the other day we had [a subdivision] meeting at the museum, and [the subdivision members] brought in pieces of mistletoe, and when the meeting was over they were going out and doing their own presentations on insect identification and mistletoe.”*

Another capacity outcome of the relationships formed during the CWPP process relates to county GIS capacity. The difficulty that the core team faced in accessing GIS technology led the county emergency services manager to apply for a FEMA grant to assist the county in building GIS capacity, which the county was awarded. The CWPP process identified GIS resources as a major gap in the county’s capacity to plan for and respond to emergencies, and action was taken to fill this gap as a result.

Alex, one of the CSFS actors, explained how the CWPP process provided the opportunity for collaborative learning and to build relationships and trust, and how these outcomes facilitate project implementation:

*“There’s an educational process that has to take place, and it doesn’t happen over night. And once you develop that trust to say, here’s some sound science that we’re basing it on, and do you understand it? You give them an education and bring them up to speed on some basic understanding, and then let them make their own educated choice. That’s the key. We’re giving you the same type of knowledge we have, here it is, our opinion professionally is, here is the route we would go, here’s how we would treat this area and this area, but you know what,*

*you as homeowners in that subdivision live there, and you may say, everybody likes to walk through there, and that's where we'd really like to keep it thick, or the deer really like to hang out there in the winter time, and there's a bedding area in the summer time because it's nice and shady, and if you open that up they're going to lose their shade, and they're not going to stay there. Those types of on-the-ground insight that they have by living there, we don't have...And then what happens is not only do you get work done there, but people begin to discuss it amongst other subdivision and they talk with their friends, and you develop a cheerleading group within the community that are backing you, and word spreads that, [the CWPP core team will] come talk to you, they're doing good things."*

### Commonalities across the cases

The CWPP development process led to increased capacity for collective community action in each case. This was more evident in the East Portal case, in which collaborative learning and implementation of mitigation projects had been going on prior to the CWPP process (unlike the Lake County case), and the community was actively engaged during the CWPP development process (unlike the Harris Park case). Community members are spreading information regarding the CWPP and encouraging neighboring communities to become involved in the East Portal and Lake County cases.

## ***Discussion***

The results of this study support all three alternative hypotheses, and rejected all three null hypotheses, as described below.

### Null Hypothesis

*H<sub>01</sub>: The collaborative development of CWPPs does not require specific capacities*

We reject this hypothesis, as our study found that the collaborative development of CWPPs requires a range of capacities throughout the context, process, and outcomes stages.

*H<sub>02</sub>: The CWPP development process is identical from case to case, regardless of capacities that are present or lacking*

We reject this hypothesis. While there were many similarities across the cases, there were also differences. These differences can be linked to capacities or capacity gaps specific to each case.

*H<sub>03</sub>: Capacity is not created throughout the CWPP development process*

We reject this hypothesis. We discovered that capacities emerged prior to the CWPP development phase, and that these capacities facilitated collaborative CWPP development. New capacities emerged through the CWPP development process, and these capacities have the potential to facilitate CWPP implementation.

### Alternative Hypotheses

*H<sub>1</sub>: The collaborative development of CWPPs requires specific capacities.*

We accept this hypothesis. In each case capacities such as networks, collaborative learning, and human capital such as leadership were critical in facilitating collaborative CWPP development.

*H<sub>2</sub>: CWPPs are developed differently in each case according to capacities that are present.*

We accept this hypothesis. While there were many similarities in the CWPP development process across the three cases, each case also demonstrated unique aspects. For example, in the East Portal case the agency actors and community members had already engaged in collaborative learning regarding scientific and technical information prior to the CWPP development process, and collaborative learning that occurred during the CWPP development process focused on how to create a CWPP and incorporate community values. The East Portal CWPP was one of the first CWPPs created in Colorado, and there was little information available to assist them in CWPP development. In the Lake County case, the community had little prior knowledge of wildfire risk and mitigation, and collaborative learning that occurred during the CWPP development process focused on sharing scientific and technical information as well as local values. The Lake County CWPP agency and community participants did not need to work through a collaborative learning process regarding how to create a CWPP, because by the time they began their effort several other CWPPs had already been completed in Colorado, and the CSFS state office was able to provide them assistance. In the Harris Park case, the community was not involved in the CWPP development process, and collaborative learning that occurred during the planning consisted of the agency partners combining preexisting knowledge of wildfire risk and the likeliness of community support and participation in order to prioritize treatment areas.

*H<sub>3</sub>: Antecedent capacity influences collaborative CWPP development throughout the planning process; new capacities are created during the planning process that assist in collaborative CWPP development, and facilitate CWPP implementation.*

We accept this hypothesis. For example, in each case networks that formed between agency and community actors prior to the CWPP development process facilitated convening the CWPP process, and contributed to positive working relationships and collaborative learning during the development process. They also provided access to information and resources necessary during the planning process. These networks, as well as new networks that formed during the development process, assisted in implementing collective goals in all three cases, as they provided access to resources and community support.

The Context-Process-Outcomes framework proved to be a useful tool in analyzing and presenting findings. It allowed us to focus on the capacities and capacity-building processes unique to each phase of the CWPP process, and also helped to understand how capacities utilized and built during each phase influenced the following phase. This framework allowed us to fully appreciate the complicated, variable, and multi-faceted nature of the CWPP development process.

In all three cases pre-existing collaborative efforts created networks and provided an opportunity for collaborative learning, which assisted in convening the CWPP process. In the East Portal and Harris Park cases these efforts involved wildfire mitigation, which provided community members with a baseline of knowledge regarding forest ecology, fire behavior, local preparedness and response, and wildfire mitigation techniques. The

Lake County case was different than the other two in that the previous Lake County Forest Project and the Science and Information workshop focused on forest management instead of wildfire mitigation.

The previous collaborative experiences involved community human capital , as key community members stepped forward to seek information regarding wildfire mitigation and forest management, and filled leadership roles in motivating their communities to become actively engaged. The key community member in the Lake County case provided critical human capital through her meeting facilitation skills, community networks, and ecological knowledge. Other community actors in the Lake County case played a critical role serving as initial points of community contact with the CWPP core team and hosting neighborhood CWPP meetings. Several community actors had preexisting knowledge and interest in ecosystem stewardship and were naturally inclined to learn about wildfire mitigation and forest health. The local government actors helped to promote the CWPP through their leadership roles and use of communication networks.

Community human capital was critical in the East Portal and Harris Park cases as concerned community actors contacted the agency actors to learn about wildfire mitigation. The community actors had professional backgrounds in leadership and risk management, including fire fighting, and quickly grasped an understanding of wildfire mitigation and forest health. The community actors' motivation to seek agency assistance led to the creation of networks between agencies and the communities as well as within the communities as individuals collaborated to address common goals. At the time the CWPP process was convened, agency actors in each case already possessed

community contacts and access to community networks. Community actors were critical in sharing information with their communities and gaining local support for the CWPP.

The finding that community human capital (largely leadership) plays a critical role in collaborative CWPP development is a major outcome of our study. It compliments existing research that leadership is critical in convening and sustaining collaborative efforts, and that it is important for external capacity-building entities to identify and train local leaders. However, we believe that our findings emphasize even more strongly the importance of identifying and leveraging the preexisting talents of community members who possess leadership skills as well as motivation and ability to engage in a collaborative process and to ultimately drive the process. Much of the community development literature discusses the role of organizations and agencies, particularly external entities, in leveraging community resources and combining these resources with external resources to increase community capacity to take collective action. However, in our study the community actors themselves played this intermediary role, as they recognized a capacity gap within the community to respond to wildfire and forest management issues, and they formed vertical networks with agency actors for external assistance. This is true even in the Harris Park case; despite a lack of community involvement during the CWPP development process, several subdivisions had previously been working with the local fire authority or CSFS on mitigation projects as a result of a motivated community member seeking external assistance. While agency actors convened the CWPP process in each case, they were able to gain critical community involvement as a result of previous efforts initiated by community actors. These community leaders helped share information with their communities through the

use of local horizontal networks, and used their local legitimacy to gain community support for the wildfire mitigation.

Another major lesson learned in all three cases related to community involvement is that the most successful method for gaining community participation was using community networks to directly invite specific individuals, or to contact HOA actors to help locate interested individuals. The traditional public involvement method of advertising public meetings informally through advertisements and mailings was not a successful technique of motivating involvement. This was demonstrated in the Harris Park and Lake County cases, in which initial attempts to engage the community using traditional public involvement techniques was unsuccessful. When the CWPP core team in both cases used the direct invitation approach (which didn't occur until the end of the CWPP development process in the Harris Park case), they were successful in gaining community participation.

In all three cases pre-existing networks between agency and community actors contributed to the agency actors' ability to use the direct invitation method. This finding appears to be a new addition to the literature we reviewed, and it emphasizes the importance of building from pre-existing capacity (networks) to facilitate further capacity (community involvement). The existing literature stresses the need to invite a wide range of participants when convening a collaborative effort, and our results provide some guidance as how to leverage this participation.

The finding that utilizing preexisting community networks to leverage community human capital and participation is critical in convening and working through the CWPP process has very useful implications for natural resources managers, as it encourages



managers to strategically utilize preexisting networks and past successes in working with the community in order to engage community participation in future collaborative efforts. Previously identified local leadership is an extremely valuable resource in convening and working through new efforts. Vertical agency-community networks can be leveraged to convene CWPP actors and gain community participation. Agency actors can benefit from human capital offered by community actors, as these motivated local leaders utilize local networks to share information with their communities and garner support and participation.

Another major finding is the advantage of utilizing pre-existing community horizontal networks to provide opportunities for agency actors and community members to meet and exchange information. Agency actors should not re-invent the wheel in seeking venues for sharing information within the community; information is disseminated more effectively and perceived more favorably by locals when it is shared through local networks already in place. Community networks were critical in the information-sharing processes in all three cases. The agency actors used their pre-existing community networks to identify and contact community actors, and these community members provided access to networks within their communities. The HOAs were a huge asset in providing a forum for sharing and spreading information, as agency actors spoke at HOA meetings and community events, and community actors used HOA newsletters and reports to share information with their subdivisions. This finding compliments the work of Chaskin et al. (2001), who recommend approaching community education through the use of existing community networks. This finding provides a practical strategy for collaborative groups to disseminate information within the

community, and emphasizes the importance of forming collaborative partnerships with community members who can provide access to local networks.

The collaborative learning process took place at different points in the CWPP process in each case, but was equally critical in each case. In the East Portal case a great deal of collaborative learning occurred prior to the CWPP process, as the CSFS, county and community actors worked together on mitigation projects. This learning was more one-sided, as the agency actors did the majority of information sharing regarding scientific and technical knowledge, and the community did the majority of learning. However, this process allowed the agency actors to learn about community values and concerns as well as how to work collaboratively with the communities. In the Lake County case, collaborative learning regarding wildfire-related scientific and technical information as well as local values and concerns all took place during the CWPP development process. In both the East Portal and Lake County cases, during the CWPP development process the community actors shared their local knowledge, values and concerns as they identified their community values-at-risk and worked with the agency actors to create an implementation plan. The agency actors were able to provide a support role rather than actively drive the plan. Agency actors described the challenge of guiding the community actors by providing information and suggestions, while still ensuring that the end result was community-driven. The history of strong networks and positive working relationships between actors as well as the previous collaborative learning experiences were critical during this process, as this contributed to collaborative capacity that allowed the CWPP team to work through the development process without a formal group facilitator. The agency and community actors shared information within

the community regarding the CWPP once it was completed; once again, the utilization of pre-existing local networks and the local legitimacy of community actors was critical.

In the Harris Park case, as in the East Portal case, collaborative learning occurred prior to the CWPP process within some subdivisions that had been working with the fire authority and CSFS on mitigation projects, as well as with the general community during the meetings that the fire authority held to share their initial community wildfire risk-hazards assessment plan. The fire authority also shared information with the community after the CWPP planning process, when they held meetings to review the plan. As in the East Portal case, property wildfire risk assessments were a valuable technique for providing information to the community, as well as creating an opportunity for locals to share their values and concerns. In the Harris Park case the fire authority and the CSFS were responsible for collaborative learning with the community, and they utilized their vertical community networks to contact key community actors who assisted in sharing information with their communities.

The collaborative learning process was critical for several reasons. In each case it increased the community's awareness of the need for wildfire mitigation, as locals learned about their fire risk, local preparedness and response abilities and requirements, and fire behavior. Information regarding forest ecology and fire behavior provided community members with a deeper understanding of their landscape and how wildfire interacts with it. This information combined with information regarding wildfire mitigation techniques provided community members with an increased capacity to steward their forests and protect their communities from wildfire. These findings

compliment the existing literature in emphasizing the importance of sharing information to build capacity to implement collaborative goals (Raik et al., 2006).

In each case it was necessary for agency actors to explain information to community members in a manner that was relevant and easy to understand. In the East Portal and Harris Park cases, experiential learning opportunities offered through property risk assessments assisted community members in understanding complicated scientific and technical information in an applied manner that was more intuitive. In the Lake County case the key community member utilized her facilitation skills to translate complicated information in a manner that community members could understand. Visual aides, such as maps demonstrating fire risk and historic photos, were useful learning tools in all three cases. These findings compliment the work of Daniels and Walker (2001), who discuss the need to share scientific or technical information in a manner that can be understood by all participants. Collaborative processes must be inclusive and power should be evenly distributed, which requires that all participants have access to and understand information.

The effectiveness of experiential learning opportunities such as property risk assessments as a collaborative learning tool compliments the work of Daniels and Walker (2001) and Moote et al. (2001), who discuss the importance of incorporating experiential learning into collaborative learning processes. Adult learners require participatory learning situations in which the material is relevant and the process interactive in order to be most effectively engaged in learning. This was evident particularly in the East Portal and Harris Park cases, in which community members required an understanding of how scientific and technical agency-provided information related to themselves, their

properties and their forests. Collaborative groups should utilize active experiential learning opportunities such as field trips and work shops whenever possible in order to facilitate effective collaborative learning.

While in each case a large amount of information sharing involved the agency actors sharing scientific and technical information, community members also shared local knowledge and values, although to a lesser degree in the Harris Park case. In the East Portal and Lake County cases, agency actors sought information from community members regarding local knowledge of the landscape (such as what areas are the most used by wildlife), as well as local values that the community wanted to protect from wildfire (such as homes and view sheds). This information was shared formally during CWPP meetings, in which the agency actors asked the community actors to list their values and create action items for project implementation that protect local values. In the Harris Park case, this community-provided information was sought less directly, and was shared in the context of deciding where projects should occur within a subdivision and which trees were acceptable to remove.

The finding that the sharing of local knowledge and values was an important element of the collaborative CWPP process compliments the literature that discusses the need to addressing place-based local knowledge as equally important to externally-provided scientific and technical information. This recognizes agency and community participants as equal actors and contributors to the general knowledge base in a collaborative learning process. Learning should not be not one-way; agency participants must open themselves to being learners as well as educators.

The collaborative learning process provided the agency actors with the opportunity to strategically frame the wildfire issue in order to gain community buy-in. The issue framing process was important because it strategically utilized information to mobilize the community members towards the goal of wildfire mitigation. In all three cases the two main issue frames were: 1) wildfire mitigation is necessary to protect lives and property, which included the idea that community members need to take responsibility for mitigating their properties and communities; and 2) wildfire mitigation is necessary to restore forest health. It was useful for the agency actors to work with two different issue frames, because this allowed them to align the information they provided with a broader range of local values. In some cases, community members were convinced that mitigation was necessary through the sharing of information regarding fire behavior and local preparedness and response that led them to understand that their properties would be considered indefensible in a wildfire event. In other cases, community members were more concerned about forest values than their properties, and information regarding forest ecology helped them understand the connection between mitigation and improving forest health. Agency actors successfully utilized both of these issue frames in order to gain support from individuals with a wide range of values. These findings compliment the existing literature, as they emphasize the strategy of framing issues in a manner that will compliment a wide range of values (Bedford and Snow, 2000). However, an interesting observation in our study is that rather than utilizing one frame that broadly included many different value sets, the agency participants used two different frames that captured specific sets of values, and alternated between these frames according to the values of their audience.

The issue framing that occurred during the collaborative learning process allowed the CWPP development group in each case to craft a common message regarding wildfire mitigation and the need for a CWPP. In all three cases, agency and community actors share the understanding of the need to protect property as well as improve forest health. However, the scale of this vision varies. In the East Portal case, community and agency actors were equally motivated to spread their efforts across a landscape scale, outside the boundaries of their own CWPP and into the surrounding communities and county in general. In the Lake County case, community participants focused on implementation within their own community, and also encouraged surrounding communities to become involved and increase the scale of the efforts. The CWPP core team continues to seek to include as many communities as they can within the CWPP, and the CSFS actor hopes to expand efforts in the neighboring county. In the Harris Park case, it appears as though the community members are focused on small-scale implementation within their own subdivisions, while the agency actors focus on the goal of landscape scale implementation. As we previously discussed, the community focus on small rather than large scale implementation could be the result of a lack of community participation during the CWPP development process; had community members been involved, they might have better understood the landscape-scale goals of the CWPP.

The collaborative learning process was also important because it facilitated the creation and strengthening of networks and positive working relationships between agency and community actors. Agency actors shared relevant information in an interactive manner and through appropriate issue frames, and community members appreciated that this information was meant to assist them in protecting their properties

and stewarding their forests. Agency actors were receptive to learning local values and knowledge, and in the East Portal and Lake County cases actually sought out this information from community members. This process of participatory learning and active inclusion of local participation resulted in the creation of positive relationships and vertical networks between agency actors and community members. It also facilitated the creation of horizontal networks within each community as well as between different communities, as community members were presented with an opportunity to meet each other and work together. These findings compliment the literature, in that positive relationships and trust formed through the mutual sharing of relevant information in an environment of inclusiveness and respect (Daniels and Walker, 1996, 2001; Schusler et al., 2003; Weber et al., 2005).

The importance of collaborative learning to the success of the CWPP development process relates to the Schneider and Ingram (1990) concept of policy tools. The HFRA mandates collaboration between stakeholders, with the assumption that stakeholders will learn their way through the process of developing a CWPP. We found that the collaborative learning process provided the opportunity for actors to exchange information, discuss local values and concerns, and determine how to create the content of the CWPP. This compliments the concept of learning tools.

In all three cases the collaborative learning process and the creation of networks between agency and community actors resulted in increased community capacity to address wildfire threat, and in the East Portal and Lake County cases it also increased community capacity to achieve other collective goals. The CWPP process resulted in greater community capacity in the East Portal and Lake County cases than in the Harris



Park case. While communities in all three cases have been utilizing their new knowledge and networks to implement wildfire mitigation projects, community members in the East Portal and Lake County cases have taken their new capacities a step further. Community members in these two cases are discussing the CWPP through local networks and encouraging uninvolved communities to become involved. Communities in these cases are also collectively addressing forest health issues, such as dwarf mistletoe and invasive weeds, as well as other issues, such as Lake County's need for county GIS capacity and the East Portal region's desire to be included in a fire protection district.

The communities in the Harris Park case demonstrated the ability to work within their subdivisions to mitigate properties, but there was no indication of conversation or collaboration occurring between communities, and there was no discussion of how capacities formed during the CWPP process have assisted the community in achieving other types of collective goals. A major goal of the East Portal and Lake County CWPP processes was to produce increased community capacity to implement mitigation projects on private properties. Therefore, the CWPP core teams in these cases emphasized the need for community participation from the very beginning, and the agency actors structured meetings in order to share meaningful information with community members and to guide them in creating their own plan that could be successfully implemented. In the Harris Park case, a major goal was for the fire authority to utilize 50/50 matching cost share grants to implement community wildfire mitigation projects themselves. The CWPP core team was more focused on enabling the fire authority to perform these treatments than they were on enabling the community to implement their own projects. Although they faced challenges in working with subdivision B, they ultimately succeeded

in implementing the first stage of their CWPP action plan, and the agency actors feel that their plan has been successful. It is important to note that while the CWPP core team did not focus a priority on increasing community capacity to implement projects, the fire authority and CSFS had been working with interested communities for several years on increasing this capacity. Therefore, this capacity-building has been occurring in the Harris Park region, although it has not been directly tied to the CWPP. This may change as the CWPP core team seeks to increase community involvement through creating a community Wildland Urban Interface Citizen's Advisory Council. As we discussed earlier in this paper, in the Harris Park case the goal to include community involvement and increase community capacity appears to be a goal of the CWPP implementation process, rather than the plan development process.

Community participation during the CWPP development process appears to influence community members' awareness of the scale of CWPP efforts. In the East Portal and Lake County cases, community members understood the benefit of the CWPP in coordinating landscape scale mitigation, and they shared information and encouragement with neighboring communities in order to increase CWPP participation. This outcome was not apparent in the Harris Park case, in which community members were concerned with implementation in their own subdivisions, and there was a lack of communication between communities.

In all three cases the CWPP process resulted in new and strengthened networks between the agency and community actors. Community members explained how their new and improved relationships and vertical networks with the agency actors will assist them in implementing the CWPP. The new networks provide the potential for fulfilling

the general CWPP goal of mitigating at a landscape scale, as the different landowners and managers across each planning region have created networks to coordinate CWPP implementation and plan future efforts. Community actors explained that they know which agency actors to go to for assistance with information, technology, or funding, and agency actors have community support for implementation on private as well as federal land.

The finding that in each case collaboration resulted in increased capacity to implement wildfire mitigation as well as other collective action projects compliments the literature, particularly regarding the concept of synergy (Evans, 1996; Woolcock and Narayan, 2000), and coproduction (Ostrom, 1996), which suggests that through collaborative partnerships agency and community actors compliment and enhance each others' abilities and knowledge and ultimately increase capacity to address collective issues. The collaborative learning processes in our study facilitated an exchange of scientific and technical information as well as local knowledge and values, and this combined knowledge developed capacity within the CWPP planning teams to implement projects that could not have been implemented by either agency or community actors alone. The concepts of synergy and coproduction work well in explaining how the internal and external networks formed prior to and during the CWPP process were critical in facilitating the capacity to implement CWPP projects. In each case the community actors required scientific and technical expertise and ability provided by the agency actors, and the agency actors required the local legitimacy and support, as well as information regarding local knowledge and values, provided by community actors. The

formation of networks between agency and community actors allowed the collaborative CWPP development teams to combine forces and create an implementable CWPP.

In all three cases the CWPP core teams adapted their planning processes according to available collaborative capacities. In the East Portal case, a history of agency-community collaboration on wildfire mitigation projects allowed the CWPP team to convene the CWPP process with ease, and to include active community participation. The community already possessed awareness and knowledge of wildfire risk and the need for mitigation, and due to the previous mitigation experiences the general East Portal community was content to let the community actors be liaisons. Therefore, the CWPP core team did not need to hold large subdivision meetings as in the Lake County case. The core team's history of positive relationships among actors allowed them to informally facilitate their own meetings. The main capacity gap that the East Portal CWPP team faced was in determining what the CWPP content should include, and how to work through the process to achieve the desired results. The team was at a disadvantage in that their plan was one of the first to be completed in Colorado, and there was very little information or assistance available. It wasn't until the LCCG and the CSFS produced standards and guidelines as well as a template that the team was able to clear this obstacle and move forward.

In the Lake County case, the CWPP core team began the CWPP process working with a community with low capacity for wildfire mitigation, in that there was low community awareness of wildfire risk and little previous mitigation work implemented within the community. In order to increase community awareness and knowledge, the core team actors combined the scientific and technical knowledge each of them possessed

into a formal presentation. The core team relied on the key community member's facilitation skills to lead interactive group discussion and explain complicated scientific information. The CSFS's state office shared community invitation and participation tools with the core team early on in the process, which assisted the core team in convening community CWPP meetings.

In the Harris Park case, there were pre-existing networks between the fire authority and the community and the CSFS and the community that the CWPP team could have utilized to garner active community participation. However, because this was one of the first CWPPs to be developed in Colorado, the agency actors did not realize the critical need for community participation during the planning process, and did not have tools available to assist them in identifying effective community invitation and participation strategies, as the Lake County CWPP core team did. The agency actors in the Harris Park case shared strong vertical inter-agency networks, and they utilized these to convene and work through the CWPP planning process. The core team defined their goals differently than the teams in the East Portal and Lake County cases, focusing on inter agency collaboration during the CWPP development as well as implementation phases. The team considered the fire authority be their community actor, and set their major goals according to the fire authority's ability to carry out CWPP implementation on private land. The team relied on the fire authority's capacity to contribute local knowledge throughout the development process, and to utilize community networks to gain community buy-in. The fire authority also played a key role in collaborative learning, as the actors worked through and information-sharing and mutual learning process with subdivision B. While in the East Portal and Lake County cases several

different actors assisted in providing access to community networks and engaging the community in collaborative learning, in the Harris Park case the fire authority was required to fill the majority of these roles. The CSFS actor also contributed through his previous work with several communities, but the fire authority was responsible for this for the majority of the CWPP process. The fire authority filled not only its own role as local fire responder, but also as community actor, in order to compensate for the lack of community representation during the planning process.

These findings compliment the work of Kretzmann and McKnight (1993), who provide a framework of “asset-based community development”. This framework approaches community development through a process of identifying existing community assets, values and visions, and fitting externally-introduced strategies and visions into the pre-existing community framework. In other words, community development is more effective when external capacity-building agencies or organizations start from where the community is at, rather than expecting the community to adapt to meet them. This concept could be extremely beneficial to natural resource agency professionals undertaking a CWPP process, in that it guides them to take stock of the assets and values that exist within a community and use this information to leverage community resources and support throughout the CWPP process. This is a strategic and practical approach that facilitates true community-based collaboration, in that the process is shaped around leveraging and building community capacity.

While all three cases resulted in increased community knowledge, new and strengthened networks, and CWPPs that are being successfully implemented, the lack of community involvement during the Harris Park CWPP process appears to have had an

effect on the outcome of that planning process. Although community members support the CWPP, they are not actively engaged in its implementation as in the other cases. The community actors we interviewed discussed their subdivision's individual goals for local mitigation, but did not address the larger landscape goals of the CWPP. They also did not discuss conversation and collaboration occurring between communities, and actually indicated a lack of networks between communities. In the East Portal and Lake County cases community members are aware of the benefits of being involved in the CWPP, and they've used community networks to engage in discussion regarding the CWPP with other uninvolved communities. The communities in these cases also utilized their new capacities to undertake projects beyond wildfire mitigation. While the community in the Harris Park case possesses the capacity to implement local mitigation projects as a result of previous collaborative experiences and the CWPP process, it appears as though the community's capacity for sustainable collective action is not as great in this case as in the other two. This might have been different if community members had the opportunity to participate in the development process, and help craft the goals of the CWPP so that they could have a greater understanding of it and ownership over it, as well as have the opportunity to network and collaborate with actors from other subdivisions.

The collaborative learning process also contributed to the capacity to implement the CWPP. Community members gained an understanding of why mitigation is necessary and contributed their support, and learned mitigation techniques to assist them in successfully implementing CWPP action items. The agency actors benefited from community-shared local knowledge that assisted in creating more effective and efficient action items, and resulted in a completed CWPP that the community supports.

In relating our results to the Schneider and Ingram (1990) concept of policy tools, we found that while HFRA does not provide capacity tools, the CWPP process does indeed require a variety of specific capacities in order to collaboratively develop a CWPP. In addressing these capacity requirements, stakeholder groups embarking on a CWPP development process must recognize these capacity needs and fill them to the best of their ability. It would be helpful for stakeholder groups to strategically plan in advance to capitalize on their existing capacity strengths and attempt to access resources or assistance to fill capacity gaps. An example of strategically taking advantage of capacity strengths is agency actors working with communities who they already possess networks and positive working relationships with. As we learned in our study, preexisting vertical agency-community networks facilitated convening the CWPP, and provided a basis of information sharing and positive working relationships that benefited the collaborative learning process. Another example is strategically leveraging human capital demonstrated by community actors; motivated community members with an aptitude for leadership and learning proved to be critical resources in our study. Stakeholders should also focus a great deal of time and energy on the collaborative learning process, as this provides the opportunity for information exchange and deliberation that is critical to CWPP development.

Our research methods were limited in general due to the fact that we were collecting data for our own study as well as for the general Joint Fire Sciences study. It was necessary to ask a broad range of questions in order to accommodate a variety of research interests. In the interest of maintaining interview time to a reasonable length, we were not able to collect the level of detail that we could have if we were seeking data for



our individual study alone. There are certain aspects of our study that would benefit from further detailed research. We were also limited by time. Although we were able to conduct interviews to the point of data saturation, it would have been helpful to conduct a few more interviews, particularly with community members in the Harris Park and Lake County cases, in order to gain a deeper understanding of community roles.

It would be interesting to learn how community-driven project implementation in the Harris Park case, which demonstrated a lower degree of community involvement, compares to the East Portal and Lake County cases. It would also be informative to learn how project implementation in the Lake County case compares to implementation in the East Portal case, as actors in the East Portal case had the advantage of previous successful mitigation projects to build from. Within the limitations of this study, we can only hypothesize that community CWPP project implementation is directly related to contextual factors that contribute to wildfire mitigation planning capacity, as well as community involvement and collaborative learning throughout the CWPP development process.

We are aware that a small amount of mitigation had occurred in subdivision B in the East Portal case prior to the CWPP process, due to the efforts of a few residents who treated their own properties but were unsuccessful in motivating the rest of their subdivision. It would be interesting to understand the extent of these previous projects, and what the efforts of these individuals to motivate their community entailed. The majority of subdivision B representatives were actively opposed to wildfire mitigation in the past, and the subdivision B representative explained that this attitude had changed by the time that the CWPP process began, so that while the majority of residents remained

indifferent, they were at least not resistant. The subdivision B representative attributed this to a change in community HOA leadership, as well as the recent large wildfires that occurred in the vicinity. It would be beneficial to gain a deeper understanding of this change in community attitude, in order to better trace the factors that influence community awareness of wildfire risk and support for mitigation.

Our understanding of the Harris Park case would be enriched with further interviews with different community members. Time limitations on our study, as well as difficulty in identifying key community members due to low community involvement during the CWPP process, resulted in only two community members interviewed. We had information available in this study to identify only two subdivisions that had been conducting prior mitigation work. It would be useful to identify and interview residents from other subdivisions, in order to understand the extent to which mitigation work had been occurring in other subdivisions prior to the CWPP process. This would give us a fuller picture of the community's preexisting capacity for wildfire mitigation prior to the CWPP process.

It would also be helpful to gain a richer understanding of the small amount of wildfire mitigation that occurred in Lake County prior to the CWPP process. While the general community was largely unaware of wildfire risk and uninvolved in mitigation prior to the CWPP, both the USFS and CSFS representatives explained that some subdivisions had undergone wildfire risk assessments years ago. It would be beneficial to track any implementation that occurred as a result of these early assessments, in order to gain a better understanding of the limited awareness that existed and activity that took place prior to the CWPP.

Further research regarding long-term implementation of CWPP goals would enhance the results of this study. The Harris Park case is the only case for which information regarding CWPP implementation was available at the time of our research. While we learned of new community collective efforts that resulted from the CWPP process in the East Portal case, such as the campaign to build a new fire house and the creation of a community forest health group, actual CWPP project implementation in both the East Portal and Lake County cases had not yet occurred. It would be informative to revisit these cases and track implementation progress over the short as well as long-term, as it would allow us to test the measures of capacity we identified in each case against actual project implementation.

## ***Conclusion***

This study demonstrates that specific capacities are required to collaboratively develop a CWPP. In each case collaborative experiences prior to and during the CWPP process contributed to the community's increased capacity to implement wildfire mitigation projects. Community participation during the CWPP development phase resulted in additional capacities to collectively organize to address wildfire mitigation across as landscape scale, as well as to address local issues other than wildfire mitigation.

Capacities that facilitated collaborative CWPP development included: utilizing pre-existing networks to convene the CWPP process, particularly in directly inviting community actors; utilizing the human capital offered by key community actors to garner community participation and support, as well as to share information within the

community; engaging community members in a collaborative learning process in which information is exchanged between agency and community actors in an interactive and relevant manner; the use of issue framing to align the need for wildfire mitigation with local values; and providing community members with clear direction and guidelines for crafting the CWPP.

In each case the CWPP core team convened and worked through the CWPP planning process according to the capacities available. While the CWPP process in each case resulted in increased community capacity to implement wildfire mitigation projects, it appears as though the potential for sustainable community collective action is stronger when community members are actively engaged during the planning process.

This research complimented the existing body of literature regarding collaborative capacity, with the possible addition of the finding regarding the effectiveness of utilizing pre-existing community networks and human capital to convene and work through a collaborative effort. More detailed study of certain findings would enrich our results, and further research regarding the short and long-term implementation of CWPP projects would potentially support our conclusion that capacity created prior to and during a CWPP process facilitates the capacity to implement CWPP projects.

### **Chapter 3**

## **Intermediary Roles in the Collaborative Development of Community Wildfire Protection Plans**

Policies in the United States regarding wildfire focused on suppression and prevention throughout the majority of the 20<sup>th</sup> century (Pyne, 1982). The exclusion of fire from forest ecosystems has led to a build-up of fuels in forests across the US, so that when fires occur today they burn with more intensity and create more damage than they did historically. Many devastating forest fires burned across the western US in the summer of 2000, drawing national attention to the issue of increased fire severity. The threat posed to ex-urban human settlement in fire-prone forested regions has also received increasing attention, along with a growing awareness of the difficulty of preventing and responding to fires across a range of jurisdictions (McLoone, 2006). This combination of factors led to a series of policy tools to enhance and sustain wildfire preparedness and mitigation that emphasized collaboration between federal, state, and local stakeholders. The National Fire Plan (NFP) and the Healthy Forest Restoration Act (HFRA) are key national policies requiring collaboration in wildfire mitigation. Both of these policies address the need for mitigation to prevent catastrophic wildfires, and the need for different stakeholders to work together in order to address mitigation at a

landscape scale across multiple ownership jurisdictions. These policies recognize that the federal government cannot address this issue alone, and assistance is needed at state and local levels.

The use of collaboration as a policy tool marks a significant change in wildfire policy and contains many untested assumptions about how the target populations of government and non-government actors will behave. Schneider and Ingram (1990) provide a framework for more critically examining the behavioral assumptions of policy tools. They argue that there are five main types of policy tools: authority tools that grant permission, prohibit, or require action; incentive tools that use tangible positive or negative payoffs to persuade action; capacity tools that provide information, skills, and resources to facilitate action; symbolic and hortatory tools that appeal to individuals' values and beliefs to encourage action; and learning tools that rely on an adaptive system of learning about behaviors and situations to select the other appropriate tools. Table 1.1 provides a summary of policy tools and behavioral assumptions.

The NFP and HFRA provide authority tools in that they require collaboration in the development of community wildfire mitigation plans, which assumes that collaboration is something that can be mandated. They offer incentive tools in that they offer funding for the implementation of collaboratively completed plans, which assumes that communities and agencies already possess the skills and resources required to work collaboratively, and that they simply need an incentive as motivation. These policies also provide learning tools, in that the goal of a collaborative CWPP development process is to provide stakeholders with the opportunity to learn how to collectively address wildfire

risk at a landscape scale. Neither policy specifies how collaboration should be accomplished, and assumes that stakeholders will learn their way through the process.

We propose that these three tools alone do not provide the basis for successful collaboration in wildfire mitigation planning, and that capacity tools are required as well. The NFP and HFRA assume that stakeholder groups already possess the capacities required to collaboratively develop CWPPs, and we propose that this is a questionable assumption. Do stakeholder groups possess the necessary capacities, and if not, how do they fill capacity gaps in order to succeed in developing CWPPs? The purpose of this study is to understand mechanisms through which stakeholder groups access the necessary capacities to work through the process of collaborative CWPP development.

#### Joint Fire Science Program

This study is part of a national study funded by the Joint Fire Science program (<http://jfsp.fortlewis.edu>). Its focus is to analyze the lessons learned about collaborative processes that occurred during the development of CWPPs across the United States. This study focuses on CWPP development specifically in Colorado, utilizing research objectives and frameworks identified in the national Joint Fire Science study.

#### Preliminary Study

The analytical framework and hypotheses for this study was based on preliminary fieldwork we conducted in the summer of 2005. The fieldwork involved creating an inventory of Colorado community wildfire mitigation plans for the Colorado State Forest

Service. Specific information regarding this study can be found at [www.rockymountainwildlandfire.info/survey](http://www.rockymountainwildlandfire.info/survey).

In examining the collaboration attributes of wildfire mitigation planning, we found that the key actors and the level of community involvement varied from case to case. The fieldwork also showed that the roles that key actors perceived for community members throughout the process varied from case to case. For example, the degree of direct involvement of community residents during the different steps of plan development varied from case to case, as did their roles between the planning phase and the implementation phase. The key observation gleaned from the preliminary fieldwork is that the variation in collaborative engagement for participants involved in wildfire mitigation planning was due to varying levels of collaboration from case to case. We also found that communities and agencies framed their planning and implementation processes according to their level of capacity to work through the process. In short, a community wildfire mitigation planning group implemented and adapted collaborative planning processes ad hoc based on their existing and emergent expertise, resources, and procedural elements. Our observation that some CWPP development groups demonstrated a higher level of collaborative capacity than others led us to investigate the possibility that intermediary organizations and or individuals may have facilitated collaborative CWPP development in some of these cases, thus accounting for higher scale of capacities.



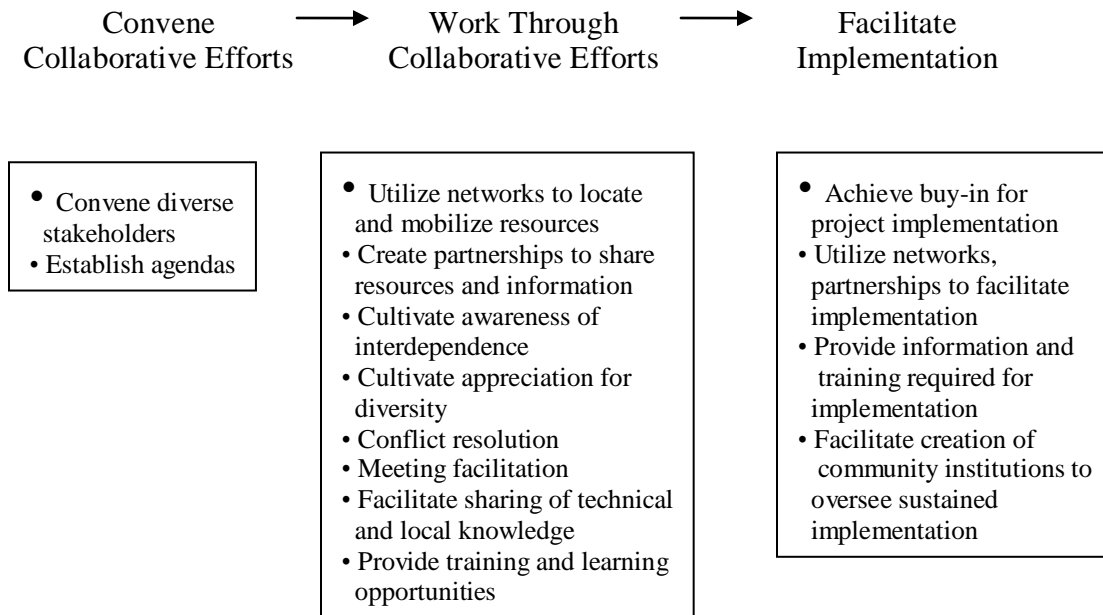
## Literature Review

An intermediary organization (IO) is typically a non-governmental or quasi-governmental organization that serves as a bridge between private individuals and government institutions, or between neighborhoods/communities and public organizations (Berger and Neuhaus, 1996). More formally, IOs “provide support to communities in mobilizing their internal resources and gain access to outside inputs (information, technology, finances) that enhance their capacities to improve their situations” (Lee, 1998).

The roles of intermediary organizations can be grouped into three categories: networking in order to locate and mobilize resources external to the community as well as those already present, using these combined resources to build community capacity, and facilitating collaboration to achieve collective community goals. The specific roles that emerged in the literature review are listed in Figure 3.1.

IOs assist communities in overcoming barriers to success due to lack of mobilized resources or external support (Lee, 1998; Johnson et al., 2004; Lopez et al., 2005; Penuel et al., 2005). Community development and education development literature supports the role of IOs in facilitating different aspects of community capacity-building through networking and mobilizing resources. In order to locate and mobilize resources, IOs establish relationships between outside sources of funding and services, and groups existing within the community (Wallis, 1998). One of the main ways that intermediaries assist is by locating and channeling financial capital for community-based organizations (Liou and Stroh, 1998; Penuel et al, 2005). In some cases this is the only role they play (Wallis, 1998). IOs can provide seed money for community groups, providing them with

Figure 3.1: Intermediary Roles in the Collaborative Development of Community Wildfire Protection Plans



necessary start-up capital (Liou and Stroh, 1998). Liou and Stroh (1998) discuss how community development financial intermediaries were founded in order to provide a legal conduit for socially conscious investors, such as private foundations, to provide investments and grant money to community-based development projects.

IOs play a role in convening community groups. They establish agendas and build strategies (Jordan and Tuijl, 2000). In describing the role of IOs, Johnson et al. (2004) cite Wynn (2004) as follows: “They take a deliberate position as brokers and facilitators, functioning both as actors and agents of change” (p. 55). Lopez et al. (2005) state that IOs “bridge policy and practice” and function as “change agents” (p. 79). They play a role in agenda-setting as they provide resources and partnerships necessary to achieve specific goals (Lawson, 2004).

IOs create partnerships between local groups, local businesses and governments, and between the nonprofit, public and private sectors. These partnerships help contribute to long-term capacity (Liou & Stroh, 1998). They also use partnerships with other affiliated local and regional IOs to share processes, strategies, innovations and lessons learned. They provide community groups with the opportunity to interact with other community groups in order to facilitate peer-learning (Johnson et al., 2004). The partnerships they create can assist in integrating community projects with other initiatives (Penuel et al., 2005). Lopez et al (2005) found that IOs involved in capacity building successfully convened participants with the incentive of creating a peer-learning network for sharing information, knowledge, and strategies. IOs strengthen the membership and effectiveness of community groups through innovative participation strategies (Lee, 1994, and McLeod and Mitlin, 1993, in Lee, 1998). IOs can incubate local networks of

community groups, and establish local advisory committees to act as intermediaries between them and the local community groups (Liou & Stroh, 1998).

IOs facilitate collaboration by “cultivating awareness of interdependent relationships, developing equitable relations, resolving conflicts, and facilitating resource sharing” (Lawson, 2004, p. 231). IOs convene meetings and facilitate dialogue between parties. They also facilitate sharing, appreciation and understanding of the culture and perspectives of different participants (Lopez et al., 2005). IOs build the capacity of community members to affect institutional decision-making. They also build the capacity of institutions to work with communities. Differences in types of knowledge, such as technical vs. local, can be a challenge to collaboration. IOs focus on knowledge specifically related to the content of the issue in order to bridge the knowledge gap. They provide information and tools to community members so that they have the knowledge, confidence and skills to become involved, identify issues and advocate their priorities. They also provide training and learning opportunities (Lawson, 2004). Lack of technical support can be a barrier to community collective action (Lee, 1998). A major role of IOs is providing technical assistance (Liou & Stroh, 1998).

IOs assist in creating sustainable projects by ensuring buy-in and participation across a wide range of stakeholders and other entities, particularly those in positions of power. They assist community groups in institutionalizing their project goals at a policy level (Johnson et al., 2004). As outsiders, they may be more capable of challenging entrenched interests than community members (Penuel et al., 2005).

IOs can assist project implementation by helping to overcome obstacles and by providing incentives for implementation. Penuel et al. (2005) found that an international

IO facilitated the adoption and implementation of an educational program throughout several regions of the US by continuing to touch base with local educators and providing services to assist with implementation. The IO provides accountability by asking educators for documented evidence of the results of implementation. It provides incentives such as university course credit, grant funding for university costs, and awards and recognition.

Multiple challenges face community based groups and the IOs who assist them, such as IOs defining and maintaining a sustainable working relationship with community groups without creating a dependency on outside assistance, addressing the issue of individuals who benefit from projects without contributing or who hurt the collective good, and gaining support from government authorities (Lee, 1998). They also need to find sustainable sources of funding for the programs they assist (Penuel, 2005). Another concern is the accountability of IOs to the community groups they assist in terms of the durability and effectiveness of the relationships they build and the community capacity and self-determination they facilitate. They must also be accountable to funders in terms of distributing resources appropriately. IOs must balance the expectations of funders with the needs of community groups (Wallis, 1998). Lee (1998) argues that the outcomes of IO assisted community-based initiatives are subject to social, economic, political and institutional constraints. Lee further argues that there is great variation in the capacities of both IOs and community groups due to these constraints.

IOs also face the issue of needing time to mature and to expand to other regions. Once a local IO builds a local network, it requires time to mature before it has the capacity to expand to assist other communities and regions. It must be able to secure

additional funding for the new projects and continue working in the original community while expanding into new ones (Johnson et al., 2004). They must be able to sustain their work and also meet the evolving needs of maturing community groups (Liou and Stroh, 1998).

A key theme that emerged from the literature review is that intermediary organizations help build community capacity through their roles in convening participants, networking to mobilize resources, and facilitating collaboration to plan and implement projects. They identify capacity gaps that community groups are unable to address on their own, and they provide resources and access to networks to fill these gaps. In observing the range of low to high collaborative capacity displayed by CWPP development groups in our pilot study, we made the following hypotheses based on the literature review:

Null Hypotheses:

*H<sub>01</sub>: Communities and agencies have the capacity to successfully work through the collaborative processes necessary to produce CWPPs.*

*H<sub>02</sub>: Communities and agencies do not require the assistance of external intermediaries to collaboratively produce CWPPs.*

*H<sub>0</sub>3: The authority, incentive, and learning tools described by Scheider and Ingram (1990) and provided by the NFP and HFRA are sufficient to motivate successful community/agency collaboration.*

**Alternative Hypotheses:**

*H<sub>1</sub>1: Communities and agencies do not possess the capacities required to successfully convene and work through the collaborative processes necessary to produce CWPPs.*

*H<sub>1</sub>2: Intermediaries fill this role by building the necessary capacities to collaborate. They provide capacity tools by using networks in order to locate and mobilize a combination of critical internal and external resources, such as funding, information, leadership and support. This process can be described as a system in which networking brings together the external and internal resources a community requires in order to build the capacity to collaborate, and the collaborative process is the means to achieving a community wildfire mitigation plan.*

*H<sub>1</sub>3: Intermediaries act strategically in that they recognize the range of benefits provided by collaborative development and implementation of community wildfire mitigation plans, they identify locations that have potential for collaboration and conduct an assessment of resources present and lacking, and they continually make contacts and build relationships that will assist them in achieving their goals.*

*H<sub>14</sub>: Intermediaries facilitate collaboration in the planning and implementation phases through their activities of networking to provide resources and build relationships. They facilitate collaborative learning so that participants can successfully work through problems and identify desired conditions and alternatives.*

## **Methods**

This study is a comparative qualitative analysis of three case studies. The use of the case study method is appropriate because it allows for an in-depth analysis of each case on an individual basis (Shank, 2006). In describing the benefits of a case study, Shank (2006) cites Merriam (1998), who explains that case studies are particularistic in that they allow the researcher to focus on a particular phenomenon, descriptive in that the end product is a rich description of the phenomenon being studied, and heuristic in that the results illuminate understanding of the phenomenon. While we studied individual cases, we did not design our research according to the traditional case study approach. Rather than focusing on individual details emergent in each case, we focused our study on the commonalities that exist across the cases. The goal of this study is to discover overarching themes that exist across the cases, as well as factors that resulted in differences.

We selected three case studies according to attributes identified through the preliminary fieldwork. All three are based in communities in Colorado that developed a CWPP according to the HFRA requirements. Another qualification for case study selection was the presence or absence of a potential intermediary entity. The East Portal CWPP was influenced by an inter-agency organization, the Larimer County Coordinating



Group (LCCG), and the Lake County CWPP was influenced by an individual who was extremely critical to the success of the process. The Harris Park CWPP was selected for comparison because there were no identifiable potential intermediary entities.

Level of community capacity was another factor in case study selection in order to ensure a balance of high and low capacity cases. In the East Portal case the community has high economic and social capacity, the Harris Park case has high economic and low social capacity, and the Lake County case has low economic and social capacity. We determined economic capacity according to demographic information such as income level and families living below the poverty level (see Table 2.1). We determined social capacity by the number of community organizations in a county and their financial assets (see Table 2.2).

We obtained data through interviews that were tape-recorded, transcribed into text, and coded for themes using the qualitative analysis computer software program NVivo. We used interview questions developed by the Joint Fire Science project team. See Appendix A for the interview protocol. These questions were designed to capture a wide range of information related to collaborative CWPP development, in order to address numerous different research questions presented by the team. Questions that were relevant to our particular Colorado study are indicated in italics. These questions focused on the roles played by each participant in the planning process, what resources and information were utilized and who provided access to them, and the roles played by entities we identified as potential intermediaries. Examples of interview questions include: “What resources and information were critical to the process, and who provided it”, and “What roles did [specific participant] play in the CWPP development process?”.

We conducted initial interviews with key informants who were identified during the preliminary fieldwork, and used their knowledge to identify other key actors to interview. There were eleven total interviews for Lake County, eight for Harris Park, and eight for East Portal. Four additional interviews were conducted with members of the LCCG in order to better understand the group's role in CWPP development. The interview phase was considered to be complete only after reaching the data saturation level in order to ensure that the results are precise, accurate, reliable and valid. In order to retain the anonymity of the individuals we interviewed, we refer to the some actors in general terms (ex. – “the fire authority representative”), and we used pseudonyms to reference quotes.

The coding procedure resulted in themes that we identified through an iterative process. The preliminary field work and literature review generated general categories of intermediary influences in CWPP development. The resulting themes identify the major resources and types of information that were utilized as well as information-sharing, communication, and capacity-building processes that occurred. They also identify who provided these resources and took part in these processes. Appendix D provides a list of themes, and Appendix E provides a list of indicators that support the identification of these themes.

We determined the percentage of interviewees who discussed specific roles played by individual CWPP participants in order to gain an understanding of the importance of these roles. Table 3.1 lists the results. Using percentages provided an efficient means by which to categorize and organize the interview data. The NVivo software allowed for quick yet thorough searches of the database and allowed for a complete organization of the themes.

Table 3.1: Frequency of Intermediary Roles Discussed in Interviews (*n*)

|   | <b>East Portal</b><br>( <i>n</i> =8)     | <b>Harris Park</b><br>( <i>n</i> =8)        | <b>Lake County</b><br>( <i>n</i> =11)               |
|---|--|---|---|
| <b>Information:</b><br><b>Forest Ecology</b><br>Information regarding Ponderosa Pine or Lodgepole Pine ecosystems and their relationship with wildfire; Forest health issues such as beetle infestations and mistletoe, invasive plants | CSFS: 63%<br>USFS: 13%                   | USFS: 13%                                   | Key Community Member: 91%<br>USFS: 36%<br>CSFS: 36% |
| <b>Information:</b><br><b>Fire Behavior</b><br>Information regarding how fire behaves in Ponderosa or Lodgepole pine forests, and how this ties with mitigation   | CSFS: 50%                                | CSFS: 38%<br>USFS: 25%                      | USFS: 82%<br>Key Community Member: 45%<br>CSFS: 18% |
| <b>Information:</b><br><b>Wildfire Mitigation</b><br>Information regarding defensible space and removing trees  | County: 75%<br>CSFS: 63%<br>NPS: 25%     | Fire Authority: 50%<br>State: CSFS          | CSFS: 36%<br>Fire District: 27%                     |
| <b>Information:</b><br><b>Local Preparedness</b><br>Information regarding the ability of fire authorities or other agencies to respond to wildfire events   | County: 25%<br>Local Fire Authority: 13% | Local Fire Authority: 38%                   | Local Fire Authority: 82%                           |
| <b>Information: Risk Assessment</b><br>Information utilized in determining wildfire risk such as fuel loading, topography, modeling, etc.   | USFS: 25%                                | USFS: 25%<br>Fire Authority: 38%            | Fire Authority: 27%<br>CSFS: 18%                    |
| <b>Information: Private Property Wildfire Risk Assessments</b><br>A risk assessment of private property and that explains the risk as well as mitigation techniques to the property owner   | County: 88%<br>CSFS: 38%                 | Local Fire Authority: 63%                   | CSFS: 9%  |
| <b>Information: Local Knowledge and Values</b><br>Information that community members share, such as community values at risk from wildfire, community infrastructure, site-specific ecological observations, etc.                       | Community: 100%                          | Local Fire Authority: 63%<br>Community: 38% | Community: 82%<br>Fire Authority: 27%               |

|  |   |  |  |
|--|---|--|--|
| <b>Information:</b><br><b>CWPP Development</b><br>Information that assists the structure and process of CWPP development, such as templates or how-to guides   | CSFS: 50%   | USFS: 13%  | CSFS: 27%  |
| <b>Information:</b><br><b>Agency Policies</b><br>Information regarding agency policies, limitations and capabilities and plans for treatment   | USFS: 50%<br>NPS: 25%   |  | USFS: 36%  |
| <b>Maps, GIS Capability</b><br>Paper maps as well as GIS   | USFS: 75%   | Consultant: 63%<br>USFS: 50%<br>CSFS: 38%<br>County: 25%               | USFS: 73%<br>CSFS: 55%   |
| <b>Financial Resources</b><br>Grant funding available for the CWPP development and/or implementation processes   | CSFS: 80%<br>County: 63%  | CSFS: 50%  | CSFS: 73%  |
| <b>Leadership</b><br>Leadership in convening or facilitating the development process;<br>Community members acting as liaisons for their communities, and sharing information with and gathering support from their communities | CSFS: 88%<br>County: 88%<br>Community: 75%                            | Local Fire Authority: 38%<br>Community: 38%<br>CSFS: 13%               | Community: 82%<br>Key Community Member: 64%<br>Local Government: 64% |
| <b>Group Facilitation/Coordination</b><br>Coordinating and organizing meetings, facilitating discussion during meetings, gathering and organizing information, coordinating communication among participants                   |   |  | Key Community Member: 100%   |
| <b>Implementation</b><br>Accomplishing mitigation treatments on private and government land  | Community: 100%<br>USFS: 75%<br>NPS: 75%<br>County: 50%<br>State: 25% | USFS: 100%<br>Local Fire Authority: 75%<br>Community: 50%<br>CSFS: 25% | USFS: 91%<br>Community: 73%<br>CSFS: 55%                             |

We reasoned that roles that were discussed by a majority of interviewees (50% or more) were generally more critical than those discussed by a minority. However, we also took into consideration other factors that indicate importance, such as how critical the resource or service was to the CWPP process as well as the status of the player(s) who described the role or contributed the information. For example, risk assessment information such as fuel loading and slope are critical in determining the risk assessment, but it was discussed by less than half of the actors in all three cases. We nonetheless determine this type of information-sharing to be a critical role. As another example, the CSFS participants had access to information regarding CWPP development that was external to the CWPP planning teams; this agency's state headquarters has a CWPP task force that shares information with its employees around the state, and the CSFS participants shared this information with their CWPP planning teams. This type of information-sharing was discussed in interviews only by the state actors and one other player. However, we determined this to be a critical role due to the importance of the information and also because it highlights the role played by the CSFS CWPP task force.

The CWPP development process involved actors from natural resources agencies, local fire authorities, local governments, and the community. For the purposes of our data analysis, we will refer to any non-community member as an agency actor. We include local fire authority and local government actors in the "agency" grouping because while they are themselves members of the community, they occupy a different level of authority and possess knowledge and networks beyond that of the average community member.

## **Cases**

### ***East Portal***

The East Portal CWPP includes two subdivisions, a youth camp, and two privately-owned local businesses. The CWPP encompasses a region outside of Estes Park, CO along an old highway (referred to locally as “Spur 66”) that dead-ends at one of the subdivisions. Estes Park is located in the Rocky Mountains approximately sixty miles northwest of Denver, and is the gateway to Rocky Mountain National Park; the local economy depends heavily on tourism. One of the subdivisions included in the CWPP has 118 homes, and the other has approximately twenty-five homes. Many of the homeowners are part-year residents. The private lands are bordered by federal lands, which are divided into two different agency’s jurisdictions.

This region is located in Larimer County. The county has a county fire plan (not a CWPP) that serves as an umbrella for CWPP development throughout the county. The county wildfire website provides links to the county plan, maps (including wildfire hazards risk assessment), and CWPP guidelines that groups can access to assist in CWPP development. This information was not available at the beginning of the East Portal CWPP process.

The major actors in the East Portal CWPP development process included the US Department of Agriculture Forest Service (USFS), the US Department of Interior National Park Service (NPS), the Colorado State Forest Service (CSFS), the county wildfire mitigation specialist, the local fire authority, community actors from two subdivisions (A and B), and two actors from the youth camp (we interviewed one of

them). There were originally three actors from subdivision A until one of them moved out of state, and there was one actor from subdivision B; we interviewed the two current subdivision A actors and the subdivision B actor. The original CSFS actor left his job part-way through the process and a new actor took over (they will be referred to as the original and current actors); we interviewed the current actor. The two local businesses did not actively participate during the CWPP development process and are not included in the discussion.

The community actors were involved throughout the entire process and acted as liaisons to their communities. Leadership was distributed evenly throughout the process, and the agency actors perceived themselves as sources of knowledge and resources for the community rather than the main drivers of the plan. The actor from USFS B left his job before our research began, and we were not able to interview him.

#### Key Roles filled by all CWPP Participants

##### *Networking*

The Larimer County Coordinating Group (LCCG) is a partnership that includes the USFS, NPS, CSFS, and the county wildfire mitigation specialist. It was formed with the goal of coordinating efforts in addressing wildfire mitigation across the county. It provides the partners with a forum to learn about the resources and services each entity can provide and allows them to discuss opportunities for coordinating wildfire mitigation planning and fuels treatment projects across different land ownership. The group's goal is to have all of the high-risk areas in the county included in fuels reduction projects.

Near the end of the CWPP development process, the group created a CWPP template that is available for communities to access on the county fire plan website.

The interview process revealed that the LCCG did not function as an intermediary organization in the East Portal CWPP process. While each LCCG member was a participant in the CWPP process, they represented their own individual agencies and not the LCCG. Each CWPP participant provided resources and information through their individual agencies. The LCCG provided peripheral benefit to the CWPP process in that it provided agency actors with the opportunity to meet externally to the CWPP process and discuss general CWPP development strategies that assisted the East Portal CWPP development process, such as the CWPP template.

There were pre-existing networks between the USFS, NPS, CSFS, and the county actors through their participation in the Larimer County Coordinating Group (LCCG). These entities had pre-existing networks with the local fire authority through fire response efforts. The CSFS actor and the county wildfire mitigation specialist worked closely together in the past on assisting communities with wildfire mitigation projects. The CSFS and county actors had pre-existing networks with both subdivisions A and B and the youth camp through assisting with previous mitigation work.

The NPS had a pre-existing relationship with the youth camp because they share a boundary and had worked together in the past to coordinate mitigation efforts. The youth camp actor is a member of the fire authority. The USFS and NPS actors were brought into the CWPP process through their networks with the CSFS and county agency actors, which indicates the CSFS and county actors as an important link between community and USFS stakeholders. The USFS created networks with the community team members



through the CWPP development process, and the NPS created new networks with the subdivisions.

### *Previous Collaborative Experiences*

The majority of the actors had pre-existing collaborative capacity that was built through working together in the past on wildfire mitigation projects and wildfire response efforts. These pre-existing relationships and collaborative experiences facilitated highly successful collaboration throughout the CWPP process.

The federal, state and county actors already had a collaborative relationship through the LCCG. They all had worked with the fire authority in wildfire response efforts. These entities have mutual aid agreements and will assist each other in responding to wildfires on federal and private property. Steve, the youth camp actor, who also volunteers with the fire authority, described the importance of this collaboration:

*“We got really educated on [the Big Elk fire]. Not only did we find out how the upper agencies worked, we got more friends at the state and county level, we became more aware...Everybody realizes that if you don’t work together, something bad is going to happen.”*

The actors from subdivision A had been collaborating with the CSFS and the county mitigation specialist as well as other members of their community for several years in an attempt to encourage their subdivision to mitigate common areas and private properties. In 2003 subdivision A was awarded a “FireWise Community USA” designation as a result of their efforts. This history of collaboration ultimately led to the CWPP development process in 2004, as Chris, one of the subdivision A actors described:

*“We started working on FireWise in 2003, and then I think the CWPP had started—it mostly started as a coalition, not to put a CWPP together, it was more, let’s sit down and talk about the problems and concerned on Spur 66, with no intent of doing a CWPP. And the CWPP developed out of the various meetings that we had... And [the CSFS and county actors] saw what we were doing as a coalition and said—the CWPP was a new thing and he said we don’t have a lot of information on it, but we would like to at least get it started on Spur 66. And the idea was to show that these various agencies could work together, and we could get a CWPP done and hopefully expand it throughout the county.”*

The youth camp had been working with the NPS, the CSFS, and county actors for several years to mitigate the camp’s property. Steve explained how these previous experiences paved the way for the CWPP:

*“We did the [wildfire risk evaluation] originally quite a few years back with the USFS and NPS, their experts came back with the fact that there was a very large wildfire that came through the Estes valley about 145 years ago, so we’re past due. So we recognized that, and we started to first do evaluations on, which way would a fire go. That was very important, it usually burns west, but then upslope winds could take it east, or back the other way. Our biggest concern was if something happened out of the park, their campgrounds or a lightning strike or whatever, that the fire would approach us...And then we started looking at, we do all this work to our property, but what happen if the fire comes from the south of us down at [subdivision B], or came back upslope from [subdivision A]? So slowly [the county actor] started getting everybody together and pulling in other resources, and we finally came together a couple years ago.”*

### Key roles filled by the USFS and NPS

#### *Information Sharing*

The USFS contributed to information sharing by providing the group with a pre-existing risk assessment for the entire county. The assessment took into consideration information such as fuels, topography, and proximity to developed areas. Although this was only discussed by 25% of the actors, it is nonetheless important to report, as this information was critical to the CWPP development.

Fifty percent of those interviewed discussed the importance of the USFS's role in contributing information regarding USFS policy for his agency as well as for the NPS. This information became especially critical when a conflict emerged regarding the NPS's inability to treat a specific location due to policy constraints; the USF actor was able to mediate and explain the NPS policy constraints to the rest of the team. Matt, the county actor, described this role:

*"The USFS was good because they explained the NPS role, and [the USFS actor] did well explaining the limitations. He explained it in normal terms."*

In sharing this information the USFS actor managed conflict between the NPS and the community actors, which is a key role in facilitating a collaborative effort.

The NPS shared information regarding forest ecology and thinning techniques with the youth camp and provided hands-on learning experiences prior to the CWPP process. Steve explained:

*"We learned from the NPS, because they are protecting their forest. Instead of us going up there on our side of the line and doing a complete clear-cut, which somebody may do that, how much damage we could do to that forest because of the winds, we'd knock the whole forest down, that's just the way it works. So learning from them and them teaching us how to thin and go through and learn the correct procedures, they show us how to do that. In most cases you can walk through the forest and not tell that we've been there and thinned. [The county actor] showed us that, the NPS showed us that. We've all taken walks together."*

The NPS actor attended a work day in subdivision A and shared information with them regarding mitigation. The agency also assisted by providing funding for a wildfire public education specialist who was supervised by the CSFS and housed in the fire authority headquarters. The education specialist shared information with the Estes Valley residents regarding wildfire risk and mitigation, complimenting the goals of the CWPP effort.

### *Providing Resources*

One of USFS A's major roles was providing the necessary computer maps and technical support accessed through their GIS ability; 75% of interviewees discussed this. The USFS actor provided aerial maps for the community members to use in mapping their values-at-risk from wildfire, and used his agency's GIS capabilities to combine the different community maps into one GIS document with GPS-specific locations marking community values-at-risk.

### *Facilitating Project Implementation*

The other major USFS role is implementation, which was emphasized by 75% of the actors. The USFS in this region is committed to making a priority of treating land adjacent to the communities involved in CWPPs. This commitment contributed to community buy-in and assisted community members in understanding the big picture, as Chris explained:

*“He was there to tell us what the long-range plan was as far as thinning in our area. That was really helpful at the time, because it made it easier for us to convince the board that we need money [for implementation], because the USFS was going to be doing work and we need to compliment them.”*

The NPS is a major landholder in the region, and has been implementing treatments that coordinate with private land treatments for several years, particularly on land adjacent to the youth camp. However, the agency is not bound by the HFRA and is governed by policies that limit the extent to which they can implement mitigation. Laura, the current CSFS actor, explained:

*“Basically because HFRA doesn’t require the NPS to do any action related to community effort, he’s there as a supportive observer, but not really contributing input unless to answer questions about the NPS or NPS activities. The current NPS culture is supportive of CWPP development and mitigation, and in fact they have awarded grant funding [for mitigation projects next to] adjacent towns like Estes Park and Grandby.”*

While the NPS’s willingness to coordinate treatments was greatly appreciated, the limits on its ability to do so created some strain on the CWPP development process.

Kevin, the USFS actor, described the situation:

*“For the most part the biggest bone of contention with any government agency vs. private lands was with the NPS. And honestly the HFRA doesn’t include them, so they could do whatever they wanted to. Certainly they were interested in helping out...Part of the problem is that that particular area is proposed for wilderness area designation. So from a planning standpoint, that throws it into a whole different realm. Right now they’re in the mode of, we’re not going to do anything to change the characteristic of a wilderness, and that really limits them as to what they can do.”*

Despite this challenge, 75% of interviewees described the NPS’s role in implementation as being important. Roger, the fire authority actor, emphasized the importance of the NPS’s participation:

*“It would have been like only having half of the projects done, because we have so many properties that share a boundary with the NPS that having them involved was key. Having [the NPS actor] involved allowed us to coordinate with them very well, and without their involvement we wouldn’t have been able to do that.”*

### Key roles filled by the CSFS

#### *Information Sharing*

The CSFS played a role in information-sharing by contributing information regarding forest ecology (63%) and fire behavior (50%) throughout the process. There was a major emphasis on attempting to mitigate the mountain pine beetle epidemic that

has taken a heavy toll directly west of the Continental Divide (the East Portal region is just east of the Divide). The CSFS also provided information regarding mitigation strategies (63%). Paul, the actor from subdivision B, discussed the CSFS's role in sharing information:

*“If you talk to [the current CSFS actor] you find out that none of these forests around here are natural. They’ve either been worked on or they should have been, or they should have burned, so you’ve got all these stands of trees that we’ve already interfered with the natural process. If you really talk to people who are educated on the subject in forestry, you find out that there are problems, it’s not just nature and leaving nature undisturbed.”*

The CSFS played a major role in sharing information with the community. The state actor attended HOA meetings and community events, community work days, and also visited one-on-one with property owners. Community members explained how the scientific knowledge the state provided assisted the community in understanding why mitigation was necessary and how it contributed to forest health. George, an actor from subdivision A, explained:

*“[The original CSFS actor] was great in terms of challenging us to think about—between he and [the county actor]—challenging us to think about the contemporary side, and what this whole notion of stewardship of resources is about. And we learned things like this fundamental relationship between a healthy forest and a fire aware sense of the forest that we live in, as well as just the physical safety aspect.”*

The CSFS also played a key role in providing information regarding CWPP development. Near the end of the East Portal CWPP process, the CSFS state office created criteria and minimum standards for CWPP development. The East Portal CWPP was one of the first to be completed in CO, as well as the US, and there was little previous information to assist the CWPP team in developing the CWPP. The standards created by the CSFS provided useful guidance to the East Portal CWPP team, which had

been struggling with the challenge of defining what criteria the CWPP should include and how to include it.

### *Providing Resources*

The CSFS played a key role in accessing funding. Eighty percent of actors discussed the ability of the CSFS to assist in applying for grants to accomplish mitigation, both prior to and during the CWPP process. The CSFS is the agency ultimately responsible for determining how federally awarded wildfire mitigation grants are distributed, making the CSFS a major actor in the grant funding process. According to the “incentive” policy tool provided in the HFRA, the CSFS gives preference to communities with completed CWPPs in distributing federal grants. This provided an incentive tool for the community members, as they understand that their participation in the CWPP gives them more leverage for attaining grant funding for mitigation projects.

### *Facilitating Project Implementation*

Although only 25% of actors discussed the state’s role in implementation, providing access to funding is critical to following through on CWPP mitigation goals. The CSFS also facilitated implementation by coordinating contractors and reviewing the contractor’s proposed work for private land mitigation treatments.

### *Leadership*

While interviewees explained that power was evenly distributed among actors throughout the process, they perceived the CSFS actor as having a leadership role (88%).

The original CSFS actor convened the process, as Kevin, the USFS actor, explained:

*“[The original CSFS actor] put the group together. He obviously had contacts with those communities, he’d been dealing with [subdivisions A and B and the youth camp] for quite some time. So he knew who to talk to. He convened all of us together with the [fire authority], and [the county actor].”*

The original CSFS actor’s networks facilitated his leadership role in convening the CWPP process. He had contacts within the community and knew which community members would be interested in being part of a CWPP planning process, and he also had networks with the county, fire authority, USFS, and NPS actors.

### *Coordinating and Facilitating Meetings*

The state actor was also responsible for coordinating and facilitating meetings (63%). Both the original and current actor arranged meeting times, organized information and kept the process moving forwards.

### Key roles filled by the County Wildfire Mitigation Specialist

The communities involved in the CWPP are not included in a fire district and therefore the county is their main authority for fire response. Compared to the other cases the county wildfire mitigation specialist’s role functioned more like that of the local fire authority than the local government.



## *Information Sharing*

The county actor's most highlighted role was in sharing information with the community. The county actor attended HOA meetings and community events, and met one-on-one with property owners. Chris, one of the subdivision A actors, described this role:

*"The education we had on defensible space probably was more hands-on, [the county actor] coming out. People can tell you and show you pictures and movies, but until they walk you into your forest and say, here's what we need to do—and [the county actor] actually did this, and it was neat, he took ribbons and put them around trees, and said, step back and look and tell me if you think you're going to miss those trees. And he'd tell us why things needed to be done. So I think most of our education came from getting people up here and having face-to-face talks..I would say again, it was mostly hands-on, face-to-face education. And I think the good thing that comes out of that is you get to form a bond or a friendship with the person, you gather trust in him, and it makes it a lot easier to sell your program."*

As Chris described, the county actor conducted property assessments (88%) and provided residents with information regarding defensible space and mitigation (75%), which assisted in gaining community buy-in. George explained this as follows:

*"So we're riding around with [the county actor] to do a survey of the mountain, just him, [the other subdivision A actors] and I, and he was pointing out things that you don't see if you're not sensitive to them. For example, we were going down the narrows and he's telling us about the red dot, green dot scenario, and he saw a house and said, if I were captain of a fire truck, I wouldn't go there because (a) the road is too narrow, (b) the canopy is about this far apart, this whole draw would be filled with smoke and ash and cinders and fire. There's too big a chance that I would get cut off. And then he gave us an article about a fire in northern California, and Oregon, there was a three-man crew, and they were trying to fight a house fire triggered by a forest fire, at the end of a narrow dirt road, they were consumed with smoke and ash, lost control of the vehicle, and it went off 800 feet and killed all three of them and the house still burned. He said, I have a responsibility for my peoples' lives, and I have to have a reasonable allowance of success."*

These quotes demonstrate the effectiveness of hands-on experiential learning techniques that the county actor used in sharing information and gaining community support.

### *Leadership*

The county actor is perceived as one of the main drivers of the planning process, fulfilling a leadership role (88%). He assisted the CSFS in convening the process by using his community networks to invite the subdivision actors, and he assisted with community outreach throughout the process. Actors such as George discussed the importance of his local contacts and the trust he has built within the communities:

*“[The county mitigation specialist] was the spark plug...And [the other subdivision A actor] and I also knew his personality, and people skills, and technical competence. And that was really important, the technical competence to justify on a rational basis what you’re doing. His ability to take that and apply it in doses that we could consume, presuming that there was at least a nucleus of people already in the community who had the heart for it, but politically could not understand the technical scrutiny, to say, what [George] is saying is the truth, we’re going to do it this way because. Who the hell is [George]? But [George] has [the county mitigation specialist] behind him.”*

The county wildfire mitigation specialist gained credibility and trust through his work with the community, and as George described, this allowed him to take a leadership role in sharing information with the community in order to gain local support for mitigation projects. The county actor in turn lent credibility to the subdivision A actors’ effort by providing scientific and technical resources.

### *Providing Resources*

The county actor plays a continuing role in accessing funding by applying for grants (63%). While the CSFS's role in applying for grants was more frequently discussed (80%), this is the only case in which an entity other than the state assisted in this capacity.

### Key roles filled by the Local Fire Authority

The communities involved in the CWPP process are not included in the local fire district, but the local fire authority was nonetheless a player because they are a responder for the region. Its role was perceived more as providing technical resources and support for the other actors rather than being a major player, as Paul, the subdivision B actor, explained:

*"I would say the same thing about [the fire authority actor] as I did about the [NPS]. He was there as an observer, as a guy who was going to have to fight the fire if it happened. But at least in my impression it was clear that he was not driving the creation of this CWPP, nor was he in on how you put together a plan, get funding and actually get something going. He was a willing participant, and he would come out if you wanted him to and look at your lot, he was there as a technical resource, and very knowledgeable."*

### *Information Sharing, Providing Resources*

Although the fire authority does not include the CWPP region in their jurisdiction, the fire authority actor pointed out that the fire authority is still the main point of contact for many community members who want to learn more about wildfire mitigation and who is responsible for protecting their neighborhoods. Roger, the fire authority actor described his role:

*“Of course, I’m the first point of contact for many of the homeowners, anything that has to do with fire or fire prevention they call the fire station. So we’re kind of a clearinghouse for that as far as telling people who they could contact, for grants. We were able to obtain a grant ourselves to have a drop-off station for slash and have the material chipped and hauled away, and made it available to the public free of charge. And we have done that again this year, which we’ll be doing every Saturday in October. That was through the CSFS. So we were mainly a place to hold the meetings, to have a point of contact, to support the efforts of the community and those other agencies. We didn’t go out and do the work for them, they had to do the work, but we were here to answer their questions and to point them in the right direction.”*

This demonstrates the fire authority’s role in providing infrastructure and technical resources to the community and the CWPP core team. While interviewees did not discuss the fire authority as playing a major role in CWPP implementation, the fire authority facilitates wildfire mitigation implementation by providing a community slash site.

One key role that interviewees discussed is the fire authority’s collaboration with the NPS and the CSFS in facilitating the wildfire public education specialist position, as the fire authority provided the specialist with office space. The education specialist assisted in sharing information regarding wildfire risk and mitigation with the Estes Valley community.

### Community Members

Subdivision A and the youth camp had already been actively implementing mitigation projects prior to the CWPP process, and these community actors had therefore played key roles prior to the CWPP process. The CWPP team perceived community actors as critical actors throughout the CWPP development process. The team emphasized the need for community members to drive the plan, and they relied on the

community actors to provide local values and knowledge and to assist in gathering community input and support.

### *Information Sharing*

One hundred percent of the interviewees discussed the community actors' role in information sharing through providing local knowledge and values. The team asked them to identify their community values-at risk from wildfire on a map (i.e. homes, wildlife habitat, water sources). The community actors did this exercise on their own and then shared the results with the rest of their communities, as George described:

*"It was really probably a three-hour brainstorming session. What's the most important thing on the mountain? My house. Would you say structures are a high priority? Yes. What else? How do you get water and power to your house? You need the quality of life. Where are the reservoirs, the pumps, the powerlines, the transformers, roads, the bridge, access and egress. It came to a head that public safety and personal safety, structural integrity, infrastructure, and then the historic structures, wildlife, streams. The gut-check was, what's more important, your kids or the elk? The elk ranks second."*

The community actors played a critical role in sharing information with their communities regarding wildfire mitigation prior to and during the CWPP process. They shared information regarding the CWPP during the planning process. The subdivision actors utilized community networks, such as HOA meetings and newsletters, in order to be effective and efficient in distributing information to their communities. Subdivision A displayed mitigation information at their annual picnic, spoke one-on-one with their neighbors, organized community work days to treat the common areas, and led by example in treating their own properties. Chris described their role:

*"We have our[HOA] meetings, I do a quarterly committee report, and in that report it says what [the HOA] did and asks for [the subdivision residents] to let us know if they have any inputs or thoughts. And that's how we disseminate the*

*information. The report would get mailed out in the general minutes. All of the communities on the mountain would submit their reports along with their financial report, the president's letter, etc, and everybody gets a copy of it. The other thing we've done is we have a community website, and you can download all of the minutes and all of the committee reports and stuff like that. We also have an e-mail system where if we've got something really important that needs to get out we can e-mail the majority of our members about it. That's basically how the information gets out."*

The actor from subdivision B had a more apathetic community to work with, but he still got the word out through multiple communication methods. He included CWPP updates in quarterly newsletters, spoke one-on-one with residents, and invited the CSFS and county actors to speak at HOA meetings.

The youth camp actor shared information with his board of directors regarding the need for wildfire mitigation as well as CWPP updates, and he also plays an on-going role in communicating information regarding fire risk to visiting guests:

*"We'd done ground fuels treatments around the cabins, because we have 200 and some cabins here. And it's helped us out considerably because the guests like to go pick up the dead firewood and build bonfires outside of their cabins, which they're not supposed to. So we've removed temptation...I went and bought a Smokey Bear sign, and we monitor that sign with two weather stations we have here in Estes. We fluctuate back and forth because one will counter itself, but we always take the extreme, we never take the lower of it. And we introduce our own fire ban."*

### *Leadership*

Seventy-five percent of the CWPP team members reported that the CWPP process would not have occurred without the participation of community actors and the leadership role they contributed. Three individuals in subdivision A were responsible for their community's involvement. Two of them are retired fire fighters and became interested in wildfire mitigation upon moving to their subdivision, and they contacted the CSFS and county actors for assistance. The third actor joined the process shortly after.

This led to the community FireWise campaign and ultimately the CWPP. One of the actors is currently the HOA president, and uses his position to facilitate the advancement of FireWise and CWPP goals. George, one of the subdivision A actors, explained how he and the other two subdivision A actors got their community involved in mitigation projects:

*“And what became necessary was that the three of us had to run interference, because just about everybody on the board saw [the county actor] not as a wildfire safety specialist, but as a building inspector, and make them chop down all of the trees around their new homes before he would sign off by law on their certificate of occupancy. Over the period of about a year and a half, slowly but surely the questions that we were asking and the thrusts that we were taking led to our first project. We made the fire mitigation committee a subsidiary of the Board of Directors. The fact that they would even tolerate that was a big deal.”*

The subdivision A actors provided local legitimacy in building community trust in the county actor, as well as the other agency actors, and support for mitigation projects.

Subdivision B did not have the benefit of pre-existing community mitigation efforts; individuals had been interested in the past, but the community as a whole had never been on-board. Some residents actively resisted mitigation proposals in the past. The situation was complicated by the fact that the subdivision exists on a Division of Wildlife easement and wildlife concerns take top priority. The CSFS and county actors were familiar with the subdivision due to their contact with individuals previously interested in mitigation, and they used these preexisting networks to identify a actor from the subdivision to take part in the CWPP process. Once the actor was brought on-board he stepped up as the liaison for his subdivision.

This role was challenging due to the high percentage of part-year residents and attitudes of apathy and resistance from some residents. Paul, the community B actor, described this situation:

*“My community was uninvolved. And since in this process we didn’t have any organized opposition, it worked out okay. I bombarded them with letters and materials for nearly four years, I guess some of them must have read them. It does take a core group of individuals who are willing to lead the rest of the community in.”*

The youth camp actor advocated the benefits of mitigation activity to his board and worked with the county and NPS to accomplish implementation.

### ***Harris Park***

The Harris Park CWPP includes twenty-two communities in Park and Jefferson County (approximately 1/6 of the project area is in Jefferson, the remainder in Park), and involves two fire districts (fire district A: twenty subdivisions; fire district B: two subdivisions). There are over 5,000 homes. The subdivisions are located along US Highway 285, which is a major route from Denver traveling southwest into the Rocky Mountains. The subdivisions are located near the town of Bailey, which is sixty-six miles southwest of Denver. Many homeowners in the region commute to Denver for work, and many are part-year residents. The CWPP covers 26,302 acres, of which 57% is federal, 35% private, and 8% state.

The main participants in the Harris Park CWPP development process included a USFS (three actors), CSFS (one actor), and two local fire authorities (two actors from fire district A and one from fire district B). The participant roles mentioned in this introductory section will be further discussed in the data analysis section.

Twenty of the subdivisions involved in the CWPP are included in fire district A’s jurisdiction, and two in fire district B’s. The actor from the latter was no longer working



for fire district B when we conducted interviews, so we were unable to gain his input. It appears as though he played a minor role, and for the remainder of this discussion any references to a fire authority will be to fire authority A. However, it is important to note that interviewees discussed the importance of fire authority B's participation in increasing the scale of the CWPP, and the Harris Park CWPP ultimately motivated fire authority B to develop a separate CWPP for the remainder of their district. The fire authority B actor played essentially the same role as fire authority A on a smaller scale, in working with the two fire district B subdivisions involved in the CWPP.

An actor from Jefferson County attended some of the Harris Park CWPP meetings in an attempt to coordinate with CWPP efforts he is leading in his county. One of the fire authority A actors is director of a board in Park County, and he spoke for and was responsible for sharing and trading information with that county. Both of the counties played minor roles, and served as sources of information for the Harris Park CWPP team, and allowed for coordination of efforts across a landscape scale. The remainder of this discussion will not focus on the county actors.

The community was not directly involved during the CWPP development process. The CWPP core team initially attempted to engage community involvement during CWPP planning meetings by advertising in the local paper and distributing mailings, but this proved unsuccessful. The team relied on the fire authority to provide local knowledge and insight into community values during the planning process. However, the CWPP core team realized the need to gain community support for the CWPP in order to move forward with implementation on private lands, and the fire authority held community meetings at the end of the planning process in order to share the CWPP with

subdivision actors and gain buy-in. We interviewed community members from two subdivisions who attended these meetings as community actors. We will refer to these subdivisions as subdivision A and subdivision B.

The Harris Park case is unique because the CWPP resulted from the combination of two initially separate projects; an environmental assessment (EA) from the USFS that proposed treatment in the federal lands surrounding the CWPP area, and a wildfire hazard risk assessment that the fire authority had completed previously. The USFS EA is part of a larger USFS effort, the 285 Bailey-Conifer Hazard Reduction Project, which aims to conduct fuels treatment projects on USFS lands along the populated highway 285 corridor.

In 2002 the fire authority applied for and was awarded ArcView GIS software through a national FireWise contest. They received a grant from the CSFS and hired a consultant to create a wildfire hazard risk assessment for the twenty subdivisions in their district in 2003. The fire authority actors needed to hire a consultant because they lacked the technical capacity to use the ArcView software, as well as the other technology needed to complete the assessment, such as GPS ability. Thus, the fire authority utilized networks with the CSFS to access grant funding to hire a consultant and fill a capacity gap.

The consultant provided individual structural risk assessments for each home as well as subdivision-level risk assessments. The completed project provided the fire authority with the ability to use software to access information regarding the GPS location and hazard rating of each individual property in their district, which they utilize in wildfire response efforts. The individual structural risk information was not included

in the CWPP, but the subdivision-level hazard rating was, along with maps that provide information for determining fire risk (i.e. fuels, slope and aspect, etc). Bob, one of the fire authority actors, explained why the fire authority originally completed the hazard risk assessment and how this contributed to the CWPP process:

*“I guess prior to that, after the Hayman fire, our fire district and county had no mapping, so really we started off on that whole approach of mapping and did a wildland fire hazard analysis for our whole district. We knew we had hazardous areas, we just didn’t have the science to prove that we did. So really, that mapping and wildfire hazard plan went along, we started that at the same time and then it went into the CWPP.”*

At the assessment’s completion the fire authority hosted community meetings to share the results of the assessment. The CSFS actor attended these meetings to provide information regarding fire behavior, and was therefore aware of the work the fire authority had been doing. Tom, the CSFS actor, described these meetings:

*“We had had as part of this—and here’s another kind of leg-up that we had with the concept, was through their fire district pre-planning that [the fire authority] had done, they had hosted six community meetings in their process to show people their overall hazard and to show them the rating of their home, because that has a lot of impact if you show a map of the entire fire district and your home is red, and maybe your neighbor is yellow or green, so they can see what their piece of it is in the overall... And that was kind of the tone of those meetings, I would give a little talk about the overall fire behavior.”*

He also knew that the USFS was planning to focus treatments on federal land in the same region, and after discussion with the federal and fire authority actors the CSFS actor assisted in convening the CWPP process in 2004, as he explained:

*“And then the USFS had looked at this area and knew, because of their new direction a few years ago with the NFP, to start treating around communities, the USFS knew that this 285 corridor was a big deal, so we all got together—the CSFS and the USFS,, and I knew what [the fire authority] was doing so we brought them in right away. And all three of the agencies really developed the idea together.”*

The team combined the fire authority's risk assessment with the USFS's environmental assessment to create the CWPP. The USFS modified their EA production timeline to coordinate with the CWPP effort, and included private lands in their biological assessment in order to streamline the process. There is potential lynx habitat in the CWPP region on both public and private land, and the team would have had to create a Habitat Conservation Plan in compliance with the US Fish and Wildlife Service if the USFS had not offered to include private land in their biological assessment.

The CWPP team hired the same consulting agency that the fire authority had used to create GIS maps, run fire behavior models, and draft the plan. The Harris Park case is unique out of the three CWPPs included in this study in that it is the only one that included a consultant. However, one of the federal actors emphasized that the consultant was hired because the team lacked the time to create the plan rather than because they lacked the information or technology. He explained that the CWPP core team provided the consultant with the majority of the necessary technical biophysical information, and that the consultant's role was to combine the different information rather than generate new information at an added cost:

*“And [the CSFS actor] hired a consultant, and we told him right up front, we have all of this information so we don't want to get charged for it. So they brought their local knowledge of the issues involved and their information to the table, as did everybody else. An important point here is that a lot of times contractors will come in and copy our information and charge us for it. But we were right up front with the contractor who came in to help, especially with the planning that the state was doing and the modeling, we weren't going to let them charge us for the information since it was our information.”*

Therefore, the CWPP team recognized available time as a capacity gap and hired an external consultant to fill this gap, using their available financial capacity.

### Key Roles filled by all CWPP Participants

The first two intermediary roles we will discuss, networking and facilitating collaboration, were filled by all of the CWPP participants. The remaining intermediary roles (information-sharing, providing resources such as GIS capability and funding, and facilitating project implementation), are discussed individually for each participant.

### *Networks*

Participants in the Harris Park CWPP process had access to a number of networks, many of them pre-existing, that they utilized throughout the CWPP planning process.

The Front Range Fuels Treatment Partnership (FRFTP) was identified as an organization that had peripheral influence on the Harris Park CWPP, more so on implementation than planning. The FRFTP is an organization that includes actors from federal and state land management agencies, environmental non-government organizations, academic institutions, and local governments along Colorado's Front Range. Its mission is to coordinate wildfire mitigation along the wildland-urban interface areas of the Front Range and to provide access to funding for mitigation planning and fuels treatment projects. The FRFTP was formed around the same time as the Harris Park CWPP began, and did not have a direct influence on the planning process. However, some of the actors in the CWPP process are also in the FRFTP, and it serves as a forum for them to share their CWPP experiences and network with other entities involved in implementing wildfire mitigation projects. The FRFTP is also the source of grants for the Harris Park CWPP implementation phase.

The FRFTP did not play an intermediary role in the Harris Park CWPP development process because it did not have an impact other than as to serve as a source of funding and coordination at a landscape scale. However, it is important to note its presence because it provided, and continues to provide, the Harris Park CWPP actors with an opportunity to share their experiences and to assist other CWPP processes across the Front Range. Therefore, the FRFTP created the opportunity for external networking. The FRFTP also served the role of drawing the focus of wildfire mitigation to a landscape scale, and it continues to benefit the Harris Park CWPP by assisting in the expansion of CWPP efforts into surrounding areas.

Pre-existing networks existed between the USFS and CSFS through work on wildfire response efforts (i.e. suppression and evacuation), as well as the Upper South Platte Watershed Restoration project. This project, which is still being implemented, is a collaborative effort between multiple entities including the federal and CSFS to restore a watershed critical to the city of Denver. More information regarding this project is available at [www.upsouthplatte.net](http://www.upsouthplatte.net). Both agencies had pre-existing networks with the local fire authorities and the counties through work on wildfire response efforts. The CSFS and a fire authority actor, as well as a actor from county A, are members of the FRFTP.

The USFS was a link between the team and the US Fish and Wildlife Service, which not represented on the team but provided critical input. The CSFS represented the interests of the Colorado State Parks as well as the city of Denver, both of which are landholders in the region. Both the USFS and CSFS possessed external networks with researchers from a university through the previous watershed restoration project, which

provided them access to cutting edge academic knowledge regarding Ponderosa Pine forest ecology and restoration. The USFS operates a research station that works closely with the university, and a actor from the research station was a critical participant in the watershed restoration effort. The information he provided during the watershed restoration project was utilized by the CWPP core team.

As was mentioned above, one of the local fire authority actors serves on a board in Park County. He provided a link to share and exchange information with the county officials. There were stronger links between the CWPP team and Jefferson County, as a Jefferson County actor attended some of the CWPP planning meetings and is a member of the FRFTP.

The USFS had loose networks with the community through previous public involvement processes conducted in compliance with the National Environmental Policy Act requirements for project planning on federal lands. The CSFS and the fire authority had strong networks with some of the subdivisions due to previous mitigation and forest management projects. The fire authority had the greatest number of community networks, and the USFS had the least. Again, the fire authority was perceived by the CWPP planning team as representing local interests.

### *Previous Collaborative Experiences*

The Harris Park CWPP actors had all participated in previous collaborative efforts, and the agency actors in particular had pre-existing capacity to collaborate with one another. The CSFS and fire authority actors had pre-existing capacity to work collaboratively with communities.

The federal, state, and fire authority actors benefited from a history of working together on wildfire response efforts. The federal and state agencies shared additional collaborative experiences in the past through their efforts in the Upper South Platte Restoration project. This on-going project began several years prior to the CWPP process and the federal and state actors referenced it many times during their interviews as being critical in establishing extremely positive working relationships between the two agencies. Alan, one of the USFS actors, explained the benefit of this history of collaboration:

*“What really makes it work is building the relationships before. You can talk collaboration, but unless you’ve built the foundation, and you don’t even have to have a strong foundation, but unless you’ve built those foundations before...the collaboration is much easier and the relationships are much easier if you’ve built some kind of a relationship before you go into the planning process... when you get these kind of relationships, and this is the key to this whole thing, is that to use an old cliché, you don’t have a mating dance.”*

The fire authority and CSFS actors had pre-existing collaborative relationships with several of the subdivisions that were built through previous mitigation efforts. Pete, one of the community members, explained how he was asked to be a subdivision actor due to his previous relationship with the fire authority:

*“I got a phone call from [one of the fire authority actors]... I took a hands-on interest at the very start, prior to being president of the board, I performed other functions on the board, and one of them, and I told myself that I always want to be involved in anything having to do with wildland fire safety, wildland information. So for most of the four years that I’ve been on the board I’ve been active in something that has to do with that, so [the fire authority actors] know that, so if there’s going to be a meeting and they want somebody from our neighborhood they’ll call me and I’ll call our FireWise director on the board.”*

#### Key roles filled by the USFS



### *Information sharing*

The USFS participants played a role in information-sharing. While most interviewees did not focus on the information that the USFS provided (only 25% of interviewees discussed fire behavior and 13% of interviewees discussed forest ecology), this information was critical in that it had a major influence in persuading the community members to support wildfire mitigation. Community members who we interviewed discussed their increased support for need to mitigate once they understood that the ponderosa pine ecosystem is fire-dependent, and that a century of wildfire suppression has resulted in overgrown forests at risk from catastrophic fire events. While the fire authority was responsible for the majority of information-sharing with the community, the fire authority learned much of the forest ecology and fire behavior information from the federal partners, as Sam, one of the fire authority actors, explained:

*“The only thing that really persuaded some people was, typically the average person thinks that when the settlers came out here this place was all thick with trees, and that they had to clear a lot of land. The reality is just the opposite, the trees were a lot thinner because they were the bigger, better, hardier trees that benefited from the fires that came through naturally. So it was thinned out back then. And I have pictures that I got from the USFS that start back in 1900 and it shows someone standing in front of a tree, and then ten years later shows the same spot with more trees, and twenty years later with even more trees. And people look at that and learn, and that helps...I learned this [from the agency actors] as we went along.”*

It is therefore important to note the USFS’s role in information-sharing, as they provided information and visual aides to the fire authority, who shared them with the community.

It is also important to note that the USFS had access to cutting-edge new research regarding ponderosa pine ecosystem restoration through their networks with a state university and a federal research institute. Alan, one of the USFS, heavily emphasized the importance of having access to this scientific information.

*“That really helped us as we got into the project discussion, after [a researcher’s] discussion about the science behind what we were doing. So that was really critical. And we realized with the Harris Park CWPP, we brought science to that planning process, and the CSFS and I both agree about this, the science also helped us in the planning as well the implementation. What we did is develop the idea that there’s science behind what we’re trying to do, the science behind the treatments and the fire ecology. That helped us. And I explained that last night, how important that is. That really was the key for Harris Park. That’s almost like developing that pre-existing trust.”*

The USFS also contributed information regarding CWPP development. Although the Harris Park CWPP was one of the first to be completed in Colorado, one of the USFS actors had previously participated in the development of the South Platte CWPP, which covers a region in close proximity to the Harris Park CWPP. Although only 13% of interviewees discusses this role, it is important to emphasize that the USFS actor brought preexisting CWPP development experience to the Harris Park CWPP process.

### *Providing Resources*

The USFS also assisted in providing GIS capability (50%). The agency had completed a previous landscape fire risk assessment for 645,000 acres, which includes the CWPP planning area. This assessment provided twenty-seven layers of resource information for the consultant to use in the fire behavior modeling and GIS mapping. Although only 25% of interviewees discussed this sharing of risk assessment information, it is important to note because this information was critical and the team did not have to pay the consultant to provide it. The USFS’s GIS technician worked with the CSFS GIS technician and the consultant to ensure that all of the different map layers lined up smoothly.

### *Facilitating Project Implementation*

The most frequently discussed USFS role was its ability to coordinate federal land treatments with private land mitigation, assisting in implementation. One hundred percent of the interviewees discussed the importance of this role, and the state and fire authority actors emphasized that it is critical to have federal partners who are so willing to work together for landscape-scale implementation. Tom, the CSFS actor, explains this:

*“So we had a lot of discussions about those realities, and about them really focusing and stepping up to the table and saying, we’re going to treat these acres right around Harris Park, not the stuff by the Mt Evans wildlife area that nobody sees. So they’re commitment to doing this is huge, and has to be a part of whatever story you put out there, because this is what we need the entire system to be doing.”*

The USFS is committed to treating their lands that are adjacent to private property treatment areas. The goal of their EA is to treat 10,000 total acres, and they have 800 ready to go as soon as they receive funding. Their EA has already been approved. The USFS also assisted with private land implementation by including the private lands in their biological assessment, as we discussed earlier. Sam, one of the fire authority representatives, explained the importance of the USFS’s participation in the CWPP process in regards to implementation:

*“On an additive process, they’re one part and we’re one part, and so the two parts make the whole. If they weren’t a part of it we wouldn’t even be half-way there, I don’t think. Because their involvement makes the whole project so much better, we can use the USFS as an example, when we talk with private landowners we can say, are you aware of the Harris Park project, and you can explain it and they realize all of the mitigation that the USFS is planning on doing to protect the communities, and they think that we’re really on the ball, and that we’ve really got something going, and we’re not just spitting in the wind with just the fire department talking. Whether it’s [the federal or state agencies], it gives us credibility on a state and national scale as to what we’re doing, and*

*conversely for the USFS and CSFS, it gives credibility from us from working with the community.”*

This quote demonstrates the strategic interests of both the local and federal partners. The federal partner benefited from the CWPP process because it resulted in community buy-in for federal land implementation projects, and by focusing their efforts in WUI areas the USFS fulfills the policy goals of the NFP and the HRFA as well as increases their opportunity to receive funding for these projects. The fire authority benefits from coordinating private land treatments with federal treatments because their efforts are expanded to a larger scale, which increases their ability to defend the community from wildfires. This also increases the chance to receive federal funding for local mitigation projects, according to the HFRA and the CSFS’s standards for distributing federal grant dollars. As Sam said, this coordination of efforts lent credibility at a local, state and national scale as the CWPP team worked to gain community support and access federal funding for project implementation.

#### Key roles filled by the CSFS

##### *Information Sharing*

The CSFS’s role in information sharing was similar to the USFS’s role. Although the majority of interviewees did not focus on this role (fire behavior 38%, wildfire mitigation 38%), it is important to note that this information contributed greatly to gaining community buy-in. This influence occurred directly through the state’s role in sharing information directly with the community, and also indirectly through the fire authority’s transmission of this information to the communities.

The CSFS actor attended some of the community meetings with the fire authority, and also visited with some subdivisions on his own, at HOA meetings and one-on-one. He worked with one subdivision in particular to create a demonstration site that is used to assist in the on-going CWPP public education process. Demonstration sites provide the opportunity for hands-on experiential learning about wildfire mitigation, as individuals have the opportunity to experience what mitigation projects entail and what the end result looks like. This type of learning is a key element of collaborative processes, because research shows that individuals, adults in particular, respond more positively to experiential learning situations. Daniels and Walker (2001) discuss the importance of utilizing adult learning techniques as part of collaborative learning. They emphasize that learning should be relevant and actively engage individuals in a manner that allows for reflective thinking in order to facilitative collaborative, deliberative decision making.

The state actor is extremely interested in increasing community awareness and participation, and ultimately hopes to turn the role of updating the CWPP in the future over to a community team. Tom described the following:

*“You go to their HOA meetings, and you think the real movers and shakers are the officers, and a lot of times there’s a few people who really make all of the decisions who are sitting in the back row. And so you’ve got to find those people and after you go to three or four of the meetings and you listen to the discussions, you can pick up on who they are. So that’s what I’ll do, I’ll go, and I’ll give them some little five minute talk and hand out a bunch of cards, and then just sit and listen and pay attention to the people who are really driving the decisions and driving the discussions. And then I go up to them and say, you and I need to get a cup of coffee. And they’re typically the ones who become the main advocates.”*

This quote also demonstrates the CSFS actor’s role in relationship building as he shared information with the community. He strategically targeted community members with high levels of interest and motivation in order to leverage their support, because he

recognized the need to gain the assistance of local advocates in order to achieve community buy-in for the CWPP.

### *Providing Resources*

A key CSFS role was providing access to funding (50%). The CSFS actor assisted the fire authority in obtaining funding to complete the community wildfire hazard analysis. He also assisted in obtaining a FRFTP 50/50 cost share grant to treat the first 150 acres of private property. Actors discussed the unique aspect of this arrangement, in which the state allowed the fire authority to provide the in-kind match by providing the services themselves using the fire authority's budget. Bob, one of the fire authority actors, emphasized the importance of the state's willingness to give this method a chance, as it resulted in the successful treatment of 130 acres of private land that is adjacent to the proposed federal treatments:

*"[The CSFS] has a 50/50 matching grant, and we submitted an idea to them that they give us the 50/50 and we go out and do the work. And they said nobody's ever tried that before, and we said, let's try it. And we had areas marked of on our map, and we said we're going to treat 150 acres in area A, and that's how that started."*

As in the East Portal case, actors in the Harris Park case were partially motivated to create a CWPP due to the "incentive" policy tool offered by the HFRA. The agency actors all understand that the fact that the Harris Park CWPP now has a completed CWPP provides the fire authority with more leverage in applying for grant funding to implement future CWPP action items. The community members did not discuss this incentive in their interviews, and it would be interesting to have the opportunity to follow up on this and learn if the community is aware of this incentive, and that the fact that they are

included in the CWPP can assist them in applying for grants for community mitigation projects.

The CSFS also contributed GIS information to the consultant for utilization in creating GIS maps for the CWPP (38%).

### *Facilitating Project Implementation*

Although only 25% of interviewees discussed the CSFS's on-going role in implementation, it is important to note because the state was a key player in this regard. It may be that the state's role was overshadowed by the emphasis on how unique the fire authority's role in implementation is. The CSFS actor assists with treatments on private land by accessing grants and is also responsible for coordinating treatments on land owned by the CO State Parks. This land covers over 2,000 acres and he is the key agent in prescribing treatments and hiring contractors to implement the projects. A demonstration area was created on this land, and he is arranging to treat additional land. He is also planning to treat federal land adjacent to the state land through a Good Neighbor agreement with the USFS. Tom, the CSFS actor, explained the benefits of this arrangement:

*“And another element of it is the [State Park land], which holds 4,000 acres that is located by luck as this whole thing came together right in the middle of the Harris Park CWPP area. So having that within the CWPP area and with then the FRFTP area, all this stuff is starting to blend together, which I think is a major concept of the CWPP, is to get everybody to forget about their jurisdictions and start looking at everything that's possible, and I think that's happening.”*

### Key roles filled by the Local Fire Authority

### *Information Sharing*

The fire authority was critical as a local actor, and contributed greatly to information-sharing. The actors provided local knowledge to the CWPP team regarding the twenty subdivisions, including the likeliness of each neighborhood to support mitigation efforts, local contacts, infrastructure, etc. (63%). Tom, the CSFS actor, explained the importance of this role:

*“[The fire authority actors] have such a good relationship with so many of the people in the community, that they hear through the grapevine, hey this meeting is getting ready to come up, and they would just call me and say, is this a good fit to talk about this, and I would talk to them and say, what’s going on there, what are the politics, maybe it’s too early, maybe now’s a good time, maybe we’ll go later, kinds of decisions. So it was really communication with people in the fire district, and that’s going to be critical for any CWPPs, you’ve got to have some group that day to day is in the community. People stop by the fire district every day and say hey, what’s going on, and then they hang out by the coffee pot, and that’s where the communication really takes place.”*

This also demonstrates the fire authority’s role in forming relationships with community members as they shared information. These relationships were critical in gaining community buy-in, as the fire authority has built trust within the community.

The fire authority shared information regarding local preparedness and response with the team and the community. Although only 38% of interviewees discussed this role, this information as well as information regarding mitigation techniques (i.e. defensible space) (50%) was particularly useful in persuading locals of the need to create defensible space and mitigate their properties; it is a powerful statement when the fire authority declares a property as un-defensible. Pete, the subdivision A actor, explained the importance of this information:

*“There has been a lot of information passed on, we’ve had people from, perhaps [the CSFS actor], but certainly [the fire authority actors], and I want to say there was somebody else, that talked to us about the importance of thinning fuel on*



*your property, the importance of how far to clear back from your house, 30 feet back, clear out from underneath your deck, and the importance of creating open pockets through the thinning process, and the importance of fighting a fire on the ground rather than crowning from tree to tree, which they can't fight. So the importance of trying to mitigate your property so that if there was a fire either coming through or starting on your property they would have an even chance of trying to fight it."*

It was the fire authority's role to share information regarding the CWPP with the community and gain community buy-in. They sent out mailings to the community regarding CWPP meetings, organized and hosted meetings at the fire authority headquarters, attended HOA meetings and community events, and visited one-on-one with property owners. They also conducted private property wildfire risk assessments (63%) and educated community members about defensible space and mitigation. As discussed previously, experiential learning opportunities are a key element of collaborative processes.

The fire authority's role in information-sharing was critical in gaining community buy-in, because they already had positive relationships with many of the communities and were able to build positive relationships with other communities during the CWPP process. They brought local legitimacy and credibility to the CWPP process. Pete, the subdivision A actor, explained the community's trust in the fire authority as follows:

*"They're just terrific, they're terrific people, not only personally, but they have a no-nonsense approach to fighting fires. We have a lot of faith in our fire department, and when I get [the fire authority actors] to come as speakers, we get a big turnout, because they're always going to give you some good insight, some of the old information that's important, but also if there's anything new."*

As we discussed previously, the fire authority completed a wildfire hazard and risk assessment for their district in 2003. This document provided information that

contributed to the risk assessment for the CWPP; 38% of interviewees discussed the importance of this information sharing.

#### *Facilitating Project Implementation*

The fire authority played a key role in implementation on private lands (75%). As we previously discussed, the CWPP team applied for a FRFTP 50/50 matching grant through the CSFS in order to treat one of the highest risk subdivisions. The fire authority agreed to meet the in-kind match by providing the labor themselves, using funding from the fire authority's budget. Property owners in the subdivision did not have to provide any funding or labor. The fire authority's mitigation crew treated 130 acres in this subdivision and plan to treat 200 more as soon as they secure more funding.

The fire authority's role in gaining local support for the CWPP is another key element contributing to implementation. Implementation on private lands cannot occur without community approval and support, and the fire authority's positive networks and relationships with the community assisted them in gaining this support.

The fire authority also provides the community with free chipping services and community slash piles. It is critical to provide the community with these resources because a goal of the CWPP is to continue to encourage locals to implement defensible space projects themselves, and they must have the ability to dispose of the by-product.

#### Key roles filled by Community Members

#### *Facilitating Project Implementation*

The community was not directly involved during the CWPP development process, and it therefore makes sense that the one key role identified for the community was implementation (50%). While the community was not directly involved during the CWPP development process, the team understood the importance of gaining community buy-in in order to implement the CWPP, and they utilized more proactive techniques to attract local attendance at meetings to review and comment on the CWPP. The fire authorities made phone calls to community members who they already knew and invited them to meetings at their headquarters, and they also held meetings in some of the subdivisions. Community attendance was generally low at these meetings, but the locals who attended gave important input and in most cases approved the recommended treatments. It is important to note that there was generally greater attendance when the meetings were held in the subdivisions than at the fire authority headquarters.

Subdivision B was targeted by the CWPP team as the first subdivision in which to begin implementation. However, due to lack of prior involvement in the CWPP process, the subdivision initially refused to approve implementation. The fire authority and the community eventually worked out a deal in which a fire authority actor visited with each property owner and did a property wildfire risk assessment with them. The property owner used the fire authority's recommendations to select trees for removal. The community members and the fire authority built a positive relationship through this process. This demonstrates the critical importance of community involvement in the CWPP development process in order to recognize and include local values and concerns and gain local buy-in. Karen, the subdivision B actor, explained:

*"Once I had my terms and I told them how it was up to the homeowner, that really made everybody happier...once I explained to everybody else that it was up*

*to you what trees they cut down, and I explained to them why and all that stuff, then they were fine with it.”*

As a result of this process, local values were ultimately included, positive relationships and trust formed between the fire authority and the subdivision, and the fire authority successfully treated 130 acres in the subdivision with community approval.

The CWPP team hopes to continue to receive funding to treat other high-risk subdivisions in the same manner, and it is interesting to speculate how other subdivisions will react. Many of the subdivisions had already been working with the fire authority to create defensible space and mitigate their properties and common areas, and the fire authority plans to continue to work with these subdivisions and to branch out into others. The subdivision B actor has been extremely active in engaging his subdivision to work with the fire authority towards achieving FireWise status, and his subdivision had completed mitigation projects prior to the CWPP. His subdivision supported the CWPP despite their lack of involvement in the planning process because they had already been involved in wildfire mitigation projects and had established a positive relationship with the fire authority.

### *Information Sharing*

These scenarios illustrate the important roles that local knowledge and values and community participation played in the success of the Harris Park CWPP. The majority of actors did not highlight this role (38%), which may be due to the fact that this input did not occur until the end of the planning process and was observed mainly by the fire authority and the community members.

The community members who represented their subdivisions at the CWPP community meetings played a key role in information-sharing by providing the team with information about their subdivisions willingness to support the CWPP, based on local values and concerns. They also played a critical role in sharing information with their subdivisions regarding the CWPP. Some communities, such as subdivision A, had been implementing wildfire mitigation projects prior to the CWPP process, and had been working with the fire authority and state agency in accessing information and resources to share with their subdivisions. Pete, the subdivision A actor, explained the HOA's role in sharing information regarding wildfire mitigation within his subdivision:

*"We have on our board a person that we designate, he's served two years now, as a FireWise director. His main job is to send out information through me to all of our homeowners, particularly our members, not everybody is a member of our HOA, it's a voluntary organization. We probably only have about 85 or 90 out of 350 that belong to the HOA. But we send the quarterly newsletter to everybody, whether they're a member or not, so everybody is aware of the FireWise type programs that we offer."*

### *Leadership*

The community actors also filled leadership roles (38%). For example, the subdivision A actor established a relationship with the fire authority shortly after moving to his subdivision. He was concerned about wildfires and wanted to learn about mitigation, and took the initiative to contact the fire authority. He became an HOA board member during his first year in the community and played a large role in motivating the board and his community to implement FireWise projects. He also assisted in creating a HOA board FireWise director position in 2004. He is currently the HOA president, and frequently communicates with the fire authorities, who keep him as well as other

interested residents informed regarding wildfire issues via e-mail. Pete, the subdivision

A actor, explained:

*“The first thing we did was develop a position on our board called FireWise director. And we started participating in the slash hauling and chipping programs that[the fire authority was providing, and then we moved in to chipping, and we’ve also done things where we have older people in our community who physically can’t go out and mitigate, but we have gone out and voluntarily helped them. We’ve got a start going, and we’re a long ways away from a long-term plan, but that could easily happen down the road as long as I live here., and I plan to live here for a while, this will always be a number one priority of our HOA. It should be, we live in a forested community.”*

### **Lake County**

Lake County, CO is located high in the Rocky Mountains at the headwaters of the Arkansas River. Its population is 7,812; 2,821 residents live in Leadville, the only incorporated town in the county, and 68% of the population lives in rural areas. Leadville is located approximately 103 miles west of Denver, and sits at 10,430 feet above sea level, making it the highest incorporated city in North America. Lake County encompasses 384 square miles, of which 74% is federally owned, and 26% is state and private land. This region was heavily mined from the late 1800s until the end of the 20<sup>th</sup> century, when the mines closed. The local economy now depends on the tourism industry. The lodgepole pine forests around the mines were clear-cut during the late 1800s to provide timber and fuel for mining operations, resulting in forests today composed of single-age stands of trees that are 100-130 years old and within the age range to be affected by wildfires.

Seven subdivisions are included in the 2006 version of the CWPP, and more will become included in the future. The subdivisions were included according to community

interest in being involved. The CWPP core planning team decided to create their plan at a county scale for two reasons: the entire county is covered by one fire protection district, and community members identify themselves at the county scale, with Leadville as the main gathering point.

The Lake County CWPP planning process was coordinated by a core team which included a USFS, CSFS, local fire authority, and a community member (who will be referred to as the key community member). Actors from the county and city government attended some team meetings and gave their input and support. Faculty from a local college provided input and originally offered GIS services, but unfortunately could not follow through on this offer due to time constraints. Their involvement is not included in the data analysis.

The team held a few initial public meetings that were poorly attended. However, the benefit of these meetings was the creation of a CWPP task force made up of community members who expressed an interest during the meetings. The task force is distinct from the CWPP core team; the core team was responsible for guiding the CWPP development process, while the task force worked intermittently with the core team to provide information that assisted in the creation of wildfire risk assessment criteria as well as in locating key subdivision contacts. The task force also served as an on-going community advisory committee for the core team.

The team contacted community members from eight different subdivisions, using the knowledge of the task force as well as the team's local networks. Representatives from each subdivision hosted community meetings during which the team guided community members through the process of developing a community risk assessment and

implementation action items specific to each subdivision. Community attendance was generally high at these meetings. The CWPP process began in 2005 and is considered to be an on-going process, as the team will continue to include subdivisions in the plan.

### **Key Roles Played by all CWPP Participants**

#### *Networking*

Pre-existing networks existed between the USFS, key community member, county and city government, local college, and the community due to their participation in the former Lake County Forest Project, which is discussed in more detail in the “Collaborative Capacity” section of this paper. The USFS, CSFS and local fire authorities had pre-existing networks formed through wildfire response efforts. The local fire authorities had pre-existing networks with the county and city governments because they are funded through the county government and they protect the city as well as the entire county. The key community member and the local government actors had the most community networks, as they have lived in the area for many years. New networks were created throughout the CWPP process between the CSFS actors (who were both relatively new in their positions) and the community members. The fire authority actor was also relatively new and the CWPP development process provided him with strengthened networks with the other participants.



### *Previous Collaborative Experiences*

Many of the Lake County CWPP participants benefited from a history of working together on previous efforts. The USFS, CSFS, and the fire authority had worked together in response to wildfires in the past, and the USFS and CSFS have worked together in resource management, as Molly, one of the federal actors explained:

*“We have [worked together previously], and a lot of it is on the fire side. We have, I don’t know what the committee is called, they get together for the annual operating plan for wildfire, and it’s between Lake and Chaffee County, it’s the USFS, the CSFS, and the fire departments, and that has been going on for years. And then as far as resource-based collaboration, we’ve always had a great relationship between the USFS and the CSFS, because we’re all doing land management, and we’re all grouped together, and we overlap.”*

In 2003 the key community member, USFS, city and county governments, local college and many community members worked together on the Lake County Forest Project. This collaborative effort discussed local values towards the county’s forests in an attempt to determine what economic benefits, if any, could be drawn from the forests. The project folded in less than a year due to a lack of continuous community involvement; however it was a critical step in setting the stage for the CWPP effort. Funding that remained from this project was used to fund the CWPP development process. The Lake County Forest Project was also beneficial in that it introduced community members to the concept of participating in forest management, as Susan, the key community member explained:

*“The fact that we did have meetings, that we sat there and talked about forests, which I doubt ever happened before in this community, it raised awareness, it raised our radar concerning forests, it was on the community radar from then on... At that time, the big point was do we want to continue meeting about this, do we want to keep talking about these issues, and if so, to what end, what goals do we want to see come out of this. And everyone at the time whole-heartedly agreed that we need to keep talking about it, that we need to explore the economic benefits, although most people thought it wasn’t going to go anywhere. But they*

*were really interested in exploring, what is the relationship between this forest and this community.”*

The key community member and the USFS collaborated on an additional previous project that helped set the stage for the CWPP development process. The USFS had recently faced several appeals for an Environmental Assessment they proposed for a fuels treatment project. One of the USFS employees, who also later worked on the CWPP project, asked the key community member for assistance in communicating forest management goals with the community. He believed that if the community was more educated on forest management they would be more likely to approve of USFS forest management proposals. They decided to hold what they referred to as a Science and Information Workshop in order to share and discuss cutting-edge knowledge regarding high-altitude lodgepole pine ecosystem management that the USFS could share with the public in order to create a better understanding between locals and the USFS. The workshop took place in 2004. The key community member invited several researchers from universities who she knew either personally or through academic networks, as well as several environmental non-government organization actors. The USFS invited researchers from the USFS from around the state. Throughout the course of the two-day workshop the researchers shared new information with the USFS and discussed different approaches to forest management. The key community member used the information that was presented in this workshop in her presentation to the community at CWPP meetings.

While all of the CWPP actors had been involved in some type of collaborative effort with other actors in the past, the group benefited additionally from the key community member's academic knowledge regarding the principles of collaborative

learning. She studied collaborative resource management as part of her PhD. program and shared information regarding the principles of collaboration during the CWPP development process. The key community member's role in facilitating collaboration is discussed in more detail later.

### Key roles filled by the USFS

#### *Information Sharing*

The USFS actors played a key role in information-sharing as they shared information with both the team and the community regarding fire behavior (82%). This information was incorporated into a Powerpoint presentation that was shared at community meetings. An actor from the USFS was present during each of the community meetings, and they assisted with sharing information with the community. Fire behavior information was critical because the high-altitude lodgepole forests that exist in much of the county burn differently than the ponderosa pine forests that inhabit the Front Range and southwest Colorado, and this information was not common knowledge to the community. The CWPP team emphasized the need for community members to have a better understanding regarding fire behavior in order to prescribe effective treatments. The USFS also contributed information regarding forest ecology (36%).

Molly, one of the USFS actors, described her role in sharing this information:

*“We did a run-down of fire behavior for them, gave them an idea of what you would expect in lodgepole pine, how it affects your home, defensible space, basically just a whole lot of information on fire. And then invited them to ask questions, and we started capturing ideas and thoughts that they had”*

This information was critical in empowering the community to understand their forests and create appropriate action items. Dave, one of the community participants, explained the importance of sharing this information:

*“I don’t think it was known at all to this community. If it is, it was on a very limited basis. What this process has been great about, is dealing with facts. It’s delivered a lot of facts, a lot of good maps, that are able to be used as examples to educate the less educated. And myself, what do I know about forests, I don’t do that...The history of the fires that have occurred in this area, and those types of things, things that nobody really pays much attention to. And in this case it was brought to the forefront, and I think it’s good information.”*

The USFS actors also shared information regarding their policies, and abilities and limitations in implementing wildfire mitigation (36%). This was particularly helpful in establishing a positive relationship with community members, as it allowed the USFS to explain the reasons behind their action, or inaction.

#### *Providing Resources*

The USFS contributed greatly to GIS mapping (73%). When the local college became unable to provide GIS resources, the USFS worked with the CSFS to provide missing GIS data. This was challenging because the county does not have GIS capacity and some subdivisions are not mapped in GIS. The federal and CSFS had to use the county-provided paper maps and their own resources to create GIS maps with multiple layers of information.

#### *Facilitating Project Implementation*

One of the USFS's major roles is the ability to coordinate treatments with private property treatments. Ninety-one percent of the actors discussed the USFS's key role in implementation. Alex, one of the CSFS actors, explained:

*"It wouldn't have even gone off the ground, we wouldn't have even done it. It wouldn't have taken place. Without the USFS there, that's where the majority of the treatments are going to get done, next to the private. So without them, I wouldn't even go into discussions about the CWPP. They're such a major landholder, that without them taking part, there's no use in even having one, because it would just be a useless document."*

During community CWPP meetings the USFS described the treatments they were planning for adjacent federal lands and gave the community an opportunity to express their questions and concerns. Dennis, the fire authority actor, described this role:

*"I can't talk about federal land stewardship because I'm not a part of it directly, I can't speak for the agency. They could, so they could answer questions that people had about what are the forest plans, for instance, behind their subdivisions? So that was a huge component, because then if you're interested what was already in the process on the state and federal level, you could tie in to their plan with existing state and federal efforts, or maybe even redirect the efforts if it wasn't going to lead in a direction they wanted to see for the protection of their community."*

These discussions provided community members with an understanding of the landscape-scale goals for CWPP project implementation, as they considered how their private land treatments will compliment federal treatments.

### Key roles filled by the CSFS

#### *Information Sharing*

One of the two CSFS actors attended all of the community meetings and shared information regarding forest ecology (36%), fire behavior (18%), and mitigation

techniques (36%). They also provided information relevant to risk assessment (18%). Only one interviewee (9%) discussed the CSFS's role in conducting wildfire risk property assessments, but it is significant to acknowledge that this did occur.

A CSFS actor attended every community meeting and shared their information with the community members. Michelle, one of the CSFS actors, described the benefits of their involvement:

*"I think it was good for us because we were able to find out what subdivisions were interested in having something done, and it makes it easier for us so that we can plan accordingly as far as finding funding and knowing where people want work done. It really helped us and I think it was good for the people to see us face-to-face and get to come up and talk to us and ask questions. A lot of good things have come of it, I think us being involved was a good idea, just because it opened up that dialogue between the private landowners and the state forest service."*

This demonstrates that while the CSFS actors shared information with the community, they also learned about local values and concerns. This shared learning is a key element of a collaborative effort.

The CSFS also assisted with creating press releases and also with public relations at community events; in one case they helped staff a booth at a Leadville event where they shared information regarding wildfire awareness and FireWise techniques. These forums for general public education provided information to county residents whose subdivisions did not participate in the CWPP.

The CSFS provided key information regarding community collaboration (27%). When the CWPP process began the team's strategy for community involvement was to hold general public meetings; however, the first few meetings were poorly attended and the team became aware that they needed a different strategy. The CSFS has a state CWPP team at the state agency headquarters, and members from this team visited the

Lake County CWPP team and encouraged them to hold meetings in individual subdivisions, rather than general public meetings at public venues. This strategy proved to be highly effective, as the CWPP core team utilized their local networks to contact subdivision representatives, and ask if these individuals would host CWPP community meetings in their homes. These community meetings had good attendance due to the convenient access and the influence of the community hosts in organizing and encouraging their neighbors to attend. The CSFS actors on the Lake County CWPP team continued to get advice from the CSFS state CWPP team throughout the CWPP process. While only 27% of interviewees discussed the CSFS's impact on the CWPP process, it is important to discuss this information because it highlights the influence that the CSFS had in shaping the CWPP development process.

### *Providing Resources*

One of the state actors worked with the USFS to provide GIS mapping when the local college's offer fell through (discussed by 55% of interviewees). Michelle, one of the state actors, explained her role in this:

*“Basically what happened was, things weren’t happening the way that we had planned, so we just said, okay, we’ve got to do this ourselves, and I just jumped and me and another person at the [USFS] split the work, half and half. We had a lot of the stuff in our systems already, so it wasn’t a big stretch to have to go and make these maps, so it was something we could go and do fairly quickly.”*

The CSFS's most highlighted role is providing access to funding (73%), which they continue to do. The CSFS applies for grants and coordinates contractors to perform the mitigation labor. As in the other cases, the agency and community actors in the Lake

County case were aware of the funding incentive that added a huge benefit to their participation.

### *Facilitating Project Implementation*

Interviewees perceived the state's participation as vital to implementation on private land (55%), as Susan, the key community member, explained:

*“Well, you wouldn't have been able to carry the carrot of, ‘we are going to be able to get these implementations done’. The reality that this really is going to happen.”*

This quote emphasizes the importance of grant funding in providing a “carrot” to motivate community support, in that community buy-in is more likely if residents are offered support for implementation. Again, this highlights the incentive policy tool presented in the HFRA.

### Local Government

#### *Leadership*

Local government actors played a key role in using their leadership positions and their local legitimacy to facilitate public awareness and support for the CWPP and wildfire mitigation in general (64%). The county government funds the fire authority, making their support all the more crucial. Local government actors attended many of the core team and community meetings, and the team kept them regularly updated on progress. The actors assisted in gaining local support by talking to city boards and the



county board of commissioners, as well as one-on-one with their constituents. Dan, the city government actor, emphasized his willingness to assist:

*“But I think as far as the CWPP, they all know that I support this really strongly. And that I will participate as much as they want me to, and if all they need from me is to do publicity, then I’ll do that. And if they need me to more, then I’ll do that too.”*

Rather than playing a major role in directing the CWPP planning process, the local government actors offered support and their local credibility as it was needed by the CWPP core team.

#### Key roles filled by the Local Fire Authority

##### *Information Sharing*

The local fire authority played a role in information-sharing by providing information regarding their ability to respond to fires and their resource needs (82%).

Alex, one of the state actors, described this role:

*“[The fire authority representative] had a presentation on what are the abilities of the department. We can’t put out every fire, that type of thing. If we get a crown fire, what the department can and can’t do. That was big for the community to know what level of service they could expect. He was a big help—he also helped write some of the CWPP, the suppression capability portions of it. If you don’t have the fire chief’s or the fire department’s by-in, it will go no where.”*

A fire authority actor or another fire authority representative attended every community meeting and shared information with the community. The information they provided during the subdivision meetings was key to gaining community buy-in, because the community members realized that they need to play a role in assisting the fire

authority to defend their properties from wildfire. Dennis, the fire authority actor, explained why his role in public education was important:

*“One of the things that we focused on, was consequences of wildfire, what wildfire can do to a community. And what would be the response model that you would see, and how difficult it might be to get the sufficient resources quickly to deal with wildfire. All the more reason that there needs to be a plan to mitigate consequences of wildfire, even though we might not be able to stop it, at least we might be able to redirect it, or protect the community better than we can right now. I think one of the roles that we played in educating the community was having them understand that just because you have a fire station here, doesn’t mean that fire isn’t going to propagate and be very destructive. I think they understand that now. I think they also understand to a better degree, why we do some of the things we do when we respond to the report of a fire.”*

This type of information assisted in creating community risk assessments (27%).

The fire authority also assisted with creating press releases and sharing CWPP information at public events.

#### Key roles filled by the Key Community Member

##### *Information Sharing*

The key community member contributed greatly to the information-sharing process by providing information regarding high-altitude forest ecology (91%). She emphasized the unique properties of Lake County’s high-altitude forests and shared cutting-edge research from the university where she was completing a PhD program that focused on forest ecology and collaborative resource management. Prior to the CWPP process she assisted the USFS in convening and facilitating the Science and Information Workshop. She played a role in linking external resources to the local community by inviting academics from several large universities in Colorado and Wyoming to share

their academic knowledge with the USFS. She organized this information into a general public presentation following the workshop, and she also used the information in subdivision presentations during the CWPP process. Susan explained how this information empowered community members to plan appropriate treatments for their forests, including patch-cuts and clear-cuts, which would have been more controversial without the information sharing process:

*“I’m able to show them, after I’ve described the relationship between lodgepole pine and fire, and between lodgepole pine fire and wildlife, for example, if I tell them, if you open up a couple of acres, what’s going to happen. It depends on the seed reservoir that’s there, and the serotony of the cones, and I go into all this level of detail, and I explain to them, and that the usual what’s going to happen is that the lodgepole pines are going to come up, maybe aspen will come up. Either way, lots of herbaceous vegetation will come up, and animals are going to love it. If it benefits wildlife, and if it’s natural, folks are okay. Some neighborhoods have been saying, we want to patch-cut here, and there, and they think of it not only from protecting their property, but also from a wildlife perspective.”*

The key community member attended all of the subdivision meetings and played a key role in sharing information with the community members. She organized the team’s information into a Powerpoint presentation, and played a role in information translation as she assisted with explaining scientific information in a manner that was easy for community members to understand. Her participation assisted in gaining community buy-in due to her local credibility; many of the interviewees explained that community members were more likely to believe and support a fellow community member than they would an agency actor who might have an ulterior agenda. Keith, one of the USFS actors, explained this benefit:

*“The USFS could come out and talk to some people about it, and some people are not going to accept it because it’s the USFS, it’s a governmental entity. [The key community member] could come and say, this is my field of study, I know about this, and you’re going to reach people that a government entity is not going to be able to reach as successfully. I imagine that there are some people who wouldn’t*

*listen to a scientist but who'd listen to USFS. So that way I think you end up casting a wider net. I think that was very helpful, particularly when you had someone who is in a scientific field being able to talk about the forest ecology, and then you have a USFS person come in and say, this is what our experience is showing us, these are what our foresters are telling us, and we may disagree on minor points, but we're really pretty much on the same page."*

### *Facilitating and Coordinating Meetings*

The key community member volunteered to facilitate the first phase of the CWPP development process, and the team members explained that it was critical to the CWPP's success to have someone responsible for organizing and running meetings and compiling all of the different information for the Powerpoint presentation. She was also credited with keeping the team focused and the process moving forward. One hundred percent of the interviewees discussed her capacity in facilitating and coordinating meetings, which emphasizes the importance of this role. Michelle, one of the CSFS actors, explained how she assisted the team in this role:

*"[The key community member] was good. She was the facilitator, she made sure that all of the right questions got asked, she made sure that people understood what was going on, her background in ecology was priceless because she had the latest news on the study of lodgepole ecology, and she's a very good speaker, she could pull things together really well. I think she did a great job facilitating and then pulling the whole written plan together."*

Dave, one of the community actors, explained how she was able to facilitate discussions between different stakeholders with varying levels of knowledge, and assist them to successfully communicate with each other:

*"And then [the key community member] brought the ability to pull it all together, and help everybody explain it all, and, she was excellent at dealing with, when we had the meetings here, in listening to people and allowing them to speak. There's a neighbor over here who used to work as a fish biologist. Articulate, but long-winded. So she was able to take a person like him, and enable them to get their questions out and get an answer and make them feel like they'd been a part of the system. She did a great job with that. You have four or five people up here who*

*have an extensive knowledge about ecology, and water resources, and forests, and on a very technical level. And then you've got all of us like myself who do other things, and we're aware of it but we don't have the in-depth knowledge, and she was able to answer very in-depth questions and still keep us active. That's a real challenge. If she hadn't been here, it would not have come off as well."*

### *Leadership*

Sixty-four percent of interviewees perceived the key community member as playing a key leadership role due to her efforts to facilitate and coordinate the planning process. She had also acted as a leader in the past; she assisted the USFS in organizing the Lake County Forest Project and the Science and Information Workshop. Funding for the CWPP development came from a Rural Community Assistance grant that the key community member worked with the local college to obtain for the Lake County Forest Project, which was used to fund the CWPP development process. She also served on a local advisory board and is an active participant in community events. Dennis, the fire authority actor, described her leadership role:

*"In my mind she was the glue that helped hold it all together. She has a tremendous passion for this project. She brought a tremendous amount of scholarly application. She helped us to look at it from outside the fire departments point of view, which was very helpful. And because of her passion she was willing to take on a central role that none of us felt we could do justice to."*

### Key roles filled by Community Members

#### *Information Sharing*

The Lake County CWPP process involved a great amount of community participation. Several community members were part of the CWPP task force that assisted the core team in developing a strategy for the planning process, as well as

providing community contacts and knowledge of specific subdivisions. The core team further engaged the community in information sharing at community meetings.

Residents provided the core team with local knowledge such as fish and wildlife habitats, community infrastructure, and other local values at risk from wildfire. They created CWPP implementation action items specific to their subdivisions with the team's technical assistance and advice. Alex, one of the CSFS actors, explained the benefit of their local knowledge:

*“But you know what, you as homeowners in that subdivision live there, and you may say, everybody likes to walk through there, and that’s where we’d really like to keep it thick, or the deer really like to hang out there in the winter time, and there’s a bedding area in the summer time because it’s nice and shady, and if you open that up they’re going to lose their shade, and they’re not going to stay there. Those types of on-the-ground insight that they have by living there, we don’t have. And by talking to them and getting that basic understanding, and it’s not really too hard to understand, thinning the trees, but it does take a little time, but once they understand it, they can say, well, we see where it would be beneficial over here, and here, but not here.”*

### *Leadership*

Community members filled key leadership roles by assisting in gaining community buy-in by talking one-on-one with residents and encouraging CWPP participation in their own subdivisions (82%). They used their local legitimacy and credibility to gain local support. Some of them acted as liaisons between the team and their communities and kept their communities informed about further CWPP progress and federal land implementation. Molly, one of the USFS actors, discussed the role of community members in motivating local involvement:

*“It definitely depends on the subdivision, because we have some subdivisions where they have somebody who’s really interested in what’s happening on the federal lands, or they’re interested on what’s happening with wildfire, so they give you a call and say, can you come talk at our meeting. That’s not all of them.*

*It's just those people who it seems that's their interest, or that's their passion. And generally if you can get one person in a subdivision it helps draw everybody else in."*

### *Implementation*

Interviewees discussed the community's role in implementation (73%). Private land implementation depends on the motivation and willingness of community members to take action, and while CWPP implementation had not yet begun at the time we conducted our interviews, the community members we spoke with described their community's plans to move forward with implementation.

Molly, one of the USFS representatives, explained how community support also assists in federal land implementation:

*"Getting the community involved, and getting them on-board and interested in projects and what we're doing, I think that's been the best thing that has occurred. And it makes it a lot easier for us as far as doing projects, because we just got the environmental analysis done on a project around two subdivisions up north, and we've had great support from those two subdivisions. And it helped because we had one little group that was the dissenters, they didn't want us to do this project. But because we had their support, and they understood what we're doing and what we're trying to do, it made it a lot easier to get that project through and completed, as far as the environmental analysis. One of the subdivisions up there, if we hadn't developed the relationship where we talk to them all the time, I think they might have come to us and said, we don't want to do this project. But because we were always talking with about the CWPP, it helped."*

### *Discussion*

The purpose of this study was to determine whether or not external intermediary entities facilitated collaborative CWPP development in either the East Portal or Lake County case, and to compare these cases with the Harris Park case, which did not have a pre-identified potential IO. We found that intervention by an IO did not occur in either

case. In the East Portal case, the LCCG played a peripheral assistance role, providing the agency actors with an opportunity to strategically plan and coordinate efforts across the county, rather than to plan and coordinate the specific CWPP process. The LCCG enables CWPP efforts to impact a larger scale, which is critical in fulfilling landscape scale treatments. However, the LCCG did not directly provide the specific capacities required for CWPP development; it was the members of the LCCG themselves who provided these capacities, as representatives from their individual agencies rather than the LCCG. In the Lake County case, while the key community member played a critical role in providing information and resources as well as providing access to networks to attain information and resources, she did not entirely fit the definition of an intermediary. She was an internal participant in the CWPP process, a stakeholder like the other actors, and added her available resources to the pool along with those provided by other members of the CWPP core team. She was not an external agent stepping in to create networks between a community group and external sources of information and resources.

The data analysis shows that for each CWPP process, all of the necessary capacities were filled by the individuals who participated in the process. A possible exception in the Lake County case was the role of the CSFS's CWPP core team in facilitating community collaboration; however as CSFS actors were part of the Lake County CWPP core team, these were roles played by internal actors rather than an external intermediary.

The results show that individual actors in each CWPP development process were responsible for networking, accessing resources, facilitating collaboration between agency and community participants, and providing the capacities necessary for project



implementation. Thus, we conclude that the intermediary function in these cases was played out as a series of roles assumed ad hoc by the individual actors in the CWPP development process rather than by a single entity that strategically facilitated the required capacities. While our definition of the intermediary function is different than the definition presented in the literature review, the intermediary roles filled by CWPP actors compliments the roles of intermediary organization described in the literature, as we will discuss further.

In analyzing the results according to our original hypotheses, we can accept or reject each individual hypothesis.

Null Hypotheses:

*H<sub>o1</sub>: Communities and agencies have the capacity to successfully work through the collaborative processes necessary to produce CWPPs.*

We accept this hypothesis. In each case, the CWPP development team did have access to the resources and networks required to collaboratively develop a CWPP.

*H<sub>o2</sub>: Communities and agencies do not require the assistance of external intermediaries to collaboratively produce CWPPs.*

We accept this hypothesis in regards to the traditional definition of an intermediary as an *external entity* that leverages internal and external resources through the use of networks. While external entities provided CWPP participants with the opportunity to coordinate their efforts with other efforts across a landscape scale in the East Portal and Harris Park cases (the LCCG and the FRFTP), there was no intervention

by an external IO in any of the cases. However, we did discover that the intermediary function was present in each case, but in the form of intermediary roles filled by multiple CWPP stakeholders rather than a single external entity.

*H<sub>o3</sub>: The authority, incentive, and learning tools described by Scheider and Ingram (1990) and provided by the NFP and HFRA are sufficient to motivate successful community/agency collaboration.*

We reject this hypothesis. While these tools did play a role in motivating CWPP development, they were not in themselves sufficient. Authority tools played a role in motivating collaborative CWPP development, in that the USFS actors understood that they must give priority for location of federal fuels treatment projects to areas adjacent to communities with completed CWPPs. Incentive tools were present in the form of potential federal grant funding; in each case the USFS and CSFS actors helped community members understand that they would be more eligible for grant funding for implementing mitigation treatments if they completed a CWPP. Learning tools were present in that in each case the CWPP development teams had to collaboratively learn their way through the process of sharing information and resources necessary to produce a CWPP. While these three tools played a role in motivating collaborative CWPP development, in each case *capacity tools* were also required, in the form of information, resources, leadership, and access to networks. Neither the HFRA nor the NFP explains the capacities required for collaborative CWPP development, and the CWPP development teams had to discover these capacity needs and fill them ad hoc according to actors' abilities throughout the CWPP development process.

Alternative Hypotheses:

*H<sub>11</sub>: Communities and agencies do not possess the capacities required to successfully convene and work through the collaborative processes necessary to produce CWPPs.*

We reject this hypothesis, as we accepted the hypothesis that communities and agencies do possess the necessary capacities.

*H<sub>12</sub>: Intermediaries fill this role by building the necessary capacities to collaborate. They provide capacity tools by using networks in order to locate and mobilize a combination of critical internal and external resources, such as funding, information, leadership and support. This process can be described as a system in which networking brings together the external and internal resources a community requires in order to build the capacity to collaborate, and the collaborative process is the means to achieving a community wildfire mitigation plan.*

We accept this hypothesis according to our new definition of the intermediary function as a series of roles filled by CWPP actors. In each case agency and community actors utilized networks to convene the CWPP process and access necessary resources and information that were internally and externally available. These networks, resources and information combined with leadership skills facilitated collaborative CWPP development.

*H<sub>13</sub>: Intermediaries act strategically in that they recognize the range of benefits provided by collaborative development and implementation of community wildfire*

*mitigation plans, they identify locations that have potential for collaboration and conduct an assessment of resources present and lacking, and they continually make contacts and build relationships that will assist them in achieving their goals.*

We partially accept this hypothesis. In the East Portal case, the agency actors strategically chose the East Portal region as ripe for developing a CWPP because the communities in the region had been actively involved in wildfire mitigation projects in the past, and there were strong preexisting agency-community networks. Therefore, the agency actors identified this region as having high potential for collaborative CWPP development. In the Harris Park case, agency actors recognized the strong potential for agency collaboration in developing a CWPP due to the success of previous collaborative efforts such as the Upper South Platte Restoration Project. However, agency actors in this case did not focus on the benefits of collaboration with community members as actors in the East Portal and Lake County cases did. While actors in each case utilized networks to access resources to achieve goals, this appeared to be more opportunistic and ad hoc than strategically planned in advance. It's important to note that these cases represent some of the earliest examples of CWPP development in Colorado, as well as the United States, and there was a lack of information regarding CWPP development available to assist in strategic pre-planning. A possible exception is the Lake County case, in which the CSFS state CWPP team provided strategic advice recommending that the Lake County CWPP team utilize local networks to hold CWPP meetings within the individual subdivisions in order to increase community participation.

*H<sub>14</sub>: Intermediaries facilitate collaboration in the planning and implementation phases through their activities of networking to provide resources and build relationships. They facilitate collaborative learning so that participants can successfully work through problems and identify desired conditions and alternatives.*

We accept this hypothesis according to our definition of intermediaries as a series of roles. In each case networks facilitated the convening of agency and community actors, each of whom provided information and resources which were shared collaboratively throughout the CWPP development process. Community members gained access to scientific and technical information provided by agency actors, and agency actors gained an understanding of local knowledge and values contributed by community actors. This combined knowledge provided the basis for creating the CWPP. As we did not study the implementation phase in any of our cases, we can only apply our results to the planning phase.

Each of the case studies involved similar actors, with some variation in specific roles. Each case involved actors from the USFS, the CSFS, local fire authorities, and local communities. Local government actors were also present in each case, with variation in the extent to which they were involved in the CWPP process and the specific role they played. Local government played a more peripheral role of offering support in the Harris Park and Lake County cases, while in the East Portal case the county wildfire mitigation specialist was one of the major actors.

#### Previous collaborative experiences and networks

Each of the case studies demonstrated a history of previous collaborative efforts that resulted in networks between actors that facilitated collaboration in the CWPP development process. Individuals who participated in the previous collaborative efforts filled the intermediary networking role by utilizing their pre-established networks to convene actors for the CWPP process. The CSFS actors in the East Portal and Harris Park cases, the local fire authority actors in the Harris Park case, the county actor in the East Portal case, and the key community member in the Lake County case, all played key roles in convening the CWPP process. These actors possess networks with agency actors as well as with the community, and they utilized their networks to bring the necessary stakeholders together.

In each case the CSFS had pre-existing networks with the USFS. Both agencies are involved in forest management and they had worked together on previous projects, including wildfire response. The USFS and the CSFS also had pre-existing networks with the local fire authority in each case due to coordinated response efforts for wildfire events. In the East Portal case these networks also existed with the county actor. These past experiences facilitated previous sharing of resources and information between the agencies as well as between the agencies and the fire authorities, and created a familiarity with each other's abilities and limitations.

In the East Portal and Harris Park cases, the CSFS and local fire authority, as well as the county actor in the East Portal case, had strong preexisting networks with the community as the result of previous mitigation efforts. These actors used their networks to convene and collaborate with community actors, although this did not occur until the end of the CWPP process in the Harris Park case.

The USFS had weak preexisting networks with the community in the Harris Park and East Portal cases. In the Lake County case the USFS had a history of more direct involvement with the community as a result of the Science and Information Workshop and the Lake County Forest Project. The CWPP process facilitated strengthened and new networks between the USFS and the community in the Lake County and East Portal cases. In the Harris Park case the USFS relied on the fire authority and the CSFS to act liaisons to the community, and there was no indication of networks created between the USFS and the community.

This compliments the existing literature that discusses the role of IOs in utilizing networks to convene the appropriate actors for a collaborative effort. This also emphasizes the critical role that state and local actors play in convening CWPP processes. A goal of the HFRA and NFP is to increase the role of state and local stakeholders in taking responsibility for wildfire mitigation, and our study demonstrates that this is indeed occurring in Colorado. Actors such as the CSFS and local fire authorities are in a strategic position to take the lead in collaborative CWPP efforts, as they possess networks with federal agencies such as the USFS as well as with local communities.

The previous collaborative experiences were also critical in facilitating sharing of resources and information between actors through the use of newly created networks prior to the CWPP process. The CSFS and the county actors in the East Portal case and the CSFS and local fire authority actors in the Harris Park case shared information with the community regarding wildfire risk and mitigation. In the Lake County case, the key community member and the USFS facilitated information sharing regarding forest ecology during the Science and Information Workshop, and local values for the county's

forests during the Lake County Forest Project. These previous exchanges of information and resources facilitated collaborative learning during the CWPP process, because the community had preexisting baseline knowledge of wildfire risk and mitigation in the East Portal and Harris Park cases, and of forest values in the Lake County case. These roles compliment the existing literature's definition of an IO in accessing and sharing information and resources, and the manner in which this facilitates collaboration.

#### Facilitating community collaboration

The extent to which collaboration with community members occurred also varied from case to case. In the Harris Park case community members were not directly involved until the end of the planning phase, when their input and support became critical in order to accomplish implementation. Collaboration with the community was more difficult to accomplish in this case, which may have been a result of community participation strategies the CWPP team used. During the planning process the CWPP team used the more general invitation techniques of press releases in the local newspaper and mailing meeting notices, whereas at the end of the process when the team needed to share the CWPP with the community, the fire authority used pre-existing networks within the community to personally invite community actors to meetings hosted at the fire authority headquarters and in the subdivisions.

The CWPP team did not perceive direct community involvement during the planning process to be a critical element of CWPP development, and relied on the fire authority to provide local values and knowledge. The team also relied on the fire authority to collaborate with the community at the end of the CWPP process. This



highlights the role of the local fire authority in acting as an intermediary between the agency actors and the community. The fire authority possessed community networks and was accustomed to sharing information and resources with the community. The CSFS also played an intermediary role in working between the agency actors and the community, as the CSFS actor worked with subdivisions on mitigation projects that complimented USFS goals for the region. Again, this highlights the important leadership role filled by state and local actors in coordinating efforts between the USFS and the community.

The Lake County case demonstrated the greatest amount of direct community participation in terms of number of community members involved, as the core team held well-attended planning meetings in each subdivision and emphasized the need for community members to create their own plans. The CSFS's CWPP core team played a strategic role in facilitating collaboration with the community by recommending that the CWPP team hold meetings in the specific subdivisions. The key community member also contributed to community collaboration by sharing her academic knowledge regarding collaboration as well as through her personal skills as a meeting facilitator and her ability to explain scientific concepts in a manner that was easily understood by community members. Once again, state and local actors played a key role in facilitating collaboration. The key community member's use of facilitation skills in order to guide collaborative learning compliments the literature. IOs also use facilitation skills to encourage collaborative information sharing and decision making.

In the East Portal case the community as a whole was represented through the participation of the community actors, who were responsible for providing local

knowledge and values, creating implementation action items, and acting as liaisons in sharing CWPP information with their communities. The community actors had high capacity for working collaboratively with the agency actors and their communities due to their previous mitigation efforts, and they held leadership roles within their communities. The agency actors recognized the need to directly involve community members in the planning process, and they strategically involved community members who they already shared networks with and who they knew had a strong interest and ability to participate in the CWPP planning process.

This compliments the literature in that IOs strategically utilize available networks and resources as well as preexisting collaborative capacity. The community actors' roles as liaisons between the agency actors and their communities also compliments the traditional definition of an IO, as they used utilized networks with agency actors to access scientific and technical information as well as resources that they shared with their communities. The community actors contributed resources to the CWPP team in the form of local knowledge and values, and they worked collaboratively with the agency actors to combine these different types of information to produce a CWPP.

It is interesting to compare the results regarding community involvement with our original predictors of community economic and social capacity (Tables 2.1 and 2.2). The East Portal region is located in Larimer County, which according to our proposed indicators has high social and economic capacity. The Harris Park region, located in Park County, appears to have high economic and relatively low social capacity. The Lake County region has low social and economic capacity. Our results demonstrated that the community in the East Portal case complimented these predictors, as the community had

a high capacity for organizing and participating in collaborative CWPP development. However, the Lake County case also demonstrated high capacity for collaborative participation, despite the predictors of low economic and social capacity. The Harris Park case demonstrated low community participation, despite a high predictor of economic capacity. This could be due to the traditional participation techniques that the agency actors utilized at the beginning of the CWPP development process, and it's possible that there would have been active community involvement if the agency actors had used direct invitation methods as in the East Portal and Lake County cases.

These results indicate that traditional predictors of community capacity, such as income, education, and the presence of preexisting community groups, does not necessarily predict true community capacity to collaborate to achieve collective goals. Our results showed that the presence of actors who can fill intermediary roles is a critical indicator of collaborative capacity. These roles include access to networks, the ability to access and share information and resources, and leadership.

#### Intermediary roles filled by specific actors

##### *Federal Agencies: United States Forest Service, National Park Service*

One of the USFS's major roles in each case was to provide maps and GIS technology. The agency uses GIS regularly in natural resource management tasks, and has the technology available for contributing to the CWPP process. However, this role places time and resource demands on the agency, and in the Harris Park case the team hired a consultant to produce the GIS maps because it would have been too time-

consuming for either the federal or state actors to do so. In Lake County the USFS and the CSFS shared the task. The USFS also provided information regarding forest ecology, fire behavior, and wildfire risk assessment. In providing information and resources, particularly difficult to obtain technical resources such as GIS ability, the USFS filled an intermediary role that compliments the existing literature's description of an IO.

The most commonly discussed USFS role was the ability to implement treatments that coordinate with mitigation on private land. The National Fire Plan (NFP) and the Healthy Forest Restoration Act (HFRA) both emphasize the importance of this coordination in order to address wildfire risk across a landscape scale, and through the HFRA the USFS is mandated to give preferential treatment for fuels treatment to areas adjacent to private land mitigation. In each case the USFS expressed willingness to focus their efforts accordingly. This compliments the "authority" policy tool behavioral assumption, in that the USFS is following the authority of the HFRA in assisting in collaborative CWPP development as well as planning fuels treatments that compliment private land treatments.

The HFRA states that state and local stakeholders hold the final authority in CWPP development, and that federal agencies fill a support role in offering support and coordinating treatments with those occurring on private lands. The USFS appears to have filled these roles in each of the cases. This provides a useful implication that the role of federal agencies in CWPPs is more supportive and secondary than that of active leadership and decision making.

The East Portal case was unique in the inclusion of the NPS in the CWPP process. The NPS is not bound by the authority of the HFRA, and its participation in this process

was motivated by its interest in accomplishing landscape scale fuels reduction that will benefit the NPS as well as other stakeholders in the region. The NPS provided information and assistance to the youth camp regarding forest thinning, filling the intermediary role of providing information and resources. The NPS also plans to implement fuels treatments adjacent to private lands wherever possible, facilitating CWPP implementation. Actors perceived the NPS as playing a secondary role throughout the CWPP process, and explained that the NPS participated to offer support to other actors rather than shape the CWPP process. Again, this implies that the role of federal agencies such as the USFS and NPS in CWPP processes is secondary to the role played by state and local stakeholders.

#### *Colorado State Forest Service*

The CSFS filled more roles than any other actor in each of the cases. The HFRA requires the state forestry authority to participate in CWPP development as a main collaborator, and in Colorado it is apparent that the agency is making an effort to lead the way in facilitating and creating standards for CWPP development. This role is evident in the assistance provided by the CSFS state CWPP team to the Lake County CWPP team, as well as the CWPP standards created by CSFS that assisted the East Portal CWPP team.

CSFS actors shared information regarding forest ecology, fire behavior and wildfire mitigation, and they are accustomed to sharing these resources with the community as part of their daily jobs. The CSFS actors provided experiential learning opportunities by conducting property site assessments in the East Portal and Lake County cases, which compliments the IO role of facilitating collaborative learning. The CSFS

provided GIS ability in the Harris Park and Lake County cases. The CSFS is able to access federal grant funding, and the state headquarters distributes this funding across the state, indicating the CSFS as a major actor in the role of providing funding for CWPP implementation. The CSFS role in accessing and sharing information and resources compliments the IO role described in the existing literature.

The scientific and technical information and grant funding provided through CSFS, as well as the agency's ability to recommend and oversee contractors to do mitigation work, facilitates private land implementation. This compliments the IO roles described in the literature in building community capacity required to implement collective projects. While the agency doesn't implement the projects itself, it provides the necessary information, resources and support to the community so that the community can implement projects themselves.

As we discussed previously, the CSFS also played a role in acting as a liaison between the USFS and the community. The CSFS occupies a key position to take the lead in CWPP efforts in Colorado. The HFRA identifies the state forestry authority as a major actor in CWPP development, the CSFS possesses a wide range of capacities that allows CSFS actors to fill many different intermediary roles, the CSFS is the state authority on accessing and distributing grant funding for CWPP implementation, and the CSFS possesses networks with all of the necessary stakeholders, ranging from federal to local. The CSFS's role in CO is to provide outreach and assistance to landowners rather than managing forests, and CSFS actors are therefore accustomed to working with the community. The CSFS has the ability to organize community members along with agency actors and encourage community-based collaboration and decision making.

### *Local Government*

The local government actors' key roles varied from case to case. In the Harris Park case the Jefferson county actor played a minor role, and provided technical support as he worked with the team to share GIS data and other information in order to coordinate the CWPP with mitigation efforts in Jefferson County. This provides an example of how the CWPP team utilized their networks with Jefferson County to access necessary information, which compliments the IO role of using networks to access external resources described in the literature.

In Lake County the city and county actors supported the CWPP by using their leadership roles to spread community awareness and encourage support for the CWPP. This compliments the IO role of gaining support for the implementation of collective goals.

The East Portal case differed in that the county wildfire mitigation specialist played a role more similar to the fire authorities in the other cases. The county actor filled the IO role of providing information regarding wildfire mitigation and local preparedness and response. He also provided experiential learning opportunities through conducting property wildfire risk assessments, which compliments the IO role of facilitating collaborative learning. The county actor assisted in applying for grant funding through the CSFS to implement the previous community mitigation projects, which filled the IO role of providing resource capacity necessary for project implementation.

The county actor played an important leadership role in collaborating with the community on previous mitigation projects, and in utilizing local networks to convene the CWPP process. Like the CSFS actor, the county actor possessed preexisting networks and positive working relationships with all of the CWPP actors. The county actor, along with the CSFS, stands out in the East Portal case as a key individual responsible for convening and guiding the CWPP development process through his ability to network and share information with the community, and to collaborate with the community.

The HFRA lists local government as a key actor in the CWPP process, and it appears as though this true in the East Portal CWPP case. The local government actors played a more minor role in the Lake County case, although their function in helping to gain community support was still important. Local government representatives possess a legitimacy and authority that other agency actors do not, and this was leveraged in both the East Portal and Lake County cases. Local government actors played an even more minor role in the Harris Park case, although it is difficult to judge whether or not this had a negative effect.

#### *Local Fire Authority*

The local fire authority's major role was to share information regarding their ability to respond to wildfires as well as information regarding mitigation techniques, filling the IO role of providing information. Fire authority representatives provided experiential learning opportunities through conducting private property fire risk wildfire risk assessments, which compliments the IO role of facilitating collaborative learning.



In each case the fire authority was considered a local player and had experience working with the community. In all three cases the fire authority lent local legitimacy and credibility to the CWPP process, as the fire authority is perceived as a community protector. The fire authority representatives helped the community members understand that wildfire mitigation helps the fire authority to protect the community. This role was especially critical in the Harris Park case, in order to compensate for the lack of community participation during the CWPP development process. While the fire authority actor played a more minor role in the East Portal case, due to the fact that the East Portal region is not included in the fire protection district, his participation was still important due to his ability to offer support and local legitimacy to the other actors.

The HFRA lists the local fire authority as a key player and decision maker in the CWPP development process. The fire authority's role in protecting the community as well as the local legitimacy it provides makes it a critical actor in CWPP development. The local fire authority is such an important actor that one of the agency interviewees stated that he would not participate in a CWPP planning effort that was not supported by the local fire authority.

### *Community Members*

The community members shared information regarding local knowledge and values, in particular identifying areas within the community that are especially important to protect, such as structures and wildlife habitat. While a major emphasis of information sharing entailed scientific and technical information, local knowledge and values were equally important to share because a CWPP is intended to implement actions that protect

local values. Thus, the community actors filled a key IO role in providing information that was internally available to the community, and sharing that information with the agency actors so that it could be combined with the external agency-provided scientific and technical information to produce the CWPP.

The community actors also played a key role in implementing mitigation treatments. While this study does not track CWPP implementation, we did acquire some information regarding implementation. In the East Portal and Harris Park cases, some of the subdivisions had implemented mitigation treatments prior to the CWPP process by utilizing their networks with agency actors to access resources and support. The first phase of implementation for the Harris Park CWPP had already occurred at the time we conducted our interviews, and as we discussed, it was critical for the fire authority to gain the support of subdivision B before the CWPP team could begin implementation.

The HFRA states that CWPP development should include the participation of community stakeholders. We discovered that community participation was critical in our cases, as implementation on private land cannot occur without community input and support. The community participants played a critical role in leveraging their local legitimacy to convince their neighbors to support the CWPP and mitigate their properties. Community participants shared local knowledge and values in order to determine where mitigation was locally acceptable and desired.

The CSFS and local actors filled the greatest number of intermediary roles in our study, as these actors were responsible for utilizing networks to bring different stakeholders together in convening the CWPP process, providing critical leadership, and

ensuring the inclusion of community values and knowledge. The CSFS in particular played a key role in providing access to both agency and community networks, as well as guidance through the CWPP development process. The USFS, and the NPS in the East Portal case, provided a support rather than leadership role, offering information and resources to assist the group. Their major role was to coordinate federal fuels treatments with private land mitigation. These findings compliment the intent of the HFRA, which lists state and local stakeholders as the main drivers of the CWPP development process. The goal of the HFRA, as well as the NFP, is to motivate state and local authorities to play a larger role in wildfire mitigation, and to coordinate fuels treatment projects across at a landscape scale. It appears as though the intent of the HFRA is being fulfilled in each of our cases. Our results implicate that the CSFS is in a unique position to take the lead in convening and guiding CWPP development efforts.

A major difference between the IO literature and the results of our study is that our study demonstrates the ability of communities to utilize capacities already present within the community to leverage further capacities. In our study, community members acted as intermediaries in utilizing their leadership skills and networks to access resources, assistance and support necessary to achieve collective goals. This is most evident in the East Portal case, in which prior to the CWPP process community actors from subdivision A became concerned about wildfire risk, contacted agency actors for assistance, and leveraged their local leadership and legitimacy to gain the support of their community. In our study communities were not disempowered and fractured as the communities described in much of the IO literature are. The communities in our study

benefited from human capital and horizontal and vertical networks that empowered them to organize and take action.

While the community members benefited from information and resources provided by agency actors, agency actors also benefited from knowledge and values, human capital, local networks, and local legitimacy contributed by community members. Local knowledge provided agency representatives with an understanding of local concerns and site-specific ecological information. Local networks were a huge asset because they provided an preexisting avenue for agency and community actors to share information within the community and gain local support. Community human capital facilitated essential community participation in the CWPP process as well as gaining local support.

Local legitimacy was a major capacity contributed by community actors in our study. The importance of credibility and legitimacy in gaining local support for the CWPP was a common theme throughout this study. Local partners such as the fire authority and community actors helped achieve community buy-in because their local status provides them with credibility and legitimacy in dealing with other locals. The CSFS and federal partners possess scientific and technical knowledge which provides them with a certain authority, but the community must trust them in order to believe them. In all three case studies actors from the community, fire authority, and local government helped facilitate community trust in the agency actors.

The community and agency partners combined their information and abilities to create a common message to share with the general community regarding wildfire risk and mitigation. Agency provided scientific and technical information provided authority,

and community participation provided local legitimacy. Tom, the CSFS actor in the Harris Park case, explained the benefit of working collaboratively to develop a common message that encourages community support for the CWPP:

*“So they understand, and I think that’s what the partnerships provide is for them to engage with the community with us without having to be the sole driver and be so responsible to the bureaucracy. If we all go together, no one person gets shot at, and if we have a common message, which was what this process did was to allow us to craft common messages, so that when we’d have our public meetings the [USFS] wasn’t saying one thing and we were saying another, and the county—because credibility just explodes in your face.”*

In each of the three cases, individual team members contributed resources and services to the CWPP process by filling complimenting and overlapping intermediary roles and functions. While many of the roles overlapped among actors, no one player filled every role, and each player filled at least one critical role that was theirs and theirs alone. The USFS was able to coordinate treatments on federal land; the CSFS provided access to federal funding and a critical link between the USFS and the community; local government participants provided local support and resources for CWPP development on a scale that fire authority and the community participants could not have; the local fire authority provided knowledge regarding local response capability, and brought local credibility and buy-in to the process; and community involvement was critical in order to address local values and ensure successful private land implementation.

The complimentary and overlapping intermediary roles and functions ensured that CWPP planning and implementation processes benefited from a wide range of resources, information and knowledge, and support. Collaboration in the CWPP process created a better possibility for implementation in that community members were more likely to implement mitigation on their properties as well as support mitigation on federal lands.

The USFS and NPS had the opportunity to network and coordinate efforts local actors. The CSFS and local partners benefit from collaborating with the federal actors because it increases the scale and impact of local mitigation projects, which increases community safety from wildfire. Sam, a fire authority actor in the Harris Park case, explained the need for collaboration between local and agency actors in order to achieve landscape scale treatments:

*“I think none of this would have worked if all of us hadn’t come together. One organization out probably would have caused problems. Because you’re dealing with boundaries here all over the place. If all these people couldn’t have come together it would have caused some real problems.”*

While our study revealed that collaborative CWPP development requires actors to fill intermediary roles, the originally proposed framework of intermediary organizations in our data analysis does not adequately address the innovative pooling of resources and information from different entities across physical, organizational and informational boundaries that occurs during the CWPP development process. The IO framework also fails to address the ability of communities to act as their own intermediaries in leveraging internal preexisting capacities and accessing external resources in order to build new capacities.

The concept of boundary spanning may prove to be a more useful framework for conceptual analysis. This concept is used in the field of business management. Leifer and Delbeq (1978) define boundary spanners as “Persons who operate at the periphery or boundary of an organization, performing organizational relevant tasks, relating the organization with elements outside of it...They are primarily responsible for information exchange between the organization and its task environment” (p.40-41). They define a boundary as “the demarcation line or region between one system and another...that

regulates the flow of information, material, and people into or out of the system” (p. 41).

Boundary spanning increases the ability of organizations to make decisions relevant to external conditions in order to secure maximum benefit to the organization.

Tushman and Scanlan (1981) explain that organizational boundaries relate to communication boundaries, and they describe how boundary spanners must be competent in all aspects of external information gathering and internal dispersal in order to retrieve, understand and communicate new types of information within their organization.

Boundary spanners directly provide, as well as direct individuals towards, external information. They have strong internal and external networks, and can serve their organization as a central source of information from numerous external sources.

Tushman (1977) found that boundary spanning roles in organizations emerged in response to the organizations undergoing innovative processes. These roles served to network the innovating organization with external sources of information and feedback, as well as to mediate communication across different organizational interfaces. Dollinger (1984) discusses boundary spanning as an action taken by small business entrepreneurs in order to acquire information to strategically gain an edge in the marketplace.

In our study, collaborative CWPP development involved crossing informational, organizational and physical boundaries, as different types of knowledge from participants representing different organizations was combined in an innovative approach to addressing wildfire threat across physical boundaries. Each of the CWPP participants belonged to a type of organization: a community, a fire district, a government agency. In order to assist their “organization” in protecting its values from wildfire, these individuals crossed outside of their organization’s boundaries to innovatively collaborate with

participants from other organizations. This collaboration provided the opportunity to pool information and resources to collectively address an issue that no one organization could address on its own. Actors relayed information and the results of their work back to their organizations, and brought their organization's input back to the group.

Ultimately, the CWPP development team became its own "organization", and the intermediary roles that emerged in all three cases correspond to the boundary spanning roles of utilizing external networks to gather external resources and utilizing internal networks to share resources within the organization.

Boundary spanners are similar to IOs in that they utilize networks to access external information and resources to combine with internal resources. However, boundary spanners are different in that they are a stakeholder rather than an external entity. Boundary spanners are innovative members of an "organization" who recognize capacity gaps and reach beyond their organization to access resources to fill the gaps. Our original hypotheses questioned the capacity of communities and agencies to collaboratively develop a CWPP, and the possibility of intervention by external IOs to fill capacity gaps. We found that the actors themselves each possessed capacities filled the intermediary roles of utilizing networks, accessing and sharing resources, and providing leadership to convene and guide the CWPP development process. Working alone, the individual actors could not sufficiently protect their properties, forests, and communities from wildfire risk, as wildfire affects a landscape scale and crosses jurisdictional boundaries. They needed to step outside of the boundaries of their "organizations" to collaborate with other actors in order to pool resources and abilities to achieve landscape scale mitigation planning. Utilizing the concept of boundary spanning as an analytical



framework, we find that in each case the communities and agency actors did possess the capacity to collaboratively develop a CWPP, and that CWPP participants acted as boundary spanners in order to access and pool resources and abilities and fulfill the required capacities.

In readdressing the Schneider and Ingram (1990) concept of policy tools, our study found that the HRFA authority, incentive and learning tools influenced CWPP development. The USFS understands that collaboration with multiple stakeholders is mandated and necessary in order to achieve the federal goal of landscape scale fuels reduction treatments. The majority of actors were aware that communities with completed CWPPs are given a higher priority in consideration for federal grant funding, which provided a useful incentive. The CWPP development process itself provided an opportunity for actors to share information and resources and engage in deliberative discussion, which provided an opportunity to collaboratively learn how to develop a CWPP.

While the HFRA does not provide capacity tools, we found that the actors in our study themselves provided the capacities necessary for creating a CWPP. Actors filled these roles in an ad hoc and opportunistic manner, providing resources, information and abilities as they were required. Stakeholder groups embarking on a CWPP development process would benefit undergoing a pre-planning phase in which they recognize the capacity requirements and strategically identify actors to fill these roles. Capacity gaps can be identified in advance in order to determine a means for filling the gaps. An example of this is determining in advance what types of information will be shared during the CWPP development process, and which actors are best able to provide and

share specific information. If any required information cannot be provided by the group, then the group must utilize networks to locate sources of that information.

Our research methods were limited in general due to the fact that we were collecting data for our own study as well as for the general Joint Fire Sciences study. It was necessary to ask a broad range of questions in order to accommodate a variety of research interests. In the interest of maintaining interview time to a reasonable length, we were not able to collect the level of detail that we could have if we were seeking data for our individual study alone. There are certain aspects of our study that would benefit from further detailed research. We were also limited by time. Although we were able to conduct interviews to the point of data saturation, it would have been helpful to conduct a few more interviews, particularly with community members in the Harris Park and Lake County cases, in order to gain a deeper understanding of community roles.

While community participation was lacking during the CWPP development process in the Harris Park case, communities such as subdivision A were involved in wildfire mitigation efforts prior to the CWPP process, and communities such as subdivision B became involved at the end of the process. It would be beneficial to gain a better understanding of community involvement in the Harris Park case by conducting interviews with community members in other subdivisions in the CWPP planning area, in order to determine the extent to which other communities have been participating in mitigation activities and filling intermediary or boundary spanning roles.

It would also be helpful to gain a richer understanding of the small amount of wildfire mitigation that occurred in Lake County prior to the CWPP process. While the general community was largely unaware of wildfire risk and uninvolved in mitigation

prior to the CWPP, both the USFS and CSFS representatives explained that some subdivisions had undergone wildfire risk assessments years ago. It would be beneficial to track any implementation that occurred as a result of these early assessments, in order to gain a better understanding of the limited awareness that existed and activity that took place prior to the CWPP, and the community intermediary or boundary spanning roles that emerged.

We identified the CSFS as a key actor in CWPP development, and the HFRA identifies the state forestry authority as a major participant. We believe that the CSFS is in a unique position to provide leadership and guidance throughout CO in convening and assisting collaborative CWPP development. It would be interesting to conduct a follow-up study to determine if the CSFS has expanded their leadership role in overseeing CWPP efforts, and if it has become more strategic and less opportunistic as a result of lessons learned from past CWPP experiences.

Further research regarding long-term implementation of CWPP goals would enhance the results of this study. The Harris Park case is the only case for which information regarding CWPP implementation was available at the time of our research. While we learned of new community collective efforts that resulted from the CWPP process in the East Portal case, such as the campaign to build a new fire house and the creation of a community forest health group, actual CWPP project implementation in both the East Portal and Lake County cases had not yet occurred. It would be informative to revisit these cases and track implementation progress over the short as well as long-term, as it would allow us to study how intermediary or boundary spanning roles function in the implementation stage.

## **Conclusion**

In all three cases the actors in the CWPP development process collaborated to provide resources, information, leadership, and support required to create a CWPP.

While external intermediary entities did not play a role in any of the cases, the intermediary function was present in the form of roles filled by the CWPP actors. The concept of boundary spanning provides a useful framework for analyzing the roles of actors in our study. In each case CWPP participants acted as boundary spanners in order to reach across physical, organizational, and informational boundaries to access resources required to collaboratively develop a CWPP.

## **Chapter 4**

### **Discussion**

This study demonstrated that specific capacities are required in order to collaboratively produce a CWPP, and that in each case study these capacities were filled by the CWPP actors as a series of intermediary roles, rather than by an external intermediary organization. These capacities emerged throughout the context, process, and outcomes phases of the CWPP development process. Figure 4.1 provides a summary of the CWPP development process.

The Context-Process-Outcomes framework proved to be a useful method for organizing our research and results for the Capacity chapter. This framework allowed us to identify and understand specific roles, processes and capacities inherent to each phase of CWPP development. It also provided us with insight as to how antecedent capacities influence the development of further capacities throughout the stages of CWPP development. This framework allowed us to study CWPP development as a dynamic process that leverages preexisting capacities and creates new ones.

In each case the community and agency representatives had engaged in previous collaborative experiences that facilitated the creation of networks and working relationships. These experiences provided the opportunity for collaborative learning, and provided the community with a baseline knowledge that assisted during the CWPP

Figure 4-1: CWPP Case Study Results: Required Resources, Processes and Outcomes



process. The effectiveness of building from past collaborative experiences to initiate a CWPP process is a key lesson learned; pre-existing networks facilitated convening a wide range of stakeholders, particularly community members, and previously shared knowledge allowed the CWPP core team to begin the process with commonly-shared baseline knowledge. The CSFS and local actors were responsible for filling the intermediary/boundary spanning roles of leveraging preexisting networks and positive experiences to convene the CWPP effort.

These findings provide new insight to the community development literature. The literature emphasizes the importance of utilizing networks in accessing resources, and we found in addition that preexisting networks are extremely useful in convening agency as well as community actors. We also found that building from previous collaborative efforts is strategic in that actors already share baseline knowledge and awareness that assists in future efforts.

These findings provide new insight to the intermediary organization (IO) literature as well. The literature describes the role of convening collaborative processes and networking as an IO role, and in our study this function was filled by the roles of CWPP actors rather than of an external intermediary.

Community human capital was a critical resource prior to and throughout the CWPP process. Community members filled key intermediary/boundary spanning roles throughout the CWPP process. Motivated community members with an interest in learning more about wildfire risk and mitigation created networks with agency representatives and acted as liaisons to their communities. They gathered agency-provided scientific and technical information and shared their own local knowledge and



values. They provided access to community networks to share information, and they leveraged their local legitimacy to rally support. A key lesson learned is that agency representatives should seek out and harness the skills and energy of key community members. These individuals contribute leadership skills and motivation as well as provide local legitimacy and access to community networks.

These findings partially compliment the existing community development as well as IO literature, which describes the importance of leadership in convening and sustaining collaborative efforts, and the need for external capacity-building entities to identify and train local leaders. However, we believe that our findings emphasize even more strongly the importance of identifying and leveraging the *preexisting* talents of community members who possess leadership skills as well as motivation and ability to engage in a collaborative process and to ultimately drive the process. Much of the community development literature discusses the role of organizations and agencies, particularly external intermediary organizations, in leveraging community resources and combining these resources with external resources to increase community capacity to take collective action. However, in our study the community actors themselves filled this intermediary role. While this finding does not relate well to the concept of IOs, it does compliment the concept of boundary spanning. Entrepreneurial community members recognized capacity gaps within their community, and reached outside of their community to access necessary resources and assistance.

The collaborative learning process was a critical element of CWPP development in all three cases. This process allowed the agency and community representatives to share information in an interactive and relevant manner, and to build networks and

relationships through the learning process. The information that was shared and the networks that formed resulted in a community that possesses the knowledge and access to resources to allow them to implement mitigation projects. It was critical for agency representatives to engage the community in collaborative learning at some point in order to achieve community buy-in for implementation, as the agency actors in the Harris Park case discovered. While collaborative learning with community members occurred during different phases in each case, a major lesson learned from this study is that collaborative learning between agency and community actors must occur at some point prior to or during the CWPP process in order to ensure community buy-in and successful implementation.

Every actor in each case contributed to collaborative learning at some point during the CWPP process. With the exception of the Harris Park case, in which the USFS representatives did not work directly with the community, each of the agency actors participated in collaborative learning with community members, whether during CWPP meetings or at community events where the CWPP was discussed. Actors filled the intermediary roles of information sharing, meeting facilitation, conflict resolution, and leadership.

The collaborative learning process was facilitated by key capacities, which were present to varying degrees in each case: information sharing; issue framing; experiential learning opportunities that engaged the community in active learning; the use of maps as interactive visual aides; providing community members with clear direction and guidelines; agency actors willing to guide rather than lead the community members through the process; actors able to explain scientific information in a manner that

community members could engage with and understand; and group facilitation skills. Techniques for engaging the community in collaborative learning ranged from the formal Powerpoint presentation and facilitated group discussion that occurred during neighborhood CWPP meetings in the Lake County case, to experiential learning opportunities provided during private property risk assessments in the East Portal and Harris Park cases.

In each case the following types of information were shared: forest ecology information that helped community members to understand the connection between mitigation and forest health; fire behavior information that helped community members understand how mitigation can prevent catastrophic crown fires; local preparedness and response information that helped community members understand how mitigation makes properties and communities more defensible in a wildfire event; and mitigation techniques that instructed community members how to implement projects. In the East Portal and Lake County cases information regarding USFS policies was also useful in helping community members understand USFS abilities and limitations. Certain types of information-sharing roles were filled by the same actor across all three cases; for example, in all three cases the fire authority provided information regarding local preparedness and response, the CSFS provided forest ecology information, and community members provided local knowledge and values.

Our findings pertaining to the importance of collaborative learning compliment the existing literature regarding collaborative learning. Collaborative learning processes provided the opportunity for information exchange, relationship building, issue framing, and deliberation, which resulted in the creation of the CWPP. However, contrary to the

IO literature, in our study collaborative learning was facilitated by the CWPP actors themselves, rather than by an external intermediary. While the concept of boundary spanning compliments many of our findings, it does not appear as though the current boundary spanning literature includes collaboration and collaborative learning as boundary spanning roles. The literature discusses the ability of boundary spanners to access necessary external information, but there is no discussion as to whether boundary spanners work collaboratively with other actors in exchanging information. Our findings offer the concept of collaborative learning to the boundary spanning literature.

The East Portal case demonstrated the necessity of clear directions and guidelines in developing the CWPP. The CWPP core team struggled for almost two years with the issue of how to guide the community through the development process; none of the actors had a good idea of what the final product should entail or how to work through the process. Once the Larimer County Coordinating Group and CSFS created guidelines and standards, the agency actors were able to provide clear direction to the community representatives and the plan was completed. In the Lake County case, the CWPP core team had access to these capacity tools from the beginning, and the core team was able to immediately provide clear direction to community members. In both cases the agency actors asked community representatives to list their values-at-risk from wildfire, locate them on a map, create action items that mitigated risk to their values, and identify treatment priorities on a map. This process does not apply to the Harris Park case, as community members were not involved in creating the CWPP content.

In the Lake County case, the CWPP core team benefited from the group facilitation skills that the key community member provided, as she ensured that

community members had access to and understood scientific information, and that local knowledge and values were given equal importance. It was extremely beneficial for the Lake County CWPP core team to have a facilitator, as their community meetings continually involved new subdivisions and new groups of community members who many of the core team did not know and had never worked with before. Actors in the East Portal and Harris Park cases did not discuss formal group facilitation as part of their CWPP development process. This may be due to the fact that these CWPP core teams were composed of a small group of individuals who had worked together in the past and had pre-existing positive relationships, making formal group facilitation unnecessary, as actors were able to facilitate themselves.

The findings that providing clear direction and guidelines as well as group facilitation are important to the CWPP development process compliments the IO and community development literature. The literature discusses the importance of identifying in advance issue definition, goals, and processes required to reach goals. The community development literature discusses the effectiveness of facilitators in guiding collaborative processes, and the IO literature discusses the ability of IOs to serve this role. As we have previously discussed, our findings diverge from the IO literature in that the CWPP actors rather than an external IO provided the necessary skills and resources to define goals and work through the collaborative CWPP development process. The concept of boundary spanning may provide a better framework in describing part of our findings, in that boundary spanners strategically plan the actions they must take in order to achieve their goals. In the context of CWPP development, this entails setting goals and determining

capacity requirements for achieving goals, such as locating CWPP guidelines or a group facilitator.

In each case the CWPP development process resulted in an increase in community knowledge regarding wildfire mitigation, and new and strengthened networks between agency and community representatives. In each case these outcome capacities resulted in an increased potential for sustainable community collective action. Community members have utilized their new capacities to implement mitigation projects. They have a knowledge base to hold informed discussions amongst themselves regarding wildfire mitigation and forest health, and they are able to plan and implement their own local mitigation projects. They know that they can use their vertical networks with agency representatives to access external resources and information. This is the ultimate goal of the CWPP process, as community members are taking responsibility for private land mitigation.

While in all three cases the CWPP process resulted in the goal of community capacity to implement mitigation projects, we argue that the ultimate benefit of engaging community members in the CWPP process goes beyond the ability to implement mitigation projects. The community capacity that was built during the CWPP process resulted in the *ability for sustainable community collective action* to address wildfire risk as well as other collective issues. This is much more apparent in the East Portal and Lake County cases, in which the community members have taken their new capacities a step beyond wildfire mitigation in their own subdivisions. In these cases community members are sharing information regarding the CWPP with uninvolved communities, and providing access to their vertical agency networks so that these other communities can

contact agencies for further assistance. In the East Portal case, community members utilized their new horizontal networks to organize an effort to include their region within the fire protection district. They also utilized their horizontal and vertical networks as well as their new forest ecology knowledge to organize a community forest health group. In a sense, the East Portal and Lake County communities have become their own intermediary, in that community members have a pool of internal information and resources that they can draw from using horizontal networks, and they possess vertical networks that they can utilize to access external information and resources to fill capacity gaps. Using these capacities, the community has the ability to collectively organize and take action to address local issues.

The examples of sustainable collective action were not as rich in the Harris Park case. While Harris Park community members discussed their intentions and abilities to plan and implement wildfire mitigation projects within individual subdivisions, there was no discussion of cooperation between subdivisions in planning and implementing CWPP projects, or community collective action projects outside of the realm of wildfire mitigation. The community members in the East Portal and Lake County cases benefited from being actively engaged in the planning process; they formed networks with a range of USFS representatives, formed networks with representatives from other communities, learned to address wildfire mitigation at a landscape scale, and were empowered with recognition that their local values and concerns were the key focus of the CWPP. The community members in the Harris Park case did not have the opportunity to gain any of these benefits through active involvement in the CWPP process, and this may be the reason that they have not demonstrated a capacity for sustainable collective action that is

as great as in the other two cases. A major lesson learned is that while collaborative learning regarding wildfire mitigation has the ability to empower communities to participate in sustainable collective action, active community participation in collaborative learning during the CWPP development process yields greater levels of community capacity than collaborative learning that occurs at the end of the CWPP process. The opportunity to be part of a CWPP team and collaboratively work through the planning process builds the capacity for community members to collectively address a wider range of issues at a greater scale than if they had not been involved.

This finding compliments the community development, IO, and collaboration literature. The goal of community development, in which IOs play a role, as well as collaborative decision making, is to engage the community or other stakeholders in processes that provide them with knowledge, skills, and resources necessary to collectively address issues. Collaborative CWPP development can be considered a mechanism for community development, as engaging the community in the CWPP development process provided the community with networks and knowledge that can be utilized to address future collective issues. The implications of this for agency actors are extremely useful. By including community members in collaborative CWPP development processes, not only are the agency actors leveraging community assistance in wildfire mitigation, but they are also increasing the potential for community members to be active partners in future natural resource management issues as well as other community issues.

In each case the CWPP core team relied on the capacities already present within the group to convene and work through the CWPP development process. In the East



Portal case, the CWPP team convened according to pre-established networks and positive working relationships between agency and community actors, which were particularly vital in gaining community participation and ultimately a community-driven CWPP. In the Harris Park case, the agency actors capitalized on the strong pre-existing networks and working relationships between agency representatives, and based their CWPP goals on agency-driven planning and implementation. In the Lake County case, the CWPP core team benefited from information provided by the CSFS's CWPP team regarding community participation techniques, and they capitalized on the key community member's expertise in collaborative resource management and group facilitation skills in leading community meetings.

This finding implies that while available capacities may vary across situations, it is to the advantage of CWPP development groups to undergo a pre-planning assessment in which required capacities are recognized, roles are assigned to actors according to their abilities to provide capacity, and capacity gaps are identified in order to determine a means for filling them. It is important to capitalize and maximize capacities already present within the group. Undergoing a pre-planning assessment will allow a CWPP development group to act strategically rather than reactively.

In addressing Schneider and Ingram's policy tools, we found that the authority, incentive, and learning tools present in the HFRA had an influence in collaborative CWPP development. Authority tools played a role in that the USFS actors understood that they must give priority for location of federal fuels treatment projects to areas adjacent to communities with completed CWPPs. Incentive tools played a role in that the majority of actors were influenced by the incentive of grant funding tied to CWPP

development. Learning tools influenced the CWPP development process in that stakeholders needed to collaborate in order to learn what capacity tools and processes were necessary to work through the CWPP development process.

We also discovered that while the HFRA lacks capacity tools, actors in our study were able to fill the required capacities throughout the course of CWPP development. This occurred ad hoc and opportunistically in the three cases, which makes sense as these CWPPs were some of the first to be developed in Colorado. As we discussed previously, it is to the advantage of CWPP development groups to identify capacity requirements in advance and strategically plan how to meet these needs in a proactive rather than reactive manner.

Our study indicates that the goals of the HFRA are being met in all three cases, although further research regarding the implementation phase would more solidly confirm this. A major goal of CWPP development is to coordinate private and federal land mitigation within the CWPP area, as well as to coordinate CWPP implementation with other fuels reduction efforts throughout a specific region. We found that this occurring in each of our cases. Another goal of the HFRA is for state and local actors to play key leadership roles in CWPP development. In each case the CSFS and local actors took the lead in networking, convening, and guiding the CWPP process. The USFS, and the NPS in the East Portal case, provided a support rather than leadership role, and offered information and resources to assist the group. In each case the clear role for federal actors was to coordinate federal treatments with private land treatments. The federal agencies recognized that the CWPP should be driven by local rather than federal

actors, in order to encourage greater responsibility for wildfire mitigation taken on behalf of local actors. The CSFS and local actors in each case accepted this responsibility.

We identified the CSFS as occupying a unique role in leading CWPP development efforts in Colorado. The CSFS has networks with both federal and local actors, it has access to information and resources, and its role as an extension agency of Colorado State University is to provide assistance to private landowners. It would be interesting to conduct a study to determine if the CSFS is now playing a larger role in coordinating and guiding CWPP efforts across Colorado.

It would also be informative to conduct further interviews with community members in the Harris Park and Lake County cases, in order to gain a better understanding of community roles and capacities, particularly regarding mitigation projects that occurred prior to the CWPP process.

Another useful future study would be to revisit our three cases and learn about the CWPP implementation phase. This would allow us to track capacities and intermediary/boundary spanning roles throughout the implementation phase, and would complete our understanding of the context-process-outcomes phases of CWPP development.

In conclusion, we found that specific capacities are required to collaboratively develop a CWPP, and while the HFRA provides several policy tools to motivate collaborative CWPP development, it does not provide the capacity tools necessary for collaboration. CWPP actors filled these roles and contributed the capacities required to develop the CWPP. Collaboration was critical because it allowed actors to pool their

resources and skills in meeting capacity needs. Community participation was critical in gaining local buy-in, although this is not the only benefit of involving community members in CWPP development. A major benefit of community participation in the collaborative CWPP process is the outcome of increased potential for community collective action in addressing wildfire risk as well as other community issues.

The goals of the HFRA have been met in all three cases, in that state and local actors are taking greater responsibility for wildfire mitigation, although further study of CWPP implementation would strengthen this claim. The federal actors played a support rather than leadership role, and the CSFS and local actors were responsible for guiding the development process. The CSFS in particular possesses the capacity to take on a greater leadership role in coordinating and guiding CWPP efforts throughout Colorado.

## **APPENDICES**

## Appendix A

### Key Informant Interview Questions

1. How long have you lived in this community?  
*Ice breaking question and context.*

*Note: when we use “you” we mean the person being interviewed. When we use “team” we mean the group who developed the CWPP.*

2. Have you been involved in fire planning or other types of resource planning?  
In what way?  
*Prompt: pre-CWPP fire planning (for example, Applegate Fire Plan), Firewise, Fire Safe Council, 911-planning*

**We’re going to be talking to you about the community wildfire protection planning process in [community], but would first like to understand the community better.**

3. Can you share with me some examples of how has this community has worked or not worked together to address...
  - a. environmental issues?
  - b. wildfire issues?  
*Prompt: other wildfire planning activities, codes or regulations addressing fire safe building materials, community clean-up days for getting rid of brush and other fuel, neighborhood design requirements for access or water availability...*

*Note actions taken by the community vs. individuals. By local government vs. agencies/organizations.*

*If they cannot come up with any examples or describe a lack of working together ask... Are there barriers that keep the community from dealing with these issues? Can you give me some examples?*

4. What government and non-government organizations or groups are involved in wildfire in the community?
  - a. Can you give me some examples of how they are involved?

- b. Have you seen examples of these groups working together to solve problems?

*Note: you might get some of this information in #3, but we want to be sure we get information on networks/networking, linkages between groups.*

5. What motivated the community to take steps to address wildfire issues? What was *your* opinion about the causes that made wildfire issues urgent for the community?

*Note: reasons may be classified as ecological, social, and institutional causes and/or consequences.*

**Now we're going to talk about [community's] community wildfire protection process**

6. Tell me about how the CWPP process was initiated in your community.

*Note: Some of the questions to be answered during this dialogue:*

*How did the CWPP process get started in [community]?*

*How were people brought into the CWPP process?*

*How and why did you become involved?*

7. Who were the major participants in the CWPP process?
- Why were they major? What was their role?
  - What resources did they bring to the process?
  - How did they work with other members of the team?
  - If this person was not part of the process, how would the plan have been different?

*Note, we're looking for how people fit together, how they were connected.*

*Prompt for whether some participants took a greater role than others. Did the*

*Team hire a consultant? Who were the leaders? Intermediaries?*

*May want to use a concept map to see how people were connected.*

8. Did the Team follow a pre-existing template for developing the Plan?

*If yes ask...*

- Where did the template come from?
- Did the Team modify the template or use it as is?

*If no ask...*

- How did the Team design the Plan?

9. Did the Team define specific goals and/or objectives for the Plan?

*If yes ask...*

- a. Did the Team have difficulty agreeing on goals?
- b. Did the Team's goals change over time?

*If no ask...*

- c. Why not?
- d. Were there barriers to developing goals or objectives? Could you provide some examples?

10. Did the Team have rules for making decisions? How did the Team reach agreement/consensus?

*If yes ask...*

- a. Please give me an example of how this worked.

*If no ask...*

- b. Was it difficult to make decisions? Can you give me an example?

11. Did the team try to define the WUI? If so how? Tell me about how the Team defined the WUI. What factors went into deciding where to draw the line?

- a. Who were the major participants in defining the WUI?

*May be useful to look at the map in the Plan during this discussion. Note what benefits came into play, if land ownership, the impact of fuel loads, availability of information, and funding and/or interpretation of the law played a role in where the line was drawn.*

12. Tell me about how the Team prioritized fuel reduction activities.

*May be useful to have before you the list of treatments identified. Look for the impact of ownership, location, previous fires, and different benefits on prioritization. The funding/interpretation piece may come into play here as well.*

13. What was/were the most critical resource, tool, or information the Team needed to develop the CWPP?

- a. Was the information/resource/tool hard to get?
- b. Who provided the information/resource/tool?
- c. Was the tool easy to use? How could it have been improved?
- d. Were there any gaps in information?
- e. What additional information/resources/tools does the Team wished they had to fill those gaps?



*Note: Be sure that for every tool they mention, questions a-c were addressed.*

14. How did the Team share information during the CWPP process...
- a. within the Team?
  - b. with the broader community?

### **CWPP Outcomes**

15. Through the CWPP process, did the Team come to a shared understanding of the wildfire problem in [community]?
- a. How would you describe this shared understanding of the problem?
  - b. Were there any activities/events/projects that were particularly effective in developing this shared understanding?

*We're looking for a common understanding of the causes and consequences of the wildfire risk in [community]? This is a question about coming to a common understanding of how the issue is framed.*

16. To what extent did relationships between individuals or organizations/agencies/groups changed during the CWPP process? Can you give me some examples?
- a. Do you think that these new/changed relationships will affect interactions beyond the CWPP process? Why? How?
  - b. Can you give me some examples of how these new relationships may help the community accomplish other objectives?

17. Thinking back over the process, what were some lessons the Team learned that would be helpful to other communities involved in CWPP?

*For example, is there something they would have done differently? What was critical to their success? What was your biggest challenge?*

18. Do you think the larger community's (e.g., community members not involved in the planning process) awareness of the wildland fire problem has changed as a result of the plan?

*If yes...*

- a. Can you give me some examples that would be evidence of this change?

*If no...*

- b. Why not?

19. The federal policy (HFRA) encourages the development of CWPPs as a way to address wildfire as a larger landscape/regional problem of national scope. How does the CWPP help meet national goals/concerns about wildfire?

*Prompt for the four national goals of HFRA/NFP:*

- *reducing fuels*
- *restoring forests*
- *private property responsibility of fuels management*
- *improving wildfire suppression efforts.*

- a. How does the plan help meet [state's] goals/concerns about wildfire?
- b. How does the plan help meet [county's] goals/concerns about wildfire?

*Prompt for how the plan addresses different state and local goals.*

*Note—we're trying to get an idea about the importance of scale and how issues and plans are nested.*

20. What do you feel was the most significant outcome of your plan?

21. Has your community begun implementing your plan?

*If yes ask...*

- a. What have been the biggest challenges to implementing the plan?

*If no ask...*

- b. What do you think will be the biggest challenges to implementing the plan?

22. Can you think of anything we haven't covered that you experienced in the development of CWPP process that you think might be of interest to other communities, agencies or policy makers? Any additional topics to cover or comments you would like to make to help us better understand CWPP planning?

## **Appendix B**

### **Capacity Themes**

Agencies are there to assist community  
Agency limitations created problems  
Challenges  
Collaboration Experience  
Community awareness and interest is increasing  
Community did not participate on CWPP core team  
Community knowledge of local fire preparedness  
Community has implemented mitigation work in the past  
Community history of distrust towards agencies  
Community facilitates implementation  
Community leadership is critical  
Community members assisted in gaining community buy-in  
Community members on team educate and share information with their communities  
Community members provide resources and information  
Community participation is critical  
Community possesses fire behavior knowledge  
Community possesses knowledge regarding forest ecology  
Community supports CWPP  
Community values drove plan  
Contractors  
Coordinator or facilitator  
County assists with implementation  
County conducted site assessments  
County shares information with community  
County is a community link  
County provided local preparedness and response information  
County provided mitigation information  
County provides resources  
CSFS assists with implementation  
CSFS conducted site assessments  
CSFS educated the community  
CSFS is link between feds and community  
CSFS provided access to grants  
CSFS provided ecological knowledge  
CSFS provided fire behavior information

CSFS provided fire risk information  
CSFS provided maps  
CSFS provided mitigation information  
CSFS was a community link  
CWPP builds networks and relationships  
CWPP creates a common message that is more credible  
CWPP is important as a model for other communities  
CWPP is link to funding  
CWPP is the next step in evolution  
CWPP process helps community understand their landscape  
CWPP was new to everybody  
Fire department assists with implementation  
Fire department provided local knowledge  
Fire department conducted site assessments  
Fire department educates community  
Fire department is a community link  
Fire department provides community buy-in  
Fire department provides fire defense information  
Fire department provided risk assessment info  
Fire depart provides mitigation info  
Fire department offers support  
Framing  
Gaps in information or resources  
Implementation has been occurring  
Information for CWPP development  
Information-sharing builds trust  
Key community member educated community  
Key community member facilitated, coordinated  
Key community member provided ecological knowledge  
Key Community member provided fire behavior info  
Key community member was a community link  
Leadership  
Local government support is key  
Low pre-existing capacity  
Maps and technology  
Personalities of players is key  
Policy issues  
Pre-existing community awareness was high  
Pre-existing community awareness was low  
Pre-existing community awareness was mixed  
Pre-existing community human capital  
Pre-existing networks and working relationships  
Pre-existing fire management capacity  
Pre-existing natural resources management capacity  
Relationships among team members improved  
Relationships built during CWPP will assist in future efforts

Resistance to mitigation  
Risk assessment criteria  
Scaling Up  
Sense of Place  
Shared team understanding  
USFS participation allows for coordinated treatments  
USFS provided ecological information  
USFS Provided Fire Behavior Info  
USFS provided maps  
USFS provided policy information  
USFS Provided Risk Assessment Info  
USFS provided support  
USFS took the back seat  
Wildfires motivate community awareness and concern

**Appendix C**  
**Indicators of Capacity Themes**

| Dimension                                | Indicator   | Measure  |
|--|---|--|
| <b>Preexisting Contextual Capacities</b> |   |  |
| Prior experience                         | <ul style="list-style-type: none"> <li>• The community has worked together amongst themselves or with agency partners to address natural resource or wildfire issues</li> <li>• An individual has experience in natural resources or wildfire planning, or in developing CWPPs</li> <li>• Agency actors have worked together to address wildfire response, natural resources management issues, etc.</li> </ul> | <p>Interview questions targeting:</p> <ul style="list-style-type: none"> <li>• What are examples of the community working together or with agencies in the past</li> <li>• What are examples of agencies working together in the past</li> <li>• Does an individual have a background in natural resource management or in natural resource or wildfire planning</li> </ul>  |
| Networking and mobilizing                | <ul style="list-style-type: none"> <li>• CWPP actors have worked together in the past</li> <li>• CWPP actors knew key individuals to contact to be part of the CWPP team</li> </ul>   | <p>Interview questions targeting:</p> <ul style="list-style-type: none"> <li>• How did the CWPP process begin</li> <li>• Who convened the process</li> <li>• How did actors know who to contact</li> <li>• Had actors worked together in the past, in what context, and to what outcome</li> </ul>   |
| Pre-existing wildfire preparedness       | <ul style="list-style-type: none"> <li>• Agencies and fire districts have a formal system for wildfire response and have worked together in the past on wildfire response</li> <li>• The community is part of a fire protection district</li> <li>• Community members have taken previous action towards mitigation or defensible space</li> </ul>  | <p>Interview questions targeting:</p> <ul style="list-style-type: none"> <li>• What systems and resources are in place to address wildfire preparedness and response</li> <li>• Is the community part of a wildfire protection district</li> <li>• How have agencies and agencies and the community worked together in the past to address wildfire</li> <li>• What actions, if any, has the community taken in the past to mitigate private properties</li> </ul> |

|                         |   |   |
|-------------------------|---|---|
| Community Human Capital | <ul style="list-style-type: none"> <li>• Community members have strong leadership skills/roles</li> <li>• Community members have background/ interest in natural resources or fire fighting</li> <li>• Community members act as liaisons between agencies and their communities</li> </ul>  | <p>Interview questions targeting:</p> <ul style="list-style-type: none"> <li>• Past relationships/networks between community members and community members and agency actors; qualities and resources contributed by individuals (i.e. leadership)</li> <li>• What roles did community members play</li> </ul>  |
| <b>Process Capacity</b> |   |   |
| Community Involvement   | <ul style="list-style-type: none"> <li>• Community members were actively involved in developing the CWPP</li> <li>• The CWPP focuses on local values and concerns</li> <li>• Agency actors provided guidance rather than leadership</li> </ul>  | <p>Interview questions targeting:</p> <ul style="list-style-type: none"> <li>• What role did the community play in developing the CWPP</li> <li>• Who were the major actors in CWPP development, and what roles did they play</li> <li>• What type of information was utilized in developing the CWPP</li> </ul>  |
| Collaborative Learning  | <ul style="list-style-type: none"> <li>• Actors share and exchange information and resources</li> <li>• Community actors learn from agency actors, and agency actors learn from community actors</li> <li>• Information is shared in a manner that is equally understood</li> <li>• Power is evenly distributed in information sharing and decision making</li> <li>• The CWPP development results in the creation/strengthening of positive relationships between actors</li> <li>• CWPP actors share</li> </ul> | <p>Interview questions targeted at:</p> <ul style="list-style-type: none"> <li>• What types of information and resources were important in CWPP development, and which actors contributed them, and how did they know where to access them</li> <li>• Was information easy or difficult to understand</li> <li>• How was information shared</li> <li>• How was power distributed in information sharing and decision making</li> <li>• What were relationships like between actors</li> <li>• How was information shared with the general community</li> <li>• Was there a meeting facilitator</li> </ul> |



|                           |   |   |
|---------------------------|---|---|
|                           | <p>information with the general community</p> <ul style="list-style-type: none"> <li>• CWPP development meetings involve a facilitator in order to guide collaborative learning</li> </ul>  |   |
| Issue Framing             | <ul style="list-style-type: none"> <li>• Actors share information in a manner that appeals to the values of a wide range of stakeholders</li> </ul>   | <p>Interview questions targeted at:</p> <ul style="list-style-type: none"> <li>• What information was the most important/persuasive in gaining support</li> <li>• What was the team's shared understanding of the wildfire issue</li> <li>• How the community perceives the wildfire issue now as compared to before the CWPP process was initiated</li> </ul>  |
| <b>Outcome Capacities</b> |   |   |
| Knowledge Community       | <ul style="list-style-type: none"> <li>• Community is empowered by scientific and ecological information; they understand their landscape better</li> <li>• Community understands fire risk information and how to mitigate; can prescribe their own treatments</li> <li>• Community understands agency policies and limitations</li> <li>• Community can utilize networks to access external resources and assistance.</li> <li>• Agency has understanding of local values and concerns</li> <li>• Agency gains access to local knowledge</li> </ul> | <p>Interview questions directed at determining:</p> <ul style="list-style-type: none"> <li>• Do the community members understand the scientific and technical information (can they discuss it during the interview)</li> <li>• Do the community members have a better understanding of their landscape, and are they better equipped to manage their properties and forests, including prescribing their own future treatments</li> <li>• Do agency partners understand community values and concerns (can they discuss them during the interview)</li> <li>• Did agency members learn new information about the local ecosystems from community members</li> <li>• Do community members understand agency policies and policy implications, and do</li> </ul> |

|   |   |   |
|---|---|---|
|   |   | <p>agency partners understand other agencies' policies</p> <ul style="list-style-type: none"> <li>• Do community members know who to go to for information, assistance or funding in the future</li> <li>• Do federal agency partners feel better equipped to create future management or action plans that will be approved of by the community</li> </ul> |
| New/Strengthened Networks and Working Relationships | <ul style="list-style-type: none"> <li>• Networks have strengthened or have grown; individuals are more likely to contact other individuals in the future than they would have before the CWPP process; individuals know who to go to for resources, whereas they did not before the CWPP process</li> <li>• Relationships between individuals and between agencies and the community have strengthened; individuals enjoyed working together and see the potential for working together in the future; distrust or tension that once existed between the community and agencies has dissolved, and trust now exists</li> </ul> | <p>Interview questions targeted at:</p> <ul style="list-style-type: none"> <li>• What new or improved relationships formed during the CWPP process</li> <li>• How will new/improved relationships assist with future goals</li> <li>• What were relationships like between actors before the CWPP process vs. now; did they even exist</li> </ul>           |
| Increased Potential for Community Collective Action | <ul style="list-style-type: none"> <li>• Community members understand how to mitigate their properties and are able to do so</li> <li>• Community members have an increased understanding of the</li> </ul>   | <p>Interview questions targeted at:</p> <ul style="list-style-type: none"> <li>• Do community members plan utilizing new information and networks to accomplish collective goals, including but not limited to CWPP implementation; have they</li> </ul>  |

|  |  |                                  |
|--|--|----------------------------------|
|  | <p>forest landscape and wildfire, and have increased potential to be good stewards</p> <ul style="list-style-type: none"> <li>• New networks have formed within the community as well as with outside agencies and individuals, and community members know how to use these networks to accomplish future goals; community members know where to access resources and assistance</li> <li>• Community members have the ability and interest to take part in future natural resources management processes</li> <li>• Community members have organized to collectively address community issues since the CWPP process</li> </ul> | <p>already demonstrated this</p> |
|--|--|----------------------------------|

## **Appendix D**

### **Intermediary Themes**

Agencies are there to assist community  
Collaboration Experience  
Community did not participate on CWPP core team  
Community has implemented mitigation work in the past  
Community facilitates implementation  
Community leadership is critical  
Community members assisted in gaining community buy-in  
Community members on team educate and share information with their communities  
Community members provide resources and information  
Community participation is critical  
Community supports CWPP  
Community values drove plan  
Contractors  
Coordinator or facilitator  
County assists with implementation  
County conducted site assessments  
County shares information with community  
County is a community link  
County provided local preparedness and response information  
County provided mitigation information  
County provides resources  
CSFS assists with implementation  
CSFS conducted site assessments  
CSFS educated the community  
CSFS is link between feds and community  
CSFS provided access to grants  
CSFS provided ecological knowledge  
CSFS provided fire behavior information  
CSFS provided fire risk information  
CSFS provided maps  
CSFS provided mitigation information  
CSFS was a community link  
CWPP builds networks and relationships  
CWPP creates a common message that is more credible  
CWPP is link to funding

CWPP is the next step in evolution  
CWPP was new to everybody  
Fire department assists with implementation  
Fire department provided local knowledge  
Fire department conducted site assessments  
Fire department educates community  
Fire department is a community link  
Fire department provides community buy-in  
Fire department provides fire defense information  
Fire department provided risk assessment info  
Fire depart provides mitigation info  
Fire department offers support  
Fire mitigation planning background  
Implementation has been occurring  
Information for CWPP development  
Key community member educated community  
Key community member facilitated, coordinated  
Key community member provided ecological knowledge  
Key Community member provided fire behavior info  
Key community member was a community link  
Leadership  
Local government support is key  
Maps and technology  
Pre-existing community human capital  
Pre-existing networks and working relationships  
Pre-existing fire management capacity  
Pre-existing natural resources management capacity  
Relationships among team members improved  
Relationships built during CWPP will assist in future efforts  
Resistance to mitigation  
Risk assessment criteria  
Shared team understanding  
USFS participation allows for coordinated treatments  
USFS provided ecological information  
USFS Provided Fire Behavior Info  
USFS provided maps  
USFS provided policy information  
USFS Provided Risk Assessment Info  
USFS provided support  
USFS took the back seat

## Appendix E

### Indicators of Intermediary Roles

| Dimension                        | Indicator   | Measure  |
|----------------------------------|---|--|
| Networks                         | <ul style="list-style-type: none"> <li>Actors have created working relationships with other actors</li> <li>Actors know which other actors to contact to access resources and assistance</li> </ul> | Interview questions targeted at: <ul style="list-style-type: none"> <li>How individuals are connected</li> <li>How and from whom the team obtained necessary resources</li> </ul>  |
| Providing resources: Information | <ul style="list-style-type: none"> <li>Actors possess specific knowledge (forest ecology, fire behavior, local knowledge, policy, etc) and share this information with other actors</li> </ul>      | Interview questions targeted: <ul style="list-style-type: none"> <li>What resources and information each actor contributed to the process</li> <li>What types of information was utilized and where it came from</li> </ul>                                |
| Providing resources: Technology  | <ul style="list-style-type: none"> <li>Actors provide technology resources such as GIS</li> </ul>   | Interview questions targeted at: <ul style="list-style-type: none"> <li>What types of resources and information each actor contributed to the process</li> <li>What types of information and resources were utilized and where did it come from</li> </ul> |

|   |   |  |
|---|---|--|
| Providing resources:<br>Financial             | <ul style="list-style-type: none"> <li>• CWPP team and communities have access to funds either through grants or through HOA or individual resources</li> </ul>   | Interview questions targeted at: <ul style="list-style-type: none"> <li>• What types of resources and information each actor contributed to the process</li> <li>• Where did financial resources come from</li> </ul>  |
| Conducting property wildfire risk assessments | <ul style="list-style-type: none"> <li>• Individuals on the team visit a homeowners property and explain concepts of wildfire risk, defensible space and mitigation</li> </ul>  | Interview questions targeted at: <ul style="list-style-type: none"> <li>• What resources or information each actor contributed</li> <li>• Were property site assessments conducted, and by which actor(s)</li> </ul>   |
| Facilitating and organizing meetings          | <ul style="list-style-type: none"> <li>• Individuals organize well-attended meetings and incorporate a range of perspectives and information into the discussions</li> <li>• Individuals organize the information attained during meetings</li> <li>• Individuals keep the process on-track and moving forward</li> </ul> | Interview questions targeted at: <ul style="list-style-type: none"> <li>• What specific roles each member played throughout the process</li> <li>• Was there a facilitator</li> <li>• Who organized and led the meetings, and who organized the information</li> </ul>           |
| Leadership                                    | <ul style="list-style-type: none"> <li>• Actors initiate networks with other actors</li> <li>• Individuals have assumed leadership roles in the past</li> <li>• Individuals (agency or community) take</li> </ul>   | Interview questions targeted at: <ul style="list-style-type: none"> <li>• Who convened the CWPP process</li> <li>• Had individuals played leadership roles in the past</li> <li>• How did each player become involved</li> <li>• What roles did community actors play</li> </ul> |

|                |   |   |
|----------------|---|---|
|                | <p>the lead in convening the CWPP and moving it forward</p> <ul style="list-style-type: none"> <li>• Community actors act as liaisons for their communities</li> </ul>                |   |
| Implementation | <ul style="list-style-type: none"> <li>• Actors possess the resources, skills, and networks necessary to implement the CWPP</li> <li>• Actors intend to implement the CWPP</li> </ul> | <p>Interview questions targeted at:</p> <ul style="list-style-type: none"> <li>• Has implementation been occurring</li> <li>• Do actors possess the information, resources and skills required to implement the CWPP</li> <li>• Do actors intend to participate in implementing the CWPP</li> </ul> |



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