II.4. Community Preparedness

As has been stated previously, it is not a mater of if wildfires will occur in Humboldt County, but when. However, a wildfire does not have to be a disaster. It is possible to prepare for wildfire to minimize its impact on the community and individuals. Community members can greatly improve their odds of surviving a wildfire if they actively engage in preparedness activities. Early preparation is not just recommended for residents living in the warmer and drier inland areas of the county but also for those living on the coast. Wildfire history shows that forest fires can burn right to the ocean and, contrary to common perception, redwood forests do burn.

Through the community outreach associated with developing this Plan, it has become clear that many residents are unaware of their vulnerability to damage from wildfire. Even when awareness is increased, many property owners do not have the resources or the expertise to address their fire safety issues. However, if this wildfire threat is not addressed, Humboldt County will become increasingly vulnerable to loss of homes and life. With no action, the complexity of fighting fires where homes are intermixed in the wildlands will continue to challenge the efforts and safety of firefighters. The result is not only a threat to valuable community resources but also increases wildfire management costs during a time of shrinking budgets.

Although there are places where preparedness activities need to be initiated, action is being taken in specific areas of the county by groups of citizens and individuals. Community preparedness is being advocated by local fire safe councils, Firewise groups, local fire departments, the California Department of Forestry and Fire Protection (CAL FIRE), the United States Forest Service (USFS), and other local community organizations. The Humboldt County Fire Safe Council (HCFSC) works to support these groups and bring them together to collaboratively develop strategies to help communities prepare for wildfire and take actions that will mitigate potential negative impacts.

II.4.1. Fire Safe Councils

Local Fire Safe Councils

Fire safe councils (FSCs) are voluntary organizations that typically consist of local concerned citizens, representatives from state and federal fire agencies, and local fire districts and fire protection organizations who share a common, vested interest in wildfire prevention and loss mitigation. FSCs form to enhance the effectiveness of fire protection and prevention by securing grant funds and volunteer support for fire hazard reduction projects and performing community fire-safety education. Communities that organize themselves into FSCs and participate in a community wildfire protection plan (CWPP) and/or Firewise process give themselves a competitive advantage for securing grant funds, particularly federal funding through the California FSC. FSCs also provide the ideal forum for communities to discuss, analyze, and solve fire-related issues before they become a crisis. They also provide opportunities for local jobs, community partnerships, and wide-spread community involvement. To learn more about forming and sustaining a FSC go to the California FSC website at: www.firesafecouncil.org

There are six local FSCs in Humboldt County, in addition to the County FSC. Residents of several additional Humboldt County communities are working to establish new FSCs in their areas. These FSCs are developing local CWPPs and Firewise community assessments and action plans. They have also been successful in securing funding for and implementing *hazardous fuels reduction* projects within their local communities. These groups have also organized many community events raising awareness in their community about preparing for wildfire. FSCs secure funding and volunteer support for programs that educate residents and provide resources for steps that can be taken to help firefighters locate residents' homes and gain access to *fire*

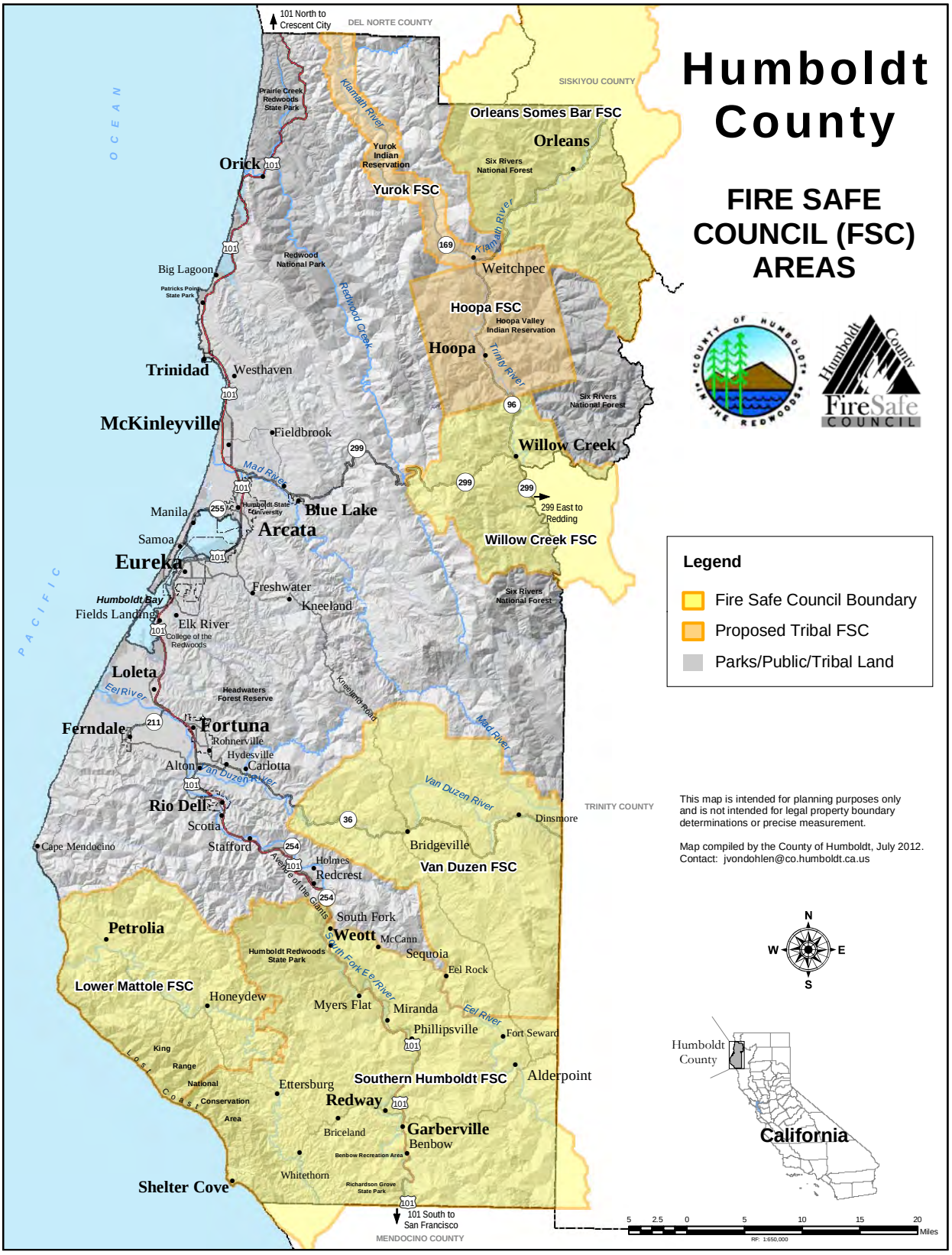
protection water. The following table lists currently active local FSCs and their contact information and Figure II.4-1 provides an illustration of where most of the local FSCs operate.[1] This map also includes the areas potentially served by newly forming FSCs on the Hoopa Valley Reservation and the Yurok Reservation. *More detailed information about all local FSCS can be found within Part IV. Planning Unit Action Plans.*

Figure II.4-1. Humboldt County Fire Safe Councils

Fire Safe Council Name	Formation Date	County CWPP Planning Unit	Contact information
Orleans/Somes Bar FSC	2001	East Klamath (Unit3)	(530) 627-3202 mail@mkwc.org www.mkwc.org/programs/firefuels/index.html
Southern Humboldt FSC	2002	Southern Humboldt (Unit 13)	(707) 923-9109 bille@asis.com www.newforestry.org/shfsc/
Lower Mattole FSC	2002	Mattole-Lost Coast (Unit 12)	(707) 629-3514 firesafe@mattole.org
Van Duzen Watershed FSC	2004	Mad-Van Duzen (Unit 11)	(707) 496-4530 jeanlouiscarmona@yahoo.com
Crooked Prairie FSC	2005	Southern Humboldt (Unit 13)	(707) 986 7705 kw@asis.com
Willow Creek FSC	2007	Trinity (Unit 7)	(707) 499-0767 admin@willowcreekfsc.org www.willowcreekfsc.org

[1] The map does not show the jurisdictional area of the Humboldt County FSC, which operates throughout the entire county.

Figure II.4-2: Fire Safe Council Area Map



Potential Fire Safe Council Startups

During the community outreach process associated with developing this Plan, several communities expressed an interest in forming a FSC. These communities include:

- Hoopa Valley Reservation
- Yurok Reservation
- Westhaven/Trinidad
- Orick
- Redwood Valley
- Kneeland
- Upper Jacoby Creek

For more information on the public process, see Part I of this CWPP.

Humboldt County FSC

The Humboldt County Board of Supervisors (BOS) formed the HCFSC in 2002. The BOS recognized that community-based fire planning efforts assist residents in making their homes, neighborhoods, and communities fire safe.

The mission of the HCFSC is to:

> Serve as a forum for the implementation of Humboldt County's CWPP, share fire-safety information, assess fire risk, promote community fire-safe planning and coordination, link fire-prevention programs, and support the fire service and local FSCs.

The HCFSC membership consists of 16 individuals representing federal, state, and local fire service agencies and organizations, along with local FSCs, the Hoopa Valley Tribe, the Humboldt County Office of Emergency Services (OES), CAL FIRE, the Bureau of Land Management (BLM), Six Rivers National Forest, and the insurance industry. Since overseeing the development of a countywide fire plan in 2006 (the Master Fire Protection Plan, or "MFPP," now referred to as the CWPP), the HCFSC has made much progress implementing several elements of the MFPP *(see Chapter I.4. 2006 Plan Implementation Progress Review, in Part I).*

Accomplishments include:

- drafting a hazardous fuels plan update;
- creating a Web GIS[2] tool showing the current level of fire service and community identified needs for hazardous fuels reduction;
- funding for and implementation of a cost-share program for treating flammable vegetation (Fire-adapted Landscapes and Safe Homes—FLASH--Program);
- assisting local FSCs with their CWPPs and Firewise activities;
- assisting with fire protection district expansion and formation;
- and much more…

To ensure implementation of the recommendations of the County CWPP, various subcommittees of the HCFSC have been formed, focusing on the following programs:

- Fuel Modification/Biomass Utilization
- Revenue Source for Fire Protection
- Level of Service (LOS) Standards

[2] Geographic Information Systems (GIS).

- Improve Emergency Dispatch Services
- Safety Element of the County General Plan Update

The committees meet regularly and are making significant progress.

The HCFSC provides guidance for a County-funded program that offers staff assistance and small grants to local FSCs to support the development of CWPPs and to help with the process of becoming a nationally recognized Firewise Community. The HCFSC also provided valuable input and guidance in the development and update of this CWPP and informed the processes of updating the Humboldt County General Plan (GPU). GPU input included recommendations for the fire protection and prevention policies and implementation measures of the GPU Safety Element and the Community Infrastructure and Services Element.

The HCFSC meets quarterly to discuss progress on projects and share ideas. There is often a special presentation provided by a content expert related to one of the major themes of wildfire mitigation and management or community preparedness. These meetings are open to the public and all are welcome. More information about these meetings and the HCFSC is available at: www.co.humboldt.ca.us/natural-resources/fire_safe_council/.

California FSC

In 1993, the statewide FSC, consisting of private and public membership, was formed to educate and encourage Californians to plan and prepare for wildfires by reducing the risk of fire to property, communities, and natural/structural resources. In 2002, this group created a nonprofit organization and board of directors, called the California Fire Safe Council (CFSC). The CFSC Mission is: Mobilizing Californians to protect their homes, communities and environments from wildfire, and their vision is: Together, people and communities have eliminated the impact of catastrophic wildfires on all they hold dear.

Since its formation, the CFSC has united its diverse membership to speak with one voice about fire safety. The CFSC has distributed fire prevention education materials to industry leaders and their constituents, evaluated legislation pertaining to fire safety and empowered grassroots organizations to spearhead fire safety programs. The CFSC provides assistance to local FSCs through: the CFSC website (www.firesafecouncil.org), the distribution of educational materials, and technical assistance--primarily through their regional representatives. More than 130 local FSCs have formed in California so far. More continue to form throughout the state, working to plan, coordinate, and implement fire prevention activities.

The CFSC works closely with the California Fire Alliance to facilitate the distribution of National Fire Plan grants used for wildfire risk reduction and education through their Grants Clearinghouse (www.grants.firesafecouncil.org). The HCFSC as well as most of the local FSCs in Humboldt County have taken advantage of this grant program; brining much needed funding into the county to support wildfire mitigation and planning projects.

Northern California Prescribed Fire Council

The Northern California Prescribed Fire Council (the Council) was formed in 2009. Since then, they have built a strong foundation with an established Steering Committee and by-laws. The Council provides a forum for discussions on prescribed fire practices, regulations, and policies, and aims to facilitate the use of prescribed burning as a fire management tool in Northern California. Semi-annual events hosted by the Council bring together a range of individuals working together to promote this goal and to increase public understanding of the benefits of prescribed burning and the role of fire in ecosystems.

The mission of the Northern California Prescribed Fire Council is to:

> "Serve as a venue for practitioners, state and federal agencies, academic institutions, tribes, coalitions, and interested individuals to work collaboratively

to promote, protect, and expand the responsible use of prescribed fire in Northern California's fire adapted landscape."[3]

The Council's Steering Committee consists of individuals representing state and federal land management agencies, environmental groups, regulatory agencies, educational institutions, tribes and indigenous coalitions, private practitioners, and local watershed and fire safe councils. These include: CAL FIRE, the United States Department of Agriculture Forest Service, the BLM, the National Park Service, the Nature Conservancy, the Wilderness Society, North Coast Unified Air Quality Management District, Humboldt State University, University of California Cooperative Extension, the Karuk Tribe, the Indigenous Peoples' Southwest Research Station, Firestorm Wildland Fire Suppression Inc., the Mid Klamath Watershed Council, and the Orleans/Somes Bar FSC. These organizations and individuals participate in the Council through working groups, attendance at open meetings, and various field tours.

The Northern California Prescribed Fire Council manages a website which contains numerous informational and outreach resources and links.[4] These include recent publications on prescribed burning practices, news articles pertaining to prescribed fire, a "CAL FIRE Vegetation Management Program Fact Sheet" and a "Air Resources Board Rx[5] Fire Fact Sheet," as well as links to other websites dedicated to providing information related to fire science.

II.4.2. Firewise

The Firewise Communities/USA program provides a unique opportunity to America's fire-prone communities. Its goal is to encourage and acknowledge action that minimizes home loss to wildfire. It teaches community members to prepare for a fire before it occurs. For more detailed information about Firewise, you can visit their website on-line at: www.firewise.org. To receive Firewise recognition, a community must:

- Conduct a community assessment and draft an action plan to address observed fire safety issues;
- Sponsor a local Firewise board to maintain local Firewise programs and track accomplishments;
- Observe an annual Firewise day dedicated to a local Firewise project;
- Invest a minimum of $2.00 annually per capita into local Firewise activities; and
- Submit an annual report to Firewise Communities/USA, documenting continued compliance with the program.

The HCFSC and County staff have worked closely with local communities to gain recognition as Firewise Communities/USA sites. Secure Rural Schools Act, Title III grants have been awarded by the County to local FSCs to conduct community risk assessments, write Firewise plans and hold community Firewise days in coordination with local fire departments. The National Fire Protection Association's (NFPA) Firewise Communities program teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action to prevent losses. The program provides many tools and resources to communities.

As of 2011, the Humboldt County communities of Bridgeville, Honeydew, Orleans, Petrolia, and Willow Creek had achieved national Firewise recognition. Several more communities are interested in participating in the program and some have taken meaningful steps toward becoming

[3]Northern California Prescribed Fire Council. (2012). *About Us: Our Mission.* Retrieved from http://www.norcalrxfirecouncil.org/About_Us.html

[4] Northern California Prescribed Fire Council. (2012). *Resources*. Retrieved from http://www.norcalrxfirecouncil.org/Resources.html.

[5] Rx = Prescribed fire

Firewise. One very good example of this is in the Upper Jacoby Creek Neighborhood, near the City of Arcata. After helplessly watching a neighbor's house burn to the ground, a group of residents dubbed themselves the Upper Jacoby Creek Firewise Board and committed to becoming a Firewise Community. This group worked diligently to better understand local risks and hazards. The importance of preparing their community for wildfire was realized when they learned that their homes are not located within the boundaries of any local fire protection district and that it could take up to 45 minutes for emergency responders to arrive on the scene. In October 2011, this group of dedicated residents held a Firewise event at the bottom of their road with the intention of getting fire safety information out to their neighbors. At the end of the 2012, the Upper Jacoby Creek Firewise Board completed a Firewise Community Assessment and Action Plan, submitted their application, and successfully achieved recognition as a Firewise Community.

Firewise assessments and action plans serve as excellent tools for communities to collaboratively learn about and identify actions to address wildfire hazards in their community. Firewise also provides an opportunity for communities, not only to raise awareness about wildfire risks, but to showcase what they are already doing to mitigate those risk. Community Firewise events have been used to share the results of successful projects such as; a new or updated local fire plan, educational brochures or videos, or mechanical treatments and prescribed burns to manage hazardous vegetation and improve forest health. Some of the communities that have achieved Firewise status were also awarded Title III grant funds from the County to implement components of their action plan. So far, Willow Creek and Bridgeville have used funding to design *Blue Dot Programs* (where a round, blue reflector is placed on water sources) that help identify and/or develop water sources that are appropriate for fighting fires. The Bridgeville project also includes posting of address and road signs to improve the ability of firefighters to find residences in an emergency.

II.4.2. Fire Service Preparedness Programs

Being prepared for wildfire involves learning about how to take advance steps that will mitigate damage if a fire does occur, how to prevent fire, and what to do when a fire occurs. The fire service achieves these goals through what they call "prevention and education" programs. Fire prevention and education programs can significantly lessen the chance of fire occurring and the cost of damage from and suppressing fire when it does occur. There are a number of agencies involved in the development and delivery of fire prevention and education materials. The following is a description of fire prevention and education activities by fire-related agencies in Humboldt County.

II.4.3. Local Fire Education And Prevention Programs

Fire Prevention Officers Section

The Fire Prevention Officers Section of the Humboldt County Fire Chiefs' Association brings together the fire prevention officers of fire departments throughout the county. This group contains approximately 12 regular members and meets on a monthly basis. The Fire Prevention Officers Section acts as a working group for local fire prevention officers. Recently, the Fire Prevention Officers Section has been working to clarify state and federal fire prevention construction and occupancy standards in order to assist contractors, business operators, local government, and local fire agencies to improve fire safety. To that end, they are developing standards for smoke detectors, key boxes, fire department connections, fire sprinkler inspector test and alarm monitoring, fire extinguishers, cooking hoods, premises identification, roads, burn permits, and gated communities. The Fire Prevention Officer's Section also manages the smoke simulator trailer used at the Humboldt County Fair and in schools.

More information about the Fire Prevention Officers Section of the Humboldt County Fire Chief's Association can be found by visiting their webpage on the City of Eureka's website

located at: http://www.ci.eureka.ca.gov/depts/fire/prevention/standards.asp, or by emailing Fire Chief, Lon Winburn at lwinburn@fortunafire.com.

Humboldt Bay Fire Department

Humboldt Bay Fire represents the consolidation of the Eureka Fire Department (protecting the City of Eureka) and the Humboldt No. 1 Fire Protection District (protecting the greater Eureka area). Consolidation talks were on going for 50+ years until finally in 2012 the Humboldt Bay Fire Joint Powers Agreement was signed in November of 2012 officially combining the two entities.

Community fire protection can be divided into two strategic elements: reactive and proactive. The reactive element involves committing resources to an incident after it has started; this is the role of the Suppression Division of Humboldt Bay Fire. The proactive element addresses the prevention of incidents, and the minimization of incident impacts, through safety education and code enforcement; this is the role of Humboldt Bay Fire's Fire Prevention Division. The Fire Prevention Division administers specialized services involving fire code enforcement, fire education, fire investigation, and State-mandated building code enforcement and inspections. The Fire Prevention Bureau supports the Suppression Division by providing additional personnel for incident management, project administration, support services, training, and vacancy back-fill.

The fire prevention and safety education activities of Humboldt Bay Fire are closely tied to the themes of the National Fire Protection Association. The Fire Prevention Division provides public education in schools, at fairs and other events, and during fire prevention week. It also provides specialized fire safety classes on fire extinguisher use, first aid, and hazardous materials (awareness and operator level).

Humboldt Bay Fire conducts extensive school visits during Fire Prevention Week (which occurs annually during the week containing October 9th – the date of the 1871 Chicago Fire). The Department provides fire safety lectures and demonstrations for all grades. Humboldt Bay Fire distributes smoke detectors to students in return for a signed "contract" that contains requirements for installation, maintenance, and regular battery replacement.

Humboldt Bay Fire can be contacted by calling Battalion Chief William Reynolds at (707) 441-4000 or (707) 445-4900, or by sending an email to: wreynolds@HBFire.org. More information can also be found by visiting their website at: http://humboldtbayfire.org/

Arcata Fire Protection District

The Arcata Fire Protection District has an active fire prevention/safety education program. The Arcata Volunteer Fire Department visits pre-school to high school classes within the District year-round, and provides "show and tell" with the engines and equipment, gives "Stop, Drop, and Roll" drills, tests students' knowledge of fire safety using flash cards, and plays "Fire and Life Safety Bingo" with older students. The Arcata Fire Protection District primarily develops and distributes its own education materials.

The Fire and Life safety trailer, owned by the Humboldt County Fire Prevention Association, is normally housed at the Mad River station of the Arcata Fire Protection District. The District uses the trailer on a regular basis to deliver fire safety education to children in schools and the community.

The Arcata FPD can be contacted by calling (707) 825-2000; more information can be found by visiting their website at: www.arcatafire.org/.

Fortuna Volunteer Fire Department

The Fortuna Volunteer Fire Department (VFD) provides fire prevention and safety services through their Fire Prevention Division and Public Education Division. Their efforts include implementing and maintaining community outreach programs that educate and inform the public

about fire prevention; in addition to giving safety presentations on a range of topics, the Fortuna VFD also distributes informational materials at local community events. The Fortuna VFD is also committed to enhancing public safety by conducting fire safety inspections at businesses, residences, schools, as well as children's day cares and senior residential care units.

The Fortuna VFD may be contacted by calling (707) 725-5021 or sending an email to Fire Chief, Lon Winburn at lwinburn@fortuanfire.com; more information can also be found by visiting their website at: http://fortunafire.com/.

Fire Prevention and Building Plan Review

According to the Humboldt County Building Inspection Division (BID), fire departments are only involved in commercial permit/plan review and review of permits for commercial uses and special occupancies. Some departments, such as Arcata, Humboldt Bay, Fortuna, and others, have the capabilities to perform in-house plan review. If a local department does not have capacity to do a plan review, the BID or the State Fire Marshall will perform the required review. In some cases, such as when a complicated fire sprinkler system is required, consulting engineers perform the review.

II.4.4. State Fire Education and Prevention Programs

California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE, through the Unit Fire Prevention Officer, maintains an active fire safety education program. The CAL FIRE website[6] contains a wide variety of fire safety information, including:

- a homeowner's safety awareness checklist and other homeowner responsibility information;
- camping and burn permit information;
- tips regarding the safe use of holiday fireworks;
- teacher's tools and Smokey Bear information for kids;
- Roadside Fire Prevention Signs;
- Smokey Bear Fire Danger Rating Signs; and
- information regarding the CAL FIRE Volunteers in Prevention Program.

The CAL FIRE, Fire Prevention Officer and other staff visit elementary schools in the springtime, prior to the beginning of fire season, and disseminate fire safety education. CAL FIRE uses a "team teaching" approach to delivering elementary school fire safety education, working with teachers, local fire agencies, and Volunteers in Prevention program participants. Subjects include match safety, Smokey Bear, and exercises focusing on "two ways out" of the house for kids, "Stop, Drop and Roll," "911," and "Fire Drill."

The Volunteers in Prevention program (VIP) involves private citizens who donate their time to provide public education at community events, distribute fire prevention materials, inspect homes for proper clearances, and support emergency fire information and communications operations. CAL FIRE has 2,600 VIPs statewide and many local VIP participants. VIP also includes a specialized group of volunteers (HAM radio operators and CB radio groups) who provide additional communication networks for CAL FIRE during emergencies, including wildfires, earthquakes, and floods.

CAL FIRE also supports Fire Prevention Week and Wildfire Awareness Week, participates in local disaster fairs, and works with local fire agencies at a booth at the Humboldt County Fair.

[6] CAL FIRE (California Department of Forestry and Fire Protection). (2012). Retrieved from http://www.fire.ca.gov/

The booth includes a simulator for children to practice "two ways out" of the house in a mock-up of a bedroom with simulated smoke. CAL FIRE also funds and carries out various types of wildland fuels treatments, for the purpose of reducing fire hazard or severity, through a number of programs. Programmatic environmental documents provide the California Environmental Quality Act (CEQA) disclosure and analysis for fuels projects carried out under the Vegetation Management Program[7] (VMP) and California Forest Improvement Program[8].

The State Responsibility Area (SRA) Fire Prevention Benefit Fee[9] was enacted in 2011 as new annual Fire Prevention Fee to support fire prevention services within the SRA. The fee is applied to all habitable structures within the SRA. Property owners are charged $150 fee per habitable structure; defined as a building that can be occupied for residential use. A reduction of $35 per habitable structure will be granted for properties located within the boundaries of a special district that provides local fire protection services.

Although this fee was enacted to generate revenue for much needed wildfire prevention activities, it has been controversial in Humboldt County and the state at large. Local fire departments are concerned that residents who must pay the fee will be less inclined to support their local fire protection services. The Howard Jarvis Taxpayers Association[10] filed a class action lawsuit that claims that the fee is illegal. The future of the fee is unclear, but in the meantime, property owners are required to pay the fee.

The CAL FIRE VMP is a cost share program that allows public and private landowners to participate in wildland fuel reduction projects. The primary tool used is prescribed fire, although in more recent years CAL FIRE has used the program for mechanical treatments of vegetation as well. The VMP program also acts as a public education tool in that it demonstrates reduction in wildland fuels and in some cases improvement of wildlife habitat.

For more information about CAL FIRE's Fire Prevention Unit, please contact Pre Fire Planning, Battalion Chief, Mark Rodgers by sending an email to mark.rodgers@fire.ca.gov or visit the CAL FIRE website at: www.fire.ca.gov/.

University of California Cooperative Extension Supported Programs

The University of California Cooperative Extension (UCCE) Humboldt-Del Norte Counties chapter devotes energy, research, and resources to addressing local issues. Improving fire safety and achieving a greater understanding of the role of fire in human and natural communities are among their many goals. The UCCE has developed a range of useful publications, online tools, and other resources providing fire-related information and materials on topics including: hardening homes against wildfire and fire-safe landscaping strategies; the science of fire and prescribed burning techniques; and the influence of sudden oak death on fire ecology, fire behavior, and fire suppression operations. Additionally, the UCCE has staff available for answering fire-related questions and advising homeowners on how to improve their fire safety and preparedness.

Some of their online resources pertaining to fire include the following:

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[7] CAL FIRE. (2005, April). *CDF Vegetation Management Program (VMP).* Retrieved from http://www.fire.ca.gov/resource_mgt/downloads/VMP2.pdf

[8] CAL FIRE. (2012). California Forest Improvement Plan. *Resource Management.* Retrieved from http://calfire.ca.gov/resource_mgt/resource_mgt_forestryassistance_cfip.php

[9] State of California: California Fire Prevention Fee. (2012). *About the Fire Prevention Fee*. Retrieved from http://www.firepreventionfee.org/index.php

[10]Howard Jarvis Taxpayers Association (HJTA). (2012, October 3). HJTA Files Class Action Lawsuit Against Fire Tax. *Press Releases.* Retrieved from http://www.hjta.org/press-releases/pr-hjta-files-class-action-lawsuit-against-fire-tax

- "Home Survival in Wildfire-Prone Areas: Building Materials and Design Considerations"[11] - A publication outlining the importance of defensible space in protecting homes from destruction from wildfire and providing information to guide homeowners in making "fire wise" decisions regarding their home design and choice of building materials. This publication offers detailed explanations and illustrative photographs on which design strategies are more vulnerable or resilient to wildfire and why. This publication helps enhance the reader's general fire awareness and preparedness.
- "Homeowners Wildfire Mitigation Guide"[12] - This section includes an exploration of various factors contributing to the likelihood of home ignition and destruction. This section also offers advice on how to increase your home's survivability in wildfire events. It outlines basic improvements that can be made to the tops and sides of houses, as well as vents and surrounding landscapes to increase a home's resilience to wildfire. There are also a number of appendices that include useful materials such as a list of inexpensive "quick fix" suggestions, a pre-evacuation checklist, and a checklist for surveying your home's surroundings and potential vulnerability.
- "Sudden Oak Death-Caused Changes to Surface Fuel Loading and Potential Fire Behavior in Douglas-fir-tanoak Forests:"[13] - A publication on the ways the presence of sudden oak death can impact the spread and intensity of wildland fires and what that means for firefighters' suppression strategies.

The Fire section within the UCCE website also provides a link to the California Fire Science Consortium (CFSC) website[14] which serves as a forum for exchanging fire knowledge and aims to make fire science information available to the greater public. In addition to providing the most up-to-date research and information on fire ecology, the CFSC website hosts a discussion forum, a number of fire-related webinars and blogs, as well as a monthly newsletter. The CFSC website also includes a page through which people may submit questions and receive answers from fire experts in California.

More resources and information can be obtained by visiting the Fire section of the UCCE Humboldt-Del Norte Counties website at: http://cehumboldt.ucdavis.edu/Fire/; the Humboldt County UCCE office can also be reached by calling (707) 445-7351.

Community Emergency Response Teams (CERT)

Opportunities for Humboldt County residents to increase their emergency preparedness are available through the Regional Training Institute, an information center that collaborates with Humboldt State University's Office of Distance and Extended Education to offer regional disaster preparedness training in Humboldt, Del Norte, Mendocino, Trinity, and Siskiyou counties. The

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[11]Quarles, S.L., Valachovic, Y., Nakamura, J.M., Nader, G.A., & De Lasaux, M.J. (2010, May). Home survival in wildfire-prone areas: Building materials and design considerations. *UCANR (University of California: Agriculture and Natural Resources) Publication 8393.* Retrieved from http://anrcatalog.ucdavis.edu/pdf/8393.pdf

[12] UCANR (University of California: Agriculture and Natural Resources). (2012). *Homeowner's Wildfire Mitigation Guide*. Retrieved from http://ucanr.org/sites/Wildfire/

[13] Valachovic, Y., Lee, C.A., Scanlon, H., Varner, J.M., Glebocki, R., Graham, B.D., & Rizzo, D.M. (2011). Sudden oak death-caused changes to surface fuel loading and potential fire behavior in Douglas-fir-tanoak forests. *Forest Ecology and Management, 261, 1973-1986.* Retrieved from www.cafiresci.org/storage/papers/psw.2011.valachovic.SODcausedchanges.FEM.pdf

[14]California Fire Science Consortium. (n.d.) Retrieved November 26, 2012 from http://www.cafiresci.org/

Institute's primary focus is *Community Emergency Response Teams* (CERT) training courses, which offer groups of local citizens training in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. These skills and training make it so that CERT members can effectively assist others in their community and neighborhoods following a disaster event. These community teams become especially valuable when professional emergency responders are not immediately available to help, which is not unlikely in the more remote communities of Humboldt County. These courses utilize informational material provided to Citizen Corps by FEMA's Emergency Management Institute and augment that material with information specific to the northwestern California region.[15] Although CERT training comprises the cornerstone of the Regional Training Institute, they also offer other regionally specific preparedness classes, such as a "Living on Shaky Ground" course that helps inform and prepare citizens for disastrous earthquake incidences.

More resources and information can be found by visiting the Regional Training Institute website at: www.humboldt.edu/rti; emailing rti@humboldt.edu, or calling 707-826-3731.

II.4.5. Federal Fire Education and Prevention Programs

U.S. Forest Service – Six Rivers National Forest Wildfire Prevention Program

The Six Rivers National Forest (SRNF) wildland fire prevention program focuses primarily on wildfire detection, wildfire origin and cause investigations, State commercial burning permit issuance, public education, and community fire-safe awareness. SRNF fire prevention activities also include enforcement and permit compliance operations and oversight for forest industrial operation and permittee activities that occur on both private and SRNF National Forest lands.

In addition to the SRNF Wildfire Prevention Plan, each local Ranger District maintains and annually updates a local prevention plan. The objective of the prevention plan is to provide specific local direction to fire management personnel on prevention activities in the Districts. Each Ranger District is involved in implementing the SRNF Wildfire Prevention Plan. The Plan's principal goal is to sustain healthy and productive ecosystems and to protect human life and property.

Plan components related to fire prevention/safety education include:

- Structural Hazard Inspection and Debris Management
- School Presentations, Team Teaching, and Children with Matches
- Public Information Programs (at Visitor Centers, Rodeos, Fairs, Parades, etc.)

Public education-related prevention tasks include the use of fire danger ratings, involvement in FSCs, and involvement in various public events. Ranger District level staff has provided educational outreach throughout the SRNF and Humboldt County, including the Humboldt County Fair (including the fire and smoke safety trailer with the Humboldt County Fire Prevention Association, CAL FIRE, and local fire organizations), Fire Prevention Week, team teaching in schools, and other local events. District staff utilizes education materials, including the Smokey Bear costume and associated symbols, to convey fire safety themes to children.

SRNF fire prevention education objectives include: instituting programs to make local communities aware of the need for local residential hazard reduction; public education to reduce the number of abandoned campfires; and education and public contact to strive for a zero occurrence of fires set by children playing with matches.

[15] Humboldt State University: Regional Training Institute – Community Disaster Preparedness. (n.d.) *Community Emergency Response Teams (CERT) Training.* Retrieved November 27, 2012 from http://www.humboldt.edu/rti/cert

More information on SRNF can be found by visiting their website at: www.fs.usda.gov/main/srnf/home, calling (707) 441-3604, or by sending an email to Fire Prevention Officer, Robert Rivelle at rrivelle@fs.fed.us.

BLM Wildfire Prevention Program

The BLM Arcata Field Office's wildland fire prevention efforts are concentrated on community fire-safe awareness and educating the public on the benefits of fire prevention and the necessity of a proactive hazardous fuels management/reduction program. Particular program emphasis is placed on community education programs for those wildland-urban interface (WUI) areas and communities at risk within or adjacent to BLM public lands. Additionally, in 2011, the California BLM put out a publication titled, "Wildfire Protection,"[16] which outlines some of the challenges to fire protection within the state, as well as the BLM's contributions and project efforts to improve fire safety in California.

More information on the BLM's wildland fire prevention efforts in Humboldt County can be obtained by contacting Fire Management Officer, Tim Jones at tmjones@blm.gov, or by calling the BLM Arcata Field Office at (707) 825-2300 or visiting their website at: www.blm.gov/ca/st/en/fo/arcata.html.

II.4.6. Areas Without Any Community Preparedness Leadership

There are still areas in Humboldt County where there is a pressing need for organized efforts to prepare community members for wildfire and other natural hazards. These areas include the following:

- **Maple Creek** – The Maple Creek Fire Company recently shut its doors and ceased operating. This leaves community members without committed, near-by, year-round emergency service. Blue Lake Fire and Kneeland Fire will respond to the area but may not always be available and have long travel times to arrive on scene. The Maple Creek area is also not served by a local FSC or Firewise group.
- **Redwood Valley and Titlow Hill** – These areas do not have a local fire department. Blue Lake and Willow Creek Fire will and do respond to these areas but it can take up to 45 minutes to arrive on scene and it is outside of these fire department's jurisdictional area so resources may not always be available. During fire season CAL FIRE is responsible for fire protection in this area from their Trinidad fire station, which is close to an hour away. The Willow Creek FSC offers some of their preparedness programs to this area but it is far for them to travel. There is a clear need for the development of a local effort.
- There are many developed areas within the county that are outside of the boundaries of a service districts. The fire departments associated with the districts will respond to these areas but have no obligation to do so and receive no compensation for their efforts. Many of these places are far from fire stations and expect long response times from fire service. Residents of these areas need to prioritize personal responsibility for their safety and make sure to carry out effective wildfire mitigation activities. Where they do not already exist, there is a need for local wildfire preparedness groups and organizations in these areas.

[16] U.S. Department of the Interior, Bureau of Land Management (BLM) California. (2011). *Wildfire Protection.* Retrieved from http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/caso/publications.Par.31582.File.dat/SinglePages.pdf.

II.5. Risk Assessment Summary

II.5.1. Community-Identified Risks, Hazards, Assets, and Resources

Through this Community Wildfire Protection Plan (CWPP) process, a series of 16 community workshops were held throughout Humboldt County in early 2012. At those meetings, residents were given the opportunity to review previously identified local risks, hazards, fire protection resources, and assets information from the 24 community meetings held in 2004 and 2005 for the 2006 Master Fire Protection Plan (MFPP). A similar process to identify risks, hazards, assets, and fire protection resources was undertaken using the mapping exercise described in Part I of this CWPP. This extensive public process has led to the development of a large database of community-identified information. That database is available for public review and use at the Humboldt County Web GIS Portal, http://gis.co.humboldt.ca.us/ under the "Fire Planning" application. A summary of the data gathered at each meeting is provided in each Planning Unit Action Plan document in Part IV of this CWPP. This community-generated information was also included in the analysis for this risk assessment summary.

II.5.2. Summary of the Humboldt County Risk Assessment

Although the probability of wildfire seems low to many in and outside of coastal Humboldt County, this risk assessment has shown that the possibility of a large wildfire conflagration and resulting damage is highly likely, especially given the current changing weather patterns. All Humboldt residents, organizations, and government entities share this risk, as well as a responsibility to minimize it.

The following presents a summary analysis of each of the Risk Assessment chapters in Part II of this Plan. The analysis is based on a qualitative scale from "low" to "very high", with "very high" signifying the highest risk. In the case of Wildfire Protection Capabilities and Community Preparedness, a lower rating signifies higher risk.

Wildfire Environment

Risk of Wildfire Occurrence

"Risk of wildfire occurrence" refers to the possibility of a wildfire occurring based on factors such as fire history and ignition risk *(see Figure II.1-11. Fire History Map 1908-2010 and Figure II.1-12.Potential Incendiary Wildfire Ignition Sources Map in Chapter II.1.Wildfire Environment of this Risk Assessment).* Risk is based on historic evidence of wildfire starts and the presence of ignition sources such as frequent lightning storms, occupied residential properties, widespread camping, power lines, heavily traveled roads, history of arson, and logging operations. Fire has been a significant factor in Humboldt County's history. Studies have suggested an historical *fire return interval* of 50 to 100 years in the northern part of the county, and 12 to 50 years in the south.[1] The county also has a strong presence of *ignition sources* with a prevalence of homes sprinkled throughout Wildland-Urban Interface (WUI) areas, power lines crisscrossing the county, and a massive network of well-traveled rural roads. Lightning fire ignitions are generally less prevalent in Humboldt County than in other areas but they do occur; especially in the northeastern area of the county. Marijuana cultivation also contributes to an increased risk of structure fire and wildfire. The county is divided into two distinct areas of wildfire risk. **The northeast and extreme southwest parts of the county have a *high* risk of wildfire occurrence, while the coastal areas and river valleys have *moderate* risk and generally better**

[1]CAL FIRE: Humboldt – Del Norte Unit (HUU). (2011). *Draft 2011 Unit Strategic Fire Plan Humboldt – Del Norte Unit.* (p. 11). Retrieved from http://www.co.humboldt.ca.us/naturalresources/fire_safe_council/pdf_files/2011%20huu%20strategic%20fire%20plan.pdf .

fire-protection access, which increases initial attack success. *For more information on wildfire risk, please see section II.1.5 "Wildfire Risk and Fire History." Section II.2.1 "Community and Economic Assets" contains a discussion on the cultivation of marijuana and its potential impacts to fire risk.*

Fire Hazard Severity

Fire hazard is a measure of how resistant to control a wildfire is once it starts; it is affected by vegetation, topography, and weather. The relationship between these three factors has a tremendous effect on firefighters' ability to manage a wildfire in a way that minimizes damage to communities and natural resources. A site's hazard ranking tells us the expected behavior of fire in severe weather[2] (e.g. intensity, speed, and embers produced). Fire Hazard Severity Zones (FHSZs) are how the state of California assesses and defines fuel hazards. The FHSZs range from Medium to High to Very High. Local (urban or suburban) areas of Humboldt County (LRA[3]) are not classified in this system, but are generally considered to have low to moderate ratings in Humboldt. **Generally, the coastal areas and river valleys with fog influence are rated *moderate*, the western side of the county is rated *high*, and the eastern side of the county is rated *very high* fire hazard severity.** *For more information on fire hazard severity, please see section II.1.4 "Wildfire Hazard."*

Structural Ignitability

Structural ignitibility means the ability of structures—especially homes—to burn. It is generally tied to the age of a given development (or structure), with newer developments built to the current or recent WUI building codes receiving a "low" ignitability designation. Older wooden homes, which are commonly made of redwood or fir in Humboldt County, generally have much higher structural ignitability than newer homes, unless these older homes have been retrofitted to current WUI building standards. Relatively few homes and structures have been lost to wildfire in Humboldt County to date, although this is likely due to few wildfires burning close to urban areas, rather than a reflection of fire-safe construction. There has been an increase in structure fires due to faulty wiring for indoor marijuana grows. Although these are not technically wildfires, they do, in some cases threaten nearby wildlands and neighborhoods. **The complete range from *low to very high* structural ignitability is found throughout Humboldt County, although most homes tend toward higher structural ignitability.** *For information on reducing structural ignitability, please see section II.2.1 "Structural Ignitability," and section V.1.1 "Hardened Homes."*

Interface Fuels

Interface fuels in this risk assessment generally refers to anything that can burn— including ornamental vegetation or the stuff found around homes such as patio furniture—that is surrounding a structure, and often directly adjacent to and including homes. There are commonly a lot of fuels surrounding homes in the coastal zones, likely resulting from a false sense of security from the prevailing climate and a lack of local understanding of fire hazards. Throughout the county, there are heavy fuels surrounding homes, whether these homes are rural homesteads with firewood and outbuildings, or urban/suburban homes with an abundance of highly flammable vegetation. **Therefore, interface fuels throughout Humboldt County are *high* to *very high*.** *For information on interface fuels, please see Part IV. Planning Unit Action Plans and Part V. Fire-Safe Communities.*

[2] Severe weather occurs when wind speed, humidity, and temperature make conditions favorable for a catastrophic fire.

[3] Local Responsibility Area (LRA).

Values and Assets at Risk

Humboldt County Values and Assets

Humboldt County is known for its natural beauty—redwood forests and clean, cool watercourses, diverse wildlife habitat, and abundant natural resources—as well as its wealth of natural resources, from timber to fisheries. This wellspring of ecological diversity and beauty is valued very high and treasured, both nationally and internationally. It is increasingly becoming a tourist and retirement destination, especially given changing climates. These natural resources are important to the local economy and could be severely impacted by wildfire. Property values here range from moderate to moderately high; property values did not drop in Humboldt the way they did in much of the West in recent years, following the housing crisis. There is a significant concentration of native, indigenous communities, also rating very high in importance, both nationally and locally. Finally, the significant underground economy here, which has been referred to as the "Silicon Valley of Medical Marijuana," could be greatly impacted by wildfire and, for that reason, is also valued as "high." **Therefore, the Values and Assets at risk for Humboldt County are given a *high* to *very high* rating.** *For more information on values and assets at risk, please see Chapter II.2. Values and Assets at Risk.*

Wildfire Protection Capabilities

Level of Fire Protection Service

Due to the highly diverse range of community characteristics and *fire protection* needs throughout Humboldt County, each local fire department strives to develop a response and deployment system that reflects community needs, expectations, and local risks, while staying within the organization's revenue and support constraints. A coordinated approach to response is also crucial in Humboldt County. Fire departments are quick to assist each other as well as to state and federal partners, and vice versa. Since the 2006 MFPP and the resulting work of the Humboldt County Fire Chiefs' Association and the Humboldt County Fire Safe Council, a countywide *mutual aid agreement*, a standardized numbering agreement, training and radio communications, and a local incident support team have been or are in the process of being developed.

Seasonality strongly affects federal and state fire protection capacity in Humboldt County. Federal fire protection agencies are currently fully staffed and stable, but like CAL FIRE—whose staffing is down due to the state budget, which means less fire fighters on local engines—they can be pulled away at anytime to fight fire anywhere else in the country. This usually means that local fire protection resources are spread much thinner, and often during the highest time of fire danger, as was seen during the Lighting Complex fires of 2008. Fire protection capability has improved since the 2006 MFPP, yet sustainability of some smaller, rural volunteer fire departments is still an issue (e.g. funding, personnel, training, regulations/unfunded mandates, and liability) and complete, year-round community protection coverage for developed areas is also a major issue. **Overall, fire protection capability for the County is *moderate.*** *For more information on fire protection please see Chapter II.3. Wildfire Protection Capabilities.*

Fire Protection Support

Fire protection support is based on the ease of fire engine access to homes, adequate water supply and pressure, and community support both financially and through volunteers. It is dependent upon sufficient *defensible space* around structures and timely evacuations by local residents. Access is related to the fire codes at the time of development, the terrain, and the potential for road blockage. Adequate defensible space allows firefighters the ability to protect a home safely. Timely evacuation allows firefighters to focus solely on structure protection. Local agencies have a high capability of providing fire protection when timely notice, access, water, defensible space, and timely evacuation are present. There are communities in Humboldt that

enjoy strong community support for local fire services. However, achieving the support described above is highly challenging in the County as a whole, **making support for fire protection in Humboldt County generally *low* and even lower during extreme fire weather events.** *For more information on access, water supply, defensible space, and evacuation, see Part V. Fire-Safe Communities; for more information on ways local residents can prepare for emergencies please see Chapter II.4.Community Preparedness.*

Evacuation Vulnerability

Much of Humboldt County has significant issues regarding the ability for residents and their animals to safely evacuate. Given the precipitous *topography*, unplanned subdivisions and historical developments, and the disparate nature of rural communities, the existing road infrastructure is marginally adequate under normal conditions. There are many *one-way-in, one-way-out*, narrow, dead-end roads; a significant potential for landslides; and high fuel loads and arrangements that physically impede travel along key *evacuation routes*. Many non-paved roads are poorly maintained, and require very slow speeds and 4x4 vehicles. There are many low weight-bearing bridges, gated roads, and unmarked roads and addresses. Hence, early evacuation significantly increases residents' ability to leave safely, while also reducing road congestion. Later evacuations limit travel routes and safe destinations. **The existing road infrastructure is inadequate in most areas of the county for safe and effective evacuation; therefore evacuation vulnerability is *very high.*** *For more information on evacuation please see Section II.3.5"Evacuation Routes and Vulnerability" and the "Evacuation" section of each Planning Unit Action Plan in Part IV.*

Community Preparedness

Community Fire Safety Efforts

Multiple opportunities exist for community members in Humboldt County looking to take responsibility for preparing their communities for wildfire. Forming a local fire safe council (FSC) is a significant step communities can take towards improving their fire safety. Local FSCs are volunteer organizations that collaborate to enhance fire protection and minimize potential losses to wildfire. Through FSCs, residents identify local fire hazards and develop projects to address them. Six local FSCs exist in Humboldt County. These local entities are supported by the Humboldt County FSC (HCFSC). **Although a number of communities have taken initiative to increase their fire preparedness, several "Communities at Risk"[4] have multiple unmet hazard mitigation needs. Therefore, community preparedness through fire-safety efforts is *moderate* in Humboldt County.** *For more information on Community Fire Safety Efforts, please see Chapter II.4. Community Preparedness.*

Fire Prevention and Education

Many fire service entities and fire management jurisdictions in Humboldt County devote energy and resources to promoting fire education and prevention programs within local communities. Local programs include: creating fire-safety codes and standards pertaining to building construction, burn permits, road access, etc.; conducting fire-safety lectures and demonstrations within schools; advocating the use of fire-safe building materials and landscaping designs; and sharing fire-safety information and resources. These education programs stress the importance of citizen involvement in local hazard mitigation and fire planning to help protect communities from wildfire. Fire-safety education and prevention programs are prevalent among Humboldt County's fire protection districts. **Although public understanding of fire prevention and fire safety is increasing in Humboldt County, education is still needed, especially among**

[4] *See section II.2.1 for more information on designated "Communities at Risk" from wildfire in Humboldt County.*

the smaller, more remote Communities at Risk. Therefore, community preparedness through fire prevention and education is *moderate* in Humboldt County. *For more information on Fire Prevention and Education, see Chapter II.4. Community Preparedness.*

II.5.3. Furthering Risk Assessments in Humboldt County

The *risk assessment* undertaken for this CWPP was done at a very coarse scale. As shown in Parts I, II, and III of this plan, local CWPPs and Firewise Assessments have been completed for some areas of the county. However, a more detailed assessment of risks (home by home) is still needed at the local level for many areas. Residents can assess their own risk based on a qualitative analysis of the issues below and the assessment form in the Appendices. FSCs, homeowners associations, and other neighborhood organizations can do this at the neighborhood or community scale. Two methodologies are provided in the appendices. Appendix D: Mapping Exercise Instructions describes the methodology used for the mapping exercise during the CWPP community workshops. Appendix E: Home Risk Assessment, is a risk assessment tool for analyzing a specific property. A localized risk assessment would include a parcel-level analysis of the following components:

- Hardened homes: local building materials, construction, and age of structures
- Community values at risk
- Interface fuels: home landscaping and defensible space
- Topography and location in the landscape
- Community education and awareness
- Community emergency preparedness
- Community preparedness plans provided to public safety agencies
- Sources of local ignitions
- Ingress and egress routes
- Water sources
- Existing fuel reduction
- Impact of surrounding wildlands/vegetation
- Post-fire effects (e.g. erosion, invasive species, etc.)

To fully assess local fire risk as systematically and comprehensively as possible can be a significant undertaking. Humboldt County residents—especially through local FSCs and other neighborhood or community organizations—are encouraged to use the resources in this CWPP to better understand the fire hazards and risks where they live. In this way, Humboldt County can continue to improve its community fire safety and hence reduce its risk of catastrophic wildfire damage.

Part III. Countywide Action Plan

Overview

This Community Wildfire Protection Plan (CWPP) is based on the collaboration of the participating stakeholders (Plan Partners) and the many Humboldt County residents who were part of this process through attending a public workshop and/or commenting on drafts of the plan. Based on this collaboration, and the analysis reported in Parts I and II of this CWPP, the following action plan was developed for Humboldt County.

Within **Part III. Countywide Action Plan,** action plan topic areas are introduced, a set of action items is identified for each topic, and the lead organizations and/or Plan Partners involved in implementation are listed. The action items are then ranked in terms of short (1 – 2 years), medium (2 – 5 years), long (5 – 10 years), or ongoing implementation priority; ease of implementation is also indicated when applicable.

- Action items are identified with this indented arrow (and written in italics) throughout this chapter. They are followed by the implementer(s) of the action item (written in standard type), and the implementation priority (in parentheses, standard type and **bold**): **"S"** (short), **"M"** (medium), **"L"** (long), and/or **"O"** (ongoing). In addition, a **"✋"** indicates those items that will be relatively easy to implement, or have already been initiated or completed.

Members of the Humboldt County Fire Safe Council (HCFSC) collaboratively discussed and prioritized these action plan topics in the order of perceived importance. The results of this exercise identified the following as the action plan topics of greatest importance: 1) "Enhancing Fire Protection: Helping Firefighters Protect the Community;" 2) "Encouraging and Implementing Defensible Space Throughout Humboldt County;" and 3) "Creating Fire-Safe Communities: Empowering Residents to Take Responsibility." According to the knowledge and expertise of HCFSC members, these three topics represent the most significant areas for action in strengthening Humboldt County's fire preparedness. Following these items, many of the remaining topic areas ranked similarly in level of importance. The results of this prioritization exercise will help guide the HCFSC in the implementation of this CWPP.

The following lists the action plan topics in priority order, according to the HCFSC prioritization exercise:

1. Enhancing Fire Protection: Helping Firefighters Protect the Community
2. Encouraging and Implementing Defensible Space Throughout Humboldt County
3. Creating Fire-Safe Communities: Empowering Residents to Take Responsibility
4. Promoting Fire-Safe Education
5. Implementing and Maintaining this CWPP
6. Reducing Hazardous Fuels Throughout Humboldt County
7. Preparing Humboldt Communities for Emergencies
8. Ensuring Safe and Effective Evacuation
9. Hardening Homes to Survive Wildfire: Reducing Structural Ignitability
10. Enhancing Emergency Notification and Communications
11. Designating Wildland-Urban Interface Areas
12. Utilizing Excess Fuels
13. Maintaining Air Quality
14. Integrating Fire-Safety Actions with Local Regulations and Policy
15. Designating Communities at Risk

In an ideal world, everything recommended here would be implemented expeditiously. Although it is the intention of CWPP authors and signers that all action items in this document be implemented as appropriate, it will happen subject to the availability of funds and other resources and the willingness and ability of community members and Plan Partners to take action.

III.1. Enhancing Fire Protection: Helping Firefighters Protect the Community

Local fire departments in Humboldt County have been created from the desires of local communities to protect themselves. Fire departments have a history of working collaboratively, and have regularly assisted each other to better protect their communities. A good example of such inter-departmental cooperation is the Humboldt County Fire Chiefs' Association (Fire Chiefs). There are, however, significant disparities existing in the levels of fire protection available to Humboldt County communities. These disparities are due to many factors, including: whether or not the community has a fire-related *special district*; when such a district was formed; the value of the local tax base; and the recruitment and availability of volunteers.

Compared to other counties in California of similar size and population, Humboldt County has an exceptionally high number (42) of local organizations providing fire protection. The establishment and operation of multiple fire organizations has occurred in response to the rural, isolated development patterns (geographical separation) over the last century in the unincorporated regions of the county.

As rural communities grow, distances between them are reduced and the opportunity for sharing services increase. This is evident in the number of *mutual-aid agreements* that exist throughout the county.[1] Consolidating resources is one technique that has been used in other localities to more efficiently provide fire-protection capabilities.

For more information on fire protection in Humboldt County, please see Chapter II.3. Wildfire Protection Capabilities.

- *Facilitate the consolidation, expansion, or formation of special districts that provide fire protection services to ensure adequate and sustainable community fire protection for al residents in Humboldt County.* —Fire Chiefs, Humboldt County Fire Safe Council (HCFSC), Local Agency Formation Commission (LAFCO), Humboldt County Board of Supervisors (BOS) **(M, O)**
- *Identify strategies to provide a support network for fire service agencies and organizations via improved communication and coordination.* —HCFSC, Fire Chiefs **(S)**
- *Educate community members regarding how they can support their local fire department, including helping with fundraisers, grant writing, reporting, paperwork, or becoming e a volunteer firefighter.* —Fire Chiefs, Local Fire Organizations, HCFSC **(O)**
- *Develop an administrative support structure to assist local fire organizations with incident reporting.* —Fire Chiefs, Local Fire Organizations, HCFSC **(M)**

III.1.1. Improving the Level of Service of Fire Protection

There is a significant difference between the Level of Service (LOS) available to residents in urban areas of the county (e.g. Eureka), and residents living in more remote rural areas. Local fire departments use formal and informal mutual-aid and *automatic-aid agreements* to augment provided levels of protection, yet LOS differences between communities persist. The Fire Services Annual Report, produced by the Fire Chiefs and presented to the BOS each year, is a useful tool for identifying where these LOS differences exist and for increasing awareness among elected officials and the public about who provides local community fire protection, what services they are able to provide, and the level of volunteer effort needed to sustain the service.

The LOS standard is important for the following reasons: 1) an established standard will improve the ability of real estate professionals, public safety personnel, and government officials to inform landowners and residents of the available level of fire protection; 2) it will support fire department grant requests to local, state, and federal

[1] *See Chapter II.3. Wildfire Protection Capabilities for more information on local mutual-aid agreements.*

funding sources for purchase of apparatus, equipment, and training in order to meet standards; and 3) it will allow local governments to effectively plan for municipal service delivery and population growth.

However, bringing the LOS up to an established standard may present a challenge for some of the smaller departments. In addition Insurance Services Office (ISO) classifications may be influenced based on changes in service delivery and disclosure. ISO establishes fire insurance ratings for Humboldt County communities that influence how much property owners pay for fire insurance. Improvements in service could result in reduced insurances rates but disclosure about a low LOS could increase rates.

An HCFSC committee continues to work closely with the Fire Chiefs to identify and agree on a minimum LOS standard. The standard will need to be tiered, acknowledging that there are different expectations and capacities in rural, suburban, and urban environments. It has been determined that training level standards are the most critical focus area to begin this effort. The Fire Chiefs liaison to the HCFSC will continue to identify areas of needed collaboration.

- *Develop LOS standards for the provision of all fire protection services (fire, emergency medical service (EMS), Hazardous Materials (HazMat), rescue) in the county, and make such standards public so that landowners and residents understand what is and is not available to them.* —Fire Chiefs, HCFSC LOS Standards Committee **(S)**
- *Work collaboratively to ensure that the Fire Services Annual Report continues to be produced, presented to the BOS, and made available through the HCFSC and Fire Chiefs websites each year.* –Fire Chiefs, CAL FIRE, HCFSC.
- *Develop LOS standards related to training.* —Fire Chiefs, HCFSC LOS Standards Committee **(S)**
- *Establish minimum levels of fire protection service for Humboldt County communities.*—Fire Chiefs, Individual Fire Departments **(O)**

III.1.2. Securing Resources for Fire Protection

The lack of essential training and equipment, and difficulty in recruiting volunteers are issues throughout the county. The development of fire and emergency services training facilities is critical to the delivery of emergency services. Humboldt County firefighters have varying and sometimes inadequate levels of training. Recognizing that approximately 92% of Humboldt County firefighters are volunteers—many of whom live in outlying areas—multiple and/or mobile training facilities may be required to support countywide training programs. Providing all firefighters with necessary training will result in a more confident, capable, and reliable fire-fighting force prepared to deliver improved service to the citizens of the county. Fire departments report that it is sometimes impossible to attract and retain adequate numbers of qualified volunteers. Addressing these fire protection resource-training issues is essential to local firefighters in meeting an established LOS standard.

Equipment in many, if not most, of the local fire protection organizations is generally antiquated. Much of it is "hand-me-downs" several times over.

- *Establish regional fire-training facilities in appropriate locations. Facilities should include classrooms, a burn tower, and fire and rescue training props.* —Fire Chiefs, HCFSC, California Department of Forestry and Fire Protection (CAL FIRE), Federal Agencies **(M)**
- *Establish regular fire-training programs/classes at the local level throughout the county to serve different regions: i.e., southern, north-eastern, and northern Humboldt, Eel River Valley, Humboldt Bay, etc.* —Fire Chiefs, HCFSC, CAL FIRE, Federal Agencies **(M)**
- *Collaboratively identify strategies to provide improved training and equipment to local fire departments and develop formal mutual-aid agreements between departments providing fire protection in Humboldt County.* —Fire Chiefs, CAL FIRE, Federal Agencies, HCFSC **(S)**

- *Ensure that all first responders have adequate training and equipment*—Fire Chiefs, CAL FIRE, Federal Agencies, HCFSC **(S)**

III.1.3. Developing a Reliable Revenue Source for Fire Protection

Through this Community Wildfire Protection Plan (CWPP) update process, it was emphatically confirmed that a lack of adequate funding is still one of the most critical issues facing local fire service. Some departments indicate that revenue is insufficient to cover even the basic costs of operation and administrative tasks. Personnel-related costs such as workman's compensation—even in all-volunteer departments and with support from the County—have increased many times faster than the growth of revenue. Proposition 13 and subsequent changes to the State Constitution have made it extremely challenging for local agencies to increase taxes for fire protection, and fundraising by all-volunteer departments is difficult and time-consuming. Moreover, the impact of additional occupational safety requirements mandated by Senate Bill (SB) 1207, no matter how critical to firefighter safety, could be "the straw that breaks the camel's back" in terms of departmental survivability.

To maintain capable fire protection, it is important to establish adequate and reliable revenue sources for local fire departments as well as innovative cost-sharing programs to increase the efficiency of service provision. The most stable sources of revenue for fire protection are ongoing assessments and recurring agency programs. One-time funding (such as grants) can be effective for establishing a program or service, but must be replaced by an ongoing source for long-term viability. The variety of methods by which local fire departments are organized, and the funding sources that are available to each type of department, makes identifying "one size fits all" funding solutions very difficult.

A special circumstance of fire protection need lies in areas of the county where there is no obligated service provider. Currently, these unprotected areas may receive "*goodwill service*" from nearby fire departments. However, these departments are not compensated for this goodwill service and it represents an additional strain on their already overburdened resources. A countywide funding strategy could mitigate this type and other types of service delivery problems.

- *Develop reliable sources of ongoing funding for fire protection districts and departments, such as revenue exchange agreements, benefit assessments, mitigation fees, and user fees.* —Local governments, Fire Chiefs, HCFSC Revenue Source for Fire Protection Committee, Local Foundations **(M, O)**
- *Provide technical support to local organizations that seek to establish (tax) benefit assessment areas as well as alternative funding mechanisms. Coordinate with state/federal government funding programs (e.g., Amador) as sources of funding for community fire protection.* —Fire Chiefs, HCFSC Revenue Source for Fire Protection Committee, LAFCO **(S, O)**
- *Encourage the provision of fire protection services through a district or local agency that provides a stable source of revenue from property tax, assessments, fees, or other sources.* —HCFSC, County of Humboldt, LAFCO, Fire Chiefs **(S, O)**
- *Provide guidance to local special districts regarding how to ground-truth and update local tax rolls to reflect new developments in order to capture the additional revenues they are due through benefit assessments or special taxes.* —Fire Protection Districts, Fire Chiefs, County Assessor, HCFSC Revenue Source for Fire Protection Committee, Humboldt County Planning and Building **(S)**
- *Support local fire departments with funding and countywide coordination for training, equipment, and improved communications.* —Fire Chiefs, HCFSC Revenue Source for Fire Protection Committee, Local Foundations **(O)**
- *Support the continued allocation of a portion of Proposition 172 funds to local fire agencies.* —BOS **(O)**

III.1.4. Ensuring Adequate Water Supplies for Fighting Fire

Water is critical for successful firefighting and is used for suppressing both structural and wildland fires as well as protecting homes from ignition from wildfire. Both the County and California's minimum firefighting water requirement (for developments that are not on a hydrant system) is 2,500 gallons of accessible water. Rural residents ideally would have up to 10,000 gallons of available water for fire protection. *(See Part V. Fire-Safe Communities, for more information on water storage options.)*

Several areas within the county are lacking in sufficient water for fighting fire. Those communities with water system issues for adequate fire protection and suppression are identified in the Planning Unit Action Plans in Part IV of this CWPP.

Most large wildfires occur in Humboldt County in late summer and/or early fall when water levels in local rivers and streams can be very low. Conflicts have arisen in the past over *bucket dipping* and water *drafting* out of rivers for firefighting water during late summer when native salmon and steelhead and their habitat is most vulnerable.

- *Install water tanks that are accessible for fighting fire. Fill the tanks in the winter (use the Sanctuary Forest[2] forbearance program as a model).* —Humboldt County Residents, Fire Safe Councils (FSCs), Neighborhood and Homeowners Associations **(S, O)**
- *Make sure existing and future water tanks have proper fittings for fire hoses.* —Humboldt County Residents, Fire Prevention Officers, Fire Chiefs, Local FSCs **(S, O)**
- *Highlight potential for less bucket dipping and water drafting in critical fish habitat during incidents (which often occur at critical times for salmonids).* —Watershed Organizations, Fire Chiefs, Tribes, CAL FIRE, Six Rivers National Forest (SRNF), HCFSC, California Department of Fish and Game (DFG) **(O)**
- *Work with wildfire managers to increase the use of fish screens on water tenders, water pumps, and other pumping devices during large wildfire events.* —Watershed Organizations, Fire Chiefs, Tribes, CAL FIRE, SRNF, HCFSC, DFG **(O)**
- *Design a program to educate residents about how to properly set up water tanks/sources for use by firefighters.* —Fire Chiefs, Local Fire Departments, CAL FIRE, Local FSCs **(S, O)**
- *Secure funding to design and implement a countywide Blue Dot Program[3]; providing information and materials for installing reflective blue dots and sign*s*, identifying the location of water for use by firefighters.* —HCFSC, Local FSCs, Fire Chiefs **(S, O)**
- *Create a handout similar to Mendocino County FSC "Developing Water Supplies for Fire Protection"[4] and Humboldt #1 Fire Protection District handouts.* —HCFSC, Fire Prevention Officers, County Panning and Building **(S, ✋)**
- *Educate rural residents on the needs and benefits of water storage (tanks, ponds, water bladders…).* — HCFSC, Humboldt Resource Conservation District (HRCD) Watershed Councils, Other Interested Partners **(S, O)**
- *Encourage RAC[5]-funded program to place water storage tanks for fire protection on lands adjacent to federal lands, especially in the areas of Orleans, Weitchpec, Willow Creek, Titlow Hill, and Dinsmore (Forest Service*

[2] Sanctuary Forest. (n.d.). *Sanctuary Forest's Mattole Flow Program: Water Storage and Forbearance.* Retrieved September 9, 2012 from www.classic.mattole.org/website_updates108/FINAL_brochure_text_1207.pdf

[3] *See Part V. Fire-Safe Communities for more information on Blue Dot Programs.*

[4] Mendocino County Fire Safe Council. (2012). *Developing Water Supplies for Fire Protection.* Retrieved from http://firesafemendocino.org/pdf/Water%20Supplies%20for%20Fire%20Protection%204%20pages.pdf

[5] Six Rivers National Forest, Resource Advisory Committee (RAC).

adjacency) and Whitethorn, Shelter Cove, Honeydew, and Prosper Ridge (Bureau of Land Management (BLM) adjacency).[6] —HCFSC, SRNF, BLM, Local Fire Departments **(M)**

- *Explore funding for a water-storage program (tanks, ponds, water bladders, water tenders…) for rural areas, especially on private lands not adjacent to federal lands, in all communities in the State Responsibility Area (SRA) not mentioned above and not already on a public or private community water system. Prioritize areas of High and Very High Fire Hazard Severity zones.* —HCFSC, CAL FIRE, Fire Chiefs, Federal Agencies, Local Foundations **(M)**
- *Identify and pursue solutions to overcome barriers to installing water tanks, ponds, and water bladders for fire suppression efforts (permit costs, increased taxes, etc.).* —HCFSC, CAL FIRE, Fire Chiefs, County Planning and Building, Watershed Councils, DFG **(M)**

III.1.5. Improving Road and Home Address Signage

Throughout the county, firefighters and other emergency personnel are faced with the challenge of finding homes quickly and safely during an emergency. The importance of clearly posted address signs for ensuring timely response from emergency personnel cannot be overemphasized to property owners. At a minimum, existing city and county *standards* that require streets and homes to be visibly addressed must be enforced. These standards require the size of lettering on these signs to be three inches high, with a contrasting backing, and in accordance with the California Building Code.

Difficulty locating the site of an emergency can be exacerbated by the use of several different names by members of the public to identify the same road or street. Some specific problem areas include Highway 211/Ferndale Highway, and Wilder Ridge/Mattole Road/Bull Creek Road. Posting only standardized road names and encouraging emergency responders and dispatchers to use these standardized descriptions during emergencies could help curb this problem.

- *Develop a program that promotes and provides resources for installing more road name signs and home address signs with a particular emphasis on educating residents about the importance of posting and maintaining such signage.* —Humboldt County Public Works, Humboldt County Sheriff's Department, Fire Chiefs **(M)**
- *Officially name roads so all use the same name, beginning with priority roads including: Bull Creek, Mattole Road, and Wilder Ridge.* —County Public Works, County Planning and Building (GIS),[7] County Sheriff's Department, CAL FIRE Dispatch Center, Battalion Chiefs, Local Fire Departments **(M)**
- *Standardize County mile-markers along rural roads to assist emergency responders' ability to locate incident sites quickly and efficiently.* –Humboldt County Public Works, Road Associations, County Planning and Building (GIS)
- *Create map books with home addresses for fire departments. This "Fire Atlas" could also include water sources, access routes, safety zones, and whatever other resources that can be gathered. Use the Lower Mattole FSC Atlas as an example.* —Fire Chiefs, CAL FIRE, County Planning and Building (GIS), County Public Works **(M)**
- *Create a handout for residents (with photos) regarding the importance of, and how to effectively post, home-address signs. Distribute with building permits and at community events.* —County Planning and Building, County Public Works **(S, O)**

[6] For an example of a successful program, contact the Del Norte Fire Safe Council; telephone: 707-951-1116; email: dnfsc@charterinternet.com.

[7] Geographic Information Systems (GIS)

- *Collaborate to enforce existing signage requirements for streets and residences.* —CAL FIRE, Local Fire Departments, County of Humboldt, Cities **(M, O)**
- *Explore incentives for private road and address signage conformance, including public education.* —HCFSC, Local FSCs, Local Fire Departments, Homeowners Associations **(M)**
- *Review local information on Google Maps (and other popular internet mapping sites) to facilitate correction of road naming errors.* —County Planning and Building (GIS) **(S, O)**

III.2. Encouraging and Implementing Defensible Space Throughout Humboldt County

Defensible space works; hence it is the law in California. Defensible space is also known as the *Home Ignition Zone*.[8] Others prefer the term *survivable space*, as it's all about surviving, or living with wildfire.

> "If homes are sufficiently resistant to ignition and do not ignite during the extreme wildfire exposure, then the homes survive without firefighter protection: we have an extreme wildfire but not a WUI[9] fire disaster. Thus, WUI fire disasters principally depend on home ignition potential.
>
> Research shows that a home's ignition potential during extreme wildfires is determined by the characteristics of its exterior materials and design and their response to burning objects within one hundred feet and firebrands (burning embers)."[10]

In Humboldt County, one of the principal wildfire hazards threatening residents is the abundance of *hazardous fuels* in the Home Ignition Zone—the vegetation and other flammable items found closest to homes. As shown in Part V of this CWPP, the most effective wildfire survival strategy for residents within the *wildland-urban interface* (WUI) is to ensure that homes and the surrounding Home Ignition Zone are adequately prepared to survive wildfire. A well-managed Home Ignition Zone 1) increases home survivability during a wildfire event; 2) protects the wildlands from fire originating in the home; and 3) acts as a safe-anchor point from which firefighters can safely protect the home from an approaching wildfire. Wildfire does not have to be a disaster. It is possible to prepare for wildfire to minimize negative impacts.

> "Preventing WUI fire disasters requires that the problem be framed in terms of home *ignition potential*. Because this principally involves the home ignition zone, and the home ignition zone primarily falls within private ownership, the responsibility for preventing home ignitions largely falls within the authority of the property owner. Preventing wildfire disasters thus means fire agencies helping property owners mitigate the vulnerability of their structures."[11]

The following statement from the California Attorney General's office from 1964 provides the legal framework for local governments to take action to ensure fire safety:

> "The Legislature of the State of California hereby finds and declares that the unrestricted use of grass-, grain-, brush-, or forest-covered land within the State is a potential menace to life and property from fire and resulting erosion…. Counties, cities and counties, cities, and districts may adopt ordinances, rules, or regulations to provide fire prevention hazard conditions."[12]

Furthermore, the *Humboldt Operational Area Hazard Mitigation Plan* (HMP) identified "Create and maintain defensible space around structures" as a Mitigation Alternative for Wildfire.[13]

[8] *See Part V. Fire-Safe Communities, for more information on the Home Ignition Zone.*

[9] Wildland-Urban Interface (WUI).

[10] Cohen, Jack. (2008). The wildland-urban interface problem–A consequence of the fire exclusion paradigm. *Forest History Today, Fall 2008*. (p. 23.) Retrieved from www.foresthistory.org/Publications/FHT/FHTFall2008/Cohen.pdf.

[11] Cohen, Jack. (2008). The wildland-urban interface problem–A consequence of the fire exclusion paradigm. (p.25.)

[12] Stanley Mosk, Attorney General. (2000, April). *Structural Fire Prevention Field Guide, Appendix F.* Office of State Fire Marshal.(pp. F-2--F-3.) Retrieved from http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fppguidepdf92.pdf.

[13] County of Humboldt, Natural Resources Planning. (2008). Chapter 21: Mitigation Alternatives. (Table 21.9)

For more information on defensible space, please see Part V. Fire-Safe Communities.

- *Coordinate countywide and community-specific efforts to focus on a defensible-space "from the house out" strategy, empowering Humboldt County residents to take responsibility for maintaining fire-safe Home Ignition Zones.* —Plan Partners, Local FSCs, Local Fire Departments, Homeowners Associations, Humboldt County Residents **(S)**
- *Implement defensible space around all structures, and on all residential parcels within the county.* —Humboldt County Residents, Local FSCs **(S, O)**
- *Work together to provide information and resources to help residents create defensible space around their homes and in their neighborhoods.* —HCFSC, Local FSCs, Plan Partners **(S,)**
- *Explore incentive programs to help residents create defensible space around their homes and in their neighborhoods*. —HCFSC, BOS, Plan Partners **(M)**
- *Coordinate conservation and fire-safety objectives in educational programs, including promoting options for conserving water, and incentives to replace exotic plants with native species.* —Local FSCs, Watershed Councils, California Native Plant Society, Local Conservation Organizations, University of California Cooperative Extension (UCCE), Water Districts **(O)**
- *Work with the local insurance industry to provide education on appropriate local fuel-reduction practices, and materials for them to share with policyholders.* —HCFSC **(S)**

III.2.1. Implementing Community Defensible Space and Fuel-Reduction Programs

Residents have the primary responsibility in ensuring they have defensible space around their homes and properties. As stated above, it's not only the law—it makes sense. In some cases however, residents are unable to do this themselves, whether for physical, financial, or other reasons. Community-based programs can facilitate creation of defensible space for these vulnerable populations.

The HCFSC was awarded grant funds in 2010 and again in 20012 to conduct a pilot program called the "Firesafe Homes and Forests Cost Share Program," known locally as the *Fire-Adapted Landscapes and Safe Homes* (FLASH) *program*. The program is funded by Title III and the USFS, and is being managed by Humboldt's Natural Resources Planning Division, in conjunction with local FSCs and interested property owners. The FLASH program is targeted to the following communities: Orleans, Willow Creek and Redwood Valley, Southern Humboldt, Van Duzen, and Mattole. These communities have active Fire Safe Councils to manage the program locally, as well being areas of high and very high fire hazard. FLASH provides a cost-share match to landowners working with a local FSC to implement fuel-hazard reduction activities. Through FLASH, hazardous vegetation on slightly over 311 acres of land was treated to date, to reduce the wildfire risk for homesteads and access routes. A total of 114 landowners completed work on their property through this program. The goal of the 2012 program is to treat 200 more acres.

Programs targeted at assisting residents to join together to make their neighborhoods fire-safe can also be very successful. This is especially important where parcels with absentee owners abut residential parcels. In some communities, neighboring residents have contacted these owners to get permission to clear these neighboring properties in order to increase defensible space around their own homes.

Community *chipping programs* are in place throughout California to allow residents to share in the use of a chipper to dispose of cut branches and other materials. FSCs and homeowners associations can organize their neighborhoods to schedule chipping regularly, based on models developed by other FSCs statewide, especially in neighboring North Coast communities.

Humboldt Operational Area Hazard Mitigation Plan; Volume 1 – Planning Area-Wide Elements. Retrieved from http://www.co.humboldt.ca.us/natural-resources/hazardmitigation/?inc=finaldraft

For more information on hazardous fuels, please see Chapter II.1. Wildfire Environment, and Part V. Fire-Safe Communities.

- *Seek continued funding for the FLASH program.* —HCFSC **(S, O)**
- *Work with neighbors, and on neighboring properties (with owners' permission) to create neighborhood-wide defensible space.* —Humboldt County Residents **(S, O)**
- *Work together to develop programs to create defensible space for elderly and disabled residents who are not able to do this for themselves.* —HCFSC, Plan Partners, Social Services, Senior Centers, Schools, Other Community and Social Service Organizations **(S, O)**
- *Develop community-chipping programs to assist residents in disposing of thinned materials.* —Local FSCs, CAL FIRE, Land Management Agencies, Federal Agencies **(M)**

III.3. Creating Fire-Safe Communities: Empowering Residents to Take Responsibility

There are several concepts used today that mean essentially the same thing: fire-safe, fire adapted, and fire wise. All three terms are used to describe communities, neighborhoods, projects, etc. that are designed and prepared to increase the probability of surviving wildfire. We use the term "fire-safe" in this document, with the understanding that all three terms are virtually interchangeable.

For more information on community fire preparedness in Humboldt County, please see Chapter II.4. Community Preparedness.

- *Support Humboldt County residents with information, education, and resources to take responsibility for their fire safety.* —Plan Partners **(S, O)**

III.3.1. Creating and Sustaining Fire Safe Councils

The effective functioning of FSCs and related community-based organizations in Humboldt County is critical to creating fire-safe communities. These groups play an integral role in implementing many of the measures discussed in this CWPP, including fuel-reduction projects, supporting the efforts of fire departments, and educating community members regarding living safely with fire.

Through the collaborative processes of the HCFSC and the six local FSCs in Humboldt, various partners have come to the table to implement fuel-reduction and fire-safety projects. **It will be members of these FSCs and associated community organizations such as homeowners associations, watershed groups, and community centers that will ultimately determine the effectiveness and success of this countywide CWPP**. Hence, ongoing support for and participation in FSCs is fundamental both for their development and for the success of local fire-safety efforts.

Based on the positive feedback from residents at the CWPP community workshops, there is a committed interest to organize locally to create fire-safe neighborhoods and communities in Humboldt County. The missing piece is often a solid organizational structure and a strategic plan for these groups to be able to effectively function over the long term (*see III.3.3. Creating Local CWPPs below for more information on supporting local FSCs*).

The Community Preparedness chapter of the Risk Assessment introduces existing FSCs that already provide community fire-safety leadership. These existing FSCs can serve as an example and provide support to emerging FSCs and to one another. At the 2012 community workshops the following communities expressed interest in creating a local FSC: Redwood Valley, Westhaven, Orick, and the Hoopa Valley and Yurok Indian Reservations.

- *Form new FSCs (especially in Redwood Valley, Westhaven, Orick, and the Hoopa Valley and Yurok Indian Reservations) to coordinate local community wildfire preparedness efforts.* —Neighborhood Groups, Homeowners Associations, HCFSC, CAL FIRE **(S, O)**

- *Form a committee of the HCFSC to conduct outreach to and provide ongoing support for communities that currently do not have a local FSC.* —HCFSC **(S, O)**
- *Support the continuation of and maintenance of revenue sources for the HCFSC and determine the best organizational structure to further countywide wildfire mitigation efforts.* —HCFSC, BOS, CAL FIRE, Federal Agencies, Tribes, Fire Chiefs, Local FSCs, Other Plan Partners **(S, O)**
- *Work with local FSCs to develop ongoing financial and in-kind support (including organizational development, technical support, grant writing support, fundraising, and training) to ensure their long-term sustainability and autonomy.* —Public and Private-Sector Organizations, Local Foundations (including Humboldt Area Foundation and McLean Foundation), County of Humboldt, Humboldt County Residents **(S, O)**
- *Encourage and facilitate collaboration on grant proposals. (Maintain current list of funding sources and contact information for interested partners; provide example applications of successful proposals.)* —HCFSC, Local FSCs, CAL FIRE, Partner Agencies and Organizations **(S, O)**
- *Organize an annual FSC capacity-building workshop to help inspire new FSCs and sustain existing ones.* —HCFSC, Local FSCs, County of Humboldt, California FSC, CAL FIRE, Partner Agencies and Organizations **(S, O)**

III.3.2. Creating and Sustaining Firewise Communities

Several Humboldt County communities have gained *Firewise* recognition in the past few years for the steps they have taken to address wildfire hazards. Becoming a Firewise Communities/USA site has helped these communities get organized and find direction for their wildfire safety efforts and potential funding sources. As community members go through the Firewise process, they learn about existing *wildfire risks* in their community and the simple things they can do to reduce those risks.

The Firewise program in Humboldt County pairs nicely with the development and implementation of local CWPPs. Communities are using their Firewise Assessment to focus on particular subsets of their CWPP planning area. They are identifying short-term, *site-specific* activities for their annual Firewise Action Plans. This helps them to focus the implementation of their longer term CWPP Action Plans; (CWPPs often have a 5-year update cycle whereas Firewise action plans are evaluated annually). In areas not covered by a local CWPP, the Firewise program is a good tool to inspire action when the development of a local FSC and/or CWPP seems infeasible and or overwhelming. The Firewise process is significantly less involved than the development of a CWPP and the focus can be predominately on needed actions within the *Home Ignition Zone*[14] rather than the community as a whole. There may also be County Title III[15] funding available for Firewise-related activates.

At the 2012 community CWPP workshops the following communities expressed interest in the Firewise program: Kneeland, Redwood Valley, and Fieldbrook.

- *Support local FSCs and other community organizations to complete the process of becoming recognized Firewise Communities/USA sites (especially in Kneeland, Redwood Valley, and Fieldbrook).* —Public and Private-Sector Community Organizations, Local FSCs, HCFSC, County of Humboldt, CAL FIRE **(S, O)**
- *Support local FSCs and other community organizations to implement actions identified in their local Firewise Action Plans*. —Public and Private-Sector Community Organizations, Local FSCs, HCFSC, County of Humboldt, CAL FIRE **(S, O)**

[14] *See Part V. Fire-Safe Communities for more information on the Home Ignition Zone.*

[15] Secure Rural Schools and Community Self-Determination Act. (2000). *Title III, County Funds.* Retrieved from http://www.fs.usda.gov/pts.

III.3.3. Creating Local CWPPs

A CWPP is a guiding document designed to inspire action that will reduce the vulnerability of communities to losses from wildfire. This countywide CWPP is a valuable tool to that end. Its focus is at the county scale. More detailed localized planning documents are also needed. The Planning Unit Action Plans (PUAPs) in Part IV of this CWPP are a step in that direction. An action plan has been developed for each of thirteen CWPP planning units *(see Part IV and associated maps)* The PUAP s contain a background description of each area, including the local fire environment, potential evacuation routes and sites, and information gathered from the respective community workshop. **The PUAPs identify a set of actions that community members can take themselves to make their homes and neighborhoods fire safe.** Finally, the PUAPs can function as the basis for an operating plan for local FSCs and related groups, and eventually for a more in-depth local CWPP.

Several local FSCs have already created a local CWPP or are in the process of developing one. The Lower Mattole FSC (through the Mattole Restoration Council) developed the first local CWPP in the county in 2002, and has already gone through one CWPP update process (2012). The Willow Creek CWPP was completed in 2010. The Orleans Somes Bar CWPP has been in development for many years, and was approved in early 2012. The Upper Mattole CWPP (2004) is being incorporated into the Southern Humboldt CWPP, which is in the process of development and is due for completion in 2012. In addition, the Van Duzen Watershed FSC and the Hoopa and Yurok Tribes are in the process of drafting their first local CWPPs.

Mapping wildfire risks, hazards, and potential actions is an integral part of any CWPP. The proficiency of local FSC members with Geographic Information Systems (GIS) and other mapping and planning technologies is highly variable. Local FSC staff and/or volunteers may need individual training and assistance in order to increase their pre-fire planning skills. The County of Humboldt has GIS specialists and a fire planner on staff that can help local FSCs complete and manage their CWPPs and accomplish fire-plan goals for community wildfire preparedness.

- *Encourage communities to use the PUAPs of this CWPP as the basis for the development of local CWPPs.* —HCFSC, County of Humboldt, CAL FIRE **(M, O)**
- *Use the PUAPs of this CWPP as a source of direction and inspiration for taking action at the neighborhood and community level.* —Local FSCs, Community Organizations, Humboldt County Residents **(S, O)**
- *Share relevant GIS data with existing and emerging FSCs to aid in their wildfire mitigation planning efforts.* —County Planning and Building (GIS), CAL FIRE **(S, O)**

III.3.4. Working Together to Reduce Wildfire Starts

As shown in the Wildfire Environment chapter of this CWPP, well over half of the wildfires in Humboldt County are started by people; usually, but not always, by accident.[16]

Several local fire departments, CAL FIRE, and the SRNF conduct fire prevention outreach. The Fire Prevention Officers Section of the Fire Chiefs brings together the fire prevention officers of fire departments throughout the county to address fire prevention issues and ensure clear understanding of current law. Department prevention officers provide public education in schools, at fairs and other events including during fire prevention week. CAL FIRE and SRNF maintain active fire safety education programs. Their public education-related prevention tasks include the use of fire danger ratings, involvement in FSCs, and involvement in various public events.

Ironically, one source of wildfire is the equipment used during *fuel reduction* activities. For this reason there are guidelines in terms of when and how to clear fuels, such as early in the morning and well before fire season. However, extra care must be taken when reducing fuels in the spring, as this is when ground-nesting birds are in their nests, and many native perennials are blooming. *Please see Part V. Fire-Safe Communities for details*

[16] *See Figure II.1-14.Wildfire Starts Map in Chapter II.1. Wildfire Environment.*

regarding how to safely reduce fuels and Chapter II.4. Community Preparedness, for information about prevention programs.

"Party spots" are another source of wildfires, places where young people may not be fully aware of the consequences of their actions. Reducing fuel in these areas and encouraging neighborhood education and patrols can help reduce the risk of fire starts in those places.

- *Get GIS coordinates of high-risk areas such as party spots that were identified at community workshops to facilitate fuel reduction and neighborhood monitoring.* —Local FSCs **(M, O)**
- *Use Work Alternative Program crews of local youth for fuel reduction in high-risk areas.* —Local FSCs, County Sheriff's Department **(M, O)**
- *Educate local residents regarding fire-safe fuel reduction techniques to minimize fire starts.* —Fire Prevention Officers, Local FSCs **(S, O)**

III.4. Promoting Fire-Safe Education

This CWPP recognizes that effective fire-safe education programs are one of the most successful ways to reduce fire risk and to minimize losses due to fire. The Fire Chiefs' Fire Prevention Officers and local FSCs have both been working diligently for some time to address citizen fire-safe education. There is still a need however for more coordination between fire-prevention and fire-planning organizations in the delivery of fire-safety education throughout the county. Rural landowners especially could benefit from an increased understanding of defensible space, fire-safe construction, home fire prevention, evacuation preparedness, how to most effectively call 911, etc. There are no countywide standards for school- or community-based fire safety education programs—such standards would support overall fire-safe education efforts. Finally, there is a need to improve citizen's understanding of prescribed fire as a fire prevention tool.

Many people are enthusiastic to create a fire-safe home once they understand why it is to their advantage. To this end, educational programs targeted at local residents can be very successful.

For more information on fire-safe education, please see Part V. Fire-Safe Communities.

- *Provide fire-safety education to residents, and the homebuilding, insurance, real estate, landscaping, and building-supply industries. Include information about non-combustible roof coverings, fire-safe construction for high fire risk and/or hazard areas, techniques for reducing flammability in home ignition zones, adequate emergency water supplies, address and road identification and signage, access, road clearances, and emergency evacuation procedures.* —Fire Prevention Officers with FSCs **(S, O)**
- *Design, publish, and distribute a Humboldt County version of "Living with Fire," a newspaper insert that provides information about how to safely coexist with wildfire.* —Fire Prevention Officers, HCFSC, Local FSCs **(S)**
- *Create an educational guide for how to construct an effective shaded fuelbreak (based on information provided in Part V. Fire-Safe Communities of this CWPP).* —HCFSC **(S)**
- *Create educational guides for how to create effective defensible space around homes in Humboldt County.* —HCFSC, Fire Prevention Officers **(S)**
- *Develop Humboldt County fire-safety posters and displays to use at public events; take advantage of all possible opportunities to display them at local events.* —HCFSC, Fire Prevention Officers, Local FSCs **(S)**
- *Ensure that all local fire departments have access to quality educational materials that can be handed out at their fundraising events.* —CAL FIRE, Fire Prevention Officers, HCFSC **(S, ✋)**
- *Offer public workshops to educate and train residents in how to manage their vegetation to reduce their wildfire hazard while protecting ecological health and/or economic productivity.* —HCFSC, UCCE, Local FSCs, Fire Prevention Officers, Watershed Groups, Local Conservation Organizations **(M)**

- *Use social networking sites to promote fire safe education.* —HCFSC, Fire Prevention Officers, Local FSCs **(S)**

III.4.1. Incorporating Fire-Safety Education into Local Schools

Educational programs in the local schools are a great way to get the word out about fire safety and emergency preparedness. Several curricula exist that would need minimal adjustments to be used in Humboldt County. For instance, the Butte County FSC has developed a successful 6th grade curriculum titled, "Wildfire in the Foothills." Persons interested in adapting this curriculum for use in their own community may contact the Butte County FSC through this website: http://www.thenet411.net/index.php/contact. More information on the Butte County FSC's 6th Grade Education Program, including an educational brochure can found at http://www.thenet411.net/index.php/programs/6th-grade-education. Community projects such as fire-safety education signs created by local schoolchildren can also be very effective. These informative signs can be placed in high fire risk and hazard areas throughout the community to educate residents and visitors regarding the potential fire risks associated with their activities.

- *Develop countywide standards for school- or community-based fire safety education programs.* —Fire Prevention Officers, HCFSC, School Districts **(M)**
- *Implement fire-safety curricula in all grade levels throughout the area, in conjunction with community educational projects.* —School Districts, Federal Agencies, Fire Prevention Officers, Local FSCs **(M, O)**
- *Work with 4-H chapters to develop local fire-safety educational programs.* —Fire Prevention Officers, Local FSCs **(S, O)**
- *Fund and develop a service-learning program in local high schools focused on fire safety and defensible space.* —Fire Prevention Officers, HCFSC, Humboldt State University (HSU), Chamber of Commerce, Local Industries (**M)**

III.4.2. Offering Fire-Safety Education to New Residents and Tourists

Humboldt County experiences large influxes of tourists visiting the county each year, most of these during fire season. Some of these visitors return to relocate to Humboldt County, many from urban areas. These new inhabitants often do not have experience with fire in the WUI. Educational programs are needed targeting the tourism, development, and real estate industries, as well as their clients.

Residents or visitors can find useful information about their local fire protection on the Humboldt County Web GIS Portal at: http://gis.co.humboldt.ca.us/. If they click on the "Fire Planning" application, they will be directed to a map showing fire department jurisdictional boundaries and response areas. Map tools on this site allow the user to zoom in on their property or search by parcel number and learn details about the LOS provided by their local fire department.

- *Develop fire-safety educational programs for real estate and development industries*. —Fire Prevention Officers, HCFSC **(M)**
- *Develop fire-safety educational programs for local tourism industries.* —Fire Prevention Officers, HCFSC, County Visitor Information Center, Chambers of Commerce **(S)**
- *Support the use of the Local Option Real Estate Transfer Disclosure Statement to inform buyers of local conditions and ordinances that could be relevant to real estate transactions including the availability of fire service.* —Humboldt Association of Realtors, Fire Chiefs, HCFSC **(S, ✋)**
- *Ensure that the availability of the Humboldt County Web GIS Portal is well known and that residents and fire departments understand the benefits of the "Fire Planning" Application.* —County Planning and Building, Fire Chiefs, HCFSC **(S, ✋)**

- *Target fire-safety educational efforts to new residents, especially those coming from urban areas and others with little experience with fire in the WUI.* —Fire Prevention Officers, HCFSC, County Planning and Building, Humboldt Association of Realtors, Chambers of Commerce **(M)**
- *Develop a welcome-neighbor program, offering a welcome basket with fire-safety information for new residents*. —Fire Prevention Officers, HCFSC, Local FSCs, Firewise Community Boards or Committees, Senior Centers **(S,)**
- *Develop fire-safety educational programs targeted at educating new residents to be distributed through water districts and other utilities, fire departments, chambers of commerce, insurance industry, and other interested partners.* —HCFSC, Local FSCs, Plan Partners, County Planning and Building **(M)**

III.5. Implementing and Maintaining this CWPP

Large amounts of data have been developed and collected through the extensive community processes involved in the creation of the 2006 Master Fire Protection Plan, local CWPPs, and this CWPP. That information is now available through the Humboldt County Web GIS Portal.[17] A feasible scenario for managing this data, keeping it current, and make it most useful and accessible to Humboldt County residents is needed.

Finally, no plan is ever permanent. This CWPP update was written in 2012 based on current conditions and best available information. The field of fire safety is rapidly changing. It is likely new developments will occur in the coming years. Therefore, it will be important to review this Plan at least every five years and update it as needed.

- *Set up a system to mange the massive amount of data generated through this planning process and make it available to the public through the Humboldt County Web GIS Portal. Ensure the continued sharing of data sets as progress is made on projects and new priorities are identified.* —HCFSC, County Planning and Building (GIS), Local FSCs, CAL FIRE, Federal Land Management Agencies **(S, O)**
- *Review the Humboldt County CWPP at least every five years and update it as needed, using a collaborative public process.* —HCFSC, Plan Partners **(M)**

III.6. Reducing Hazardous Fuels Throughout Humboldt County

Reducing hazardous fuel is a challenge for most communities in the western United States. The amount of accumulated fuel is far greater than most communities can afford to tackle, hence the need to prioritize projects. The research is still unclear regarding the most effective and efficient way to reduce fuel without compromising ecosystem health. To address this uncertainty, this CWPP promotes an approach to fuel reduction that is sensitive to impacts on ecological processes and is in compliance with all applicable environmental laws and regulations.

In terms of prioritizing fuel *treatments* across large landscapes, it is generally agreed that treatments should be focused first around communities in the WUI. Many residential areas in Humboldt County qualify for such treatments. Priority fuels reduction projects were identified for these areas at community workshops and are summarized in the PUAPs in Part IV of this CWPP and included, in more detail, at the Humboldt County Web GIS Portal, "Fire Planning" Application: http://gis.co.humboldt.ca.us/.

As stated in section III.4 above, fire safety must begin in the areas immediately surrounding homes. As one moves farther out from structures, fuel reduction treatments begin within the Wildland Fuel Reduction Zone, or that area closest to homes and structures and beyond the defensible space zone. *(See Part V. Fire-Safe Communities for a more detailed explanation of these zones and appropriate treatments in the Wildland Fuel Reduction Zone).* Beyond homes and the defensible space zone, strategic locations around neighborhoods and communities need to be identified and prioritized for creating *fuelbreaks*, and shaded wherever there is a canopy. "Fuelbreaks are never

[17] http://gis.co.humboldt.ca.us/

designed to stop fires but to allow suppression forces a higher probability of successfully attacking a wildfire."[18] Strategic, landscape fuelbreaks can have an impact on the progress of a wildfire and have the potential to stop it or slow it down. There are numerous examples of a wildfire burning quickly through the crowns of trees and then dropping to the ground where it burns more slowly and less destructively after it encounters a fuelbreak.

The combination of home construction modifications (*hardened homes*) with effective defensible space and *shaded fuelbreaks* around communities is one of the best-known strategies to protect communities from wildfire.

There is no "one size fits all" prescription for shaded fuelbreaks. The width can vary widely, for example, ranging from 50 to 300 ft. "A shaded fuelbreak is created by altering surface fuel, increasing the height to the base of the live crown, and opening the canopy by removing trees."[19] *Sample prescriptions are described in Part V of this CWPP*. In addition to initial implementation, maintenance of fuelbreaks is often costly, and needs to be considered with the initial project. Maintaining the canopy *cover* (hence, the concept of a "shaded" fuelbreak) helps to reduce these costs by slowing regeneration.

> "*Manual treatment* is very expensive, and *mechanical treatment* is only feasible on gentle terrain. *Prescribed fire* can be effective but there is potential for fire escape along the edges. Late winter burns, where the previous year's production is cured, the perennials have not yet greened up, and the adjacent forest is not very flammable, may be a possible cost-effective treatment to avoid risk of escape from maintenance burns and achieve effective maintenance at low cost."[20]

In Humboldt County, there is mixed support for controlled burning (or prescribed fire), especially on public lands. Facilitating the re-integration of fire into the region through prescribed burning can reduce maintenance costs for fuel reduction projects, greatly improve forest health, and contribute to the aesthetic quality of the forest. With fuel reduction efforts limited by the high costs of implementation, prescribed fire may be the only way to meet fuel reduction goals for the County. However, there are added risks to prescribed burning such as air quality impacts, vegetation mortality, and *escape* liability. At the same time there is much misunderstanding about the integral role of fire in maintaining forest health, including the resiliency of forests to wildfire. Thus, it is necessary to increase public awareness of the beneficial uses and consequences of fire, and of the state and federal programs supporting prescribed burning. Increasing public awareness of safe burning practices, liability issues, and sources of support (e.g., the CAL FIRE Vegetation Management Program) is critical to this end.

To most effectively maintain the various fuelbreaks proposed on non-federal lands throughout the county, an "Adopt a Fuelbreak" program can be developed by local FSCs in cooperation with community and/or neighborhood groups, homeowners associations, road associations, and others. Each group would be responsible for ongoing maintenance of their adopted fuelbreak. This would need to be done in cooperation with experienced fire and resource professionals to ensure participant safety and fuelbreak effectiveness.

A relatively recent and significant development that affects Humboldt County fuels, especially in the southern part of the county, is the incidence of Sudden Oak Death (SOD) within some parts of the county. SOD is a caused by *Phytophthora ramorum* an invasive forest pathogen introduced to California in the mid-1990s through the horticultural plant trade. Affected areas can have a significantly higher fire hazard due to higher proportions of dead fuels of all sizes and prevalence of *snags*. This disease can easily spread by wind-driven rain events and the affected area is anticipated to grow substantially. Recent research has helped to characterize the nature of the risk and can help to guide firefighter response.[21] *(For more discussion on Sudden Oak Death in Humboldt County, see "Vegetation and Fuels" in section II.1.3 of Chapter II.1. Wildfire Environment.)*

[18] Agee, J.K., Bahro, B., Finney, M.A., Omi, P.N., Sapsis, D.B., Skinner, C.N., van Wagtendonk, J.W., & Weatherspoon, C.P. (2000). The use of shaded fuelbreaks in landscape fire management. *Forest Ecology and Management, 127*. (pp. 55–66.) Retrieved from http://www.fs.fed.us/psw/publications/skinner/psw_2000_skinner(agee)001.pdf

[19] Agee et al. (2000). The use of shaded fuelbreaks in landscape fire management. (p. 56.)

[20] Agee et al. (2000). The use of shaded fuelbreaks in landscape fire management. (p. 60.)

[21] California Fire Science Consortium. (2012, June). *Research Brief for Resource Managers.* Retrieved from www.cafiresci.org/storage/papers/Valachovic%20et%20al%202011_CFSC_June%202012.pdf

The PUAPs in Part IV of this CWPP include the shaded fuelbreaks and other fuel-reduction projects that were prioritized for implementation in Humboldt County. These projects were generally identified at a community workshop, or otherwise resulted from this planning process. Projects were prioritized based local knowledge as well as considerations for Fire Hazard Severity Zone ratting, terrain, values at risk, level of community support, and population density, with an emphasis on interface areas.

- *Obtain funding to maintain existing cooperative fuel-reduction projects throughout the county and to initiate new programs in priority areas*. —HCFSC, Appropriate Land Management Agencies **(O)**
- *Secure funding and implement the strategic fuelbreaks and fuel-reduction efforts identified through this CWPP process and stored in the Humboldt Web GIS Portal*. —HCFSC, Local FSCs, Other Applicable Agency and Plan Partners, (including SRNF, BLM, CAL FIRE, HRCD, etc.) **(O)**
- *Work collaboratively to pool resources to create shaded fuelbreaks along key access roads*. —Local FSCs, County Public Works Roads Division, Public Land-Management Agencies, CAL FIRE **(M, O)**
- *Educate residents on the positive and negative aspects of controlled burning and prescribed fire and other fuel-reduction options*. —Public Land-Management Agencies, Tribal Experts, CAL FIRE, NCUAQMD,[22] Local FSCs **(S)**
- *Increase public awareness of fire as a tool for improving community fire safety, forest health, and ecological diversity through public education programs and by working with local FSCs.* —Northern California Prescribed Fire Council, Public Land-Management Agencies, Tribal Experts, CAL FIRE, NCUAQMD, Local FSCs **(S)**
- *Work with local air-quality regulatory agencies to identify and discuss obstacles to prescribed burning.* — HCFSC, Local FSCs, Fire Prevention Officers, NCUAQMD, Northern California Prescribed Fire Council **(S)**
- *Develop an "Adopt a Fuelbreak" program for maintenance of fuelbreaks, and employ appropriate maintenance practices.* —HCFSC, Land-Management Agencies, CAL FIRE, Tribal Experts, Other Fire and Resource Professionals **(M)**
- *Maintain community awareness of SOD and associated impacts, and provide education and outreach to help residents prepare for and respond to the impacts associated with SOD.* —HCFSC, Local Fire FSCs, Watershed Groups, State and Federal Agencies **(O)**
- *Help coordinate a response to SOD that is consistent with hazardous fuel-reduction efforts for impacted communities.* —HCFSC, Local FSCs, Watershed Groups, State and Federal Agencies **(O)**
- *Identify non-federal matching funding sources for federal grants that support county partnership efforts in monitoring and management of SOD*. —Local Foundations **(S)**
- *Provide education to residents connecting fire-safe forests, timber production, and ecological restoration efforts.* —UCCE, Public Land-Management Agencies, CAL FIRE, Local FSCs **(O)**

III.6.1. Improving Access: Fuels Management and Maintenance of Roads

Roads are critical components in the fire equation. They are vital for *evacuation* and for firefighters and other emergency responders to access residences. They are also often strategic places for shaded fuelbreaks for firefighters to be able to fight a fire.

At the community CWPP workshops road access was a consistent and prominent issue. Throughout the county—especially in rural areas—numerous neighborhoods are situated along dead-end roads, which means there is only one-way in and out, both for emergency service vehicles *ingress* (often rapidly) for first response, and also for local residents *egress* to evacuate. Projects to improve access were identified at community workshops and are

[22] North Coast Unified Air Quality Management District (NCUAQMD).

summarized in the PUAPs in Part IV of this CWPP. They are included in more detail at the Humboldt County Web GIS Portal, "Fire Planning" Application: http://gis.co.humboldt.ca.us/.

Much of rural Humboldt County was developed on the network of old logging roads from the 1950s and 60s; well before fire safety or environmental standards were required. Hence, many roads lack adequate *turn-outs* and have heavy fuel loads. This combination creates a greater chance of a wildfire to "jump" across a road. As well, there is usually not enough *set back* or clearance to allow people to get safely in or out during a wildfire, which greatly increases their chance of getting caught in the middle of the fire.

Heavy brush along roads damages fire trucks, scratching them and breaking off mirrors. Vegetation above roads creates an unsafe condition for firefighters, as they are forced to enter through a tunnel of vegetation to fight a fire. Finally, road quality issues such as ruts, gravel, and steep and narrow roads make it more difficult for fire trucks to quickly get into an area and safely get back out.

Where bridges are narrow or unstable, and previous landslides have resulted in limited passage, fire trucks and other emergency response vehicles are slowed in their response. Several areas were identified in the community meetings as needing bridge or road repair work. These are also identified in the PUAPs in Part IV.

Upgrading roads to Humboldt County *Fire Safe Standards (see Appendix F: County Fire Safe Standards)* has been especially controversial in the last several years. To subdivide or otherwise develop in many areas of the county, current regulations require upgrading road conditions—especially road widths—to the Fire Safe Standards. In many cases this is not feasible for residents. Therefore, **ensuring that roadways in high and very high fire hazard areas have excellent clearance along both sides, and adequate turn-outs, is essential throughout rural Humboldt County** *(see Figure II.1-9. Fire Hazard Severity in Part II).*

- *Identify road ingress and egress issues that increase emergency response times.* —County Planning and Building (GIS), County Public Works, Cities, Fire Chiefs, Law Enforcement, Caltrans, Humboldt County Association of Governments (HCAOG), California Highway Patrol **(S)**
- *Secure funding and other resources to repair, maintain, and/or upgrade priority ingress and egress sites*. —Humboldt County and City Public Works Departments, Caltrans, Fire Chiefs, Development and Timber Industries, Other Public Land Managers (where appropriate) **(O)**
- *Create turn-outs along dead-end roads to facilitate emergency-response ingress and resident egress (evacuation).* —Neighborhood and Homeowners Associations, Humboldt County Residents, Local Fire Departments, Law Enforcement **(M, O)**
- *Maintain (trim back) vegetation on roads along private properties. Remove all dead and dying vegetation, and mow fuels along driveways and roads to County and City codes. Prune all branches that are hanging over private roads and driveways to a height of 15 ft. or more above the ground.*[23] —Humboldt County Residents, County Public Works **(S, O)**
- *Implement shaded fuelbreaks on access roads, especially those identified at community workshops*[24] *to improve safety for evacuation as well as for firefighters responding to a wildfire.* —HCFSC, Local FSCs, Industrial and Public Land Managers, Neighborhood Groups and Homeowners Associations **(M, O)**
- *Dovetail fuel treatments along roads with fisheries concerns to enhance project efficiency and funding opportunities.* —Local FSCs, Watershed Groups, Public and Private Land Managers **(S, O)**
- *Institute development conditions on new subdivisions designed to control vegetation alongside roads and in public areas, thus reducing the risk of fire spreading to or from private property*. —County Planning and Building Department, BOS **(M)**

[23] *See Part V. Fire-Safe Communities for shaded fuelbreak specifications.*

[24] *See Community Identified Projects Map in each Planning Unit Action Plan within Part IV of this CWPP, as well as the "Fire Planning" Application of the Humboldt County Web GIS Portal at: http://gis.co.humboldt.ca.us/.*

III.6.2. Reducing Fuels Along Power Line Easements

Landowners repeatedly expressed concerns at the community workshops regarding power line easements traversing their property and the subsequent increase in wildfire risk. In many cases the periodic *brushing* and trimming done below PG&E power lines—meant to keep the easements safe— has contributed to a fuel build-up and an increased fire hazard to private property, as well as to risks of wildfire in the National Forests. The fact that materials cannot be burned under power lines exacerbates the problem. These dead materials accumulate over time, with brush species growing up through them, creating a tangled strip of hazardous fuels. These PG&E easements have, in some cases, become literal fuses that, were a fire to occur, would carry it quickly and dangerously directly to the homes they serve.

To further aggravate the problem, when there are problems with electrical transformers and they spark, they can then ignite the fuel build-up below and send embers or even wildfire along their paths directly to nearby homes, and other structures with electricity.

PG&E's vegetation management policies and schedules cannot meet every individual landowner's needs. However, the problem in Humboldt County—especially in the areas of Orleans, Willow Creek, and Southern Humboldt—is consistent and widespread and must to be addressed.

- *Set up a committee to work closely (meeting at least annually) with PG&E to better understand the problem of increased fuels and ignitions along power lines to collaboratively identify solutions.* —HCFSC, Local FSCs, PG&E **(S)**
- *Explore the possibility of PG&E using its community-investment program to support a local FSC to undertake supplemental fuel reduction, to occur in between the regular maintenance times of their contracted crews.* —PG&E, HCFSC, Local FSCs **(S)**

III.7. Preparing Humboldt Communities for Emergencies

The difference between being prepared for emergencies or not can literally be the difference between life and death. It's to everyone's advantage to be ready for the inevitable natural disasters that face us, as wildfire and other emergencies such as earthquakes and tsunamis will continue to be a reality for Humboldt County residents. Actions can be taken at the neighborhood, community, and countywide level to help ensure that all local residents and properties are as safe as possible.

- *Ensure local jurisdictions have completed Local Hazard Mitigation Plants to be eligible for pre- and post-disaster federal funding.* —Humboldt County Office of Emergency Services (OES), County Public Works, Local Jurisdictions, **(S, O)**
- *Develop a Wildfire Response Contingency Plan template that can be quickly and appropriately customized during an active wildfire incident*—OES, Fire Chiefs, Local Jurisdictions, CAL FIRE, Federal Agencies **(M, O)**
-

III.7.1. Community Emergency Response Teams (CERT)

The *Community Emergency Response Team* (CERT) Program "educates people about disaster preparedness for hazards that may impact their area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization and disaster medical operations. Using the training learned in the classroom and during exercises, CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help. CERT members also are encouraged to support

emergency response agencies by taking a more active role in emergency preparedness projects in their community."[25]

The CERT Program is a national program of FEMA/CitizenCorps. The new Regional Training Institute ─ Community Disaster Preparedness, a component of Humboldt State University's Office of Distance and Extended Education, offers the 23-hour complete basic CERT course, as well as other practical disaster preparedness classes that can assist individuals, neighborhoods, and workplaces mitigate hazards, reduce injuries, save lives, and by planning ahead, help them recover more readily after disasters. For further information visit www.humboldt.edu/rti or call (707) 499-0754.

Every community or homeowners association in the county would benefit greatly from having at least one functioning CERT team.

For more information on community preparedness, please see Chapter II.5. Community Preparedness and Part V. Fire-Safe Communities.

- *Support the efforts of the new HSU Regional Training Institute — Community Disaster Preparedness.* —BOS, Fire Chiefs, CAL FIRE, HCFSC **(S, O)**
- *Contact HSU Regional Training Institute — Community Disaster Preparedness to learn how to participate in local CERT and other disaster preparedness training programs.* —Homeowners Associations, Local FSCs, Other Neighborhood and Community-Based Organizations **(S)**
- *Ensure that each community has a functioning CERT team.* —HSU Regional Training Institute — Community Disaster Preparedness, HCFSC **(S, O)**

III.7.2. Improving Residential Emergency Preparedness

Effective evacuation planning depends on residents being prepared. This is especially important for families with small children, elderly and disabled citizens, and other vulnerable populations. Residents in remote areas of the county must be especially prepared for evacuation. To this end, all residents should create a Family Disaster and Evacuation Plan. Information is available from the American Red Cross at: www.redcross.org/prepare regarding how to do family disaster planning, and www.redcross.org/prepare/location/home-family/plan for how to create a family evacuation plan. Additional information is available from the Department of Homeland Security at: www.ready.gov/america/index.html. Another resource is the "Living on Shaky Ground: How to Survive Earthquakes and Tsunamis in Northern California" class, presented by HSU's Regional Training Institute ─ Community Disaster Preparedness, which includes a practical seven-step plan to learn about hazards, and how to mitigate them, what to do during a disaster, and how to plan to recover more readily afterwards.

In remote rural neighborhoods or communities, phone trees can be an effective local strategy for disseminating information quickly, as long as they are maintained. Homeowners associations, road associations, and local schools are all good venues for setting up a phone tree. Simple steps regarding how to establish a phone tree can be found at: www.ehow.com/how_4325_set-emergency-phone.html. Commercial options for doing this on a larger scale are available through entities such as One Call Now[26] and Call-Em-All.[27]

As stated above, the HSU Regional Training Institute — Community Disaster Preparedness provides trainings in areas such as creating disaster supply kits, food safety and how to eat nutritiously during disasters, and preparing local businesses for emergencies.

Mobile communications technology can be important during an emergency, especially when power is cut or communication systems are down. Local FM and AM radio stations can be an effective communication tool for

[25] CERT: Community Emergency Response Team. (n.d.) *Homepage.* Retrieved January 2, 2013 from https://www.citizencorps.gov/cert/

[26] One Call Now. (2013). Retrieved from www.onecallnow.com

[27] Call-em-all. (2013). Retrieved from www.callemall.com

keeping the public informed during emergency situations. Car-chargers for cellular phones and 12-volt inverters for automobile lighter/charger sockets can provide a useful back-up source of power in case of emergencies. USB modems (a.k.a. air-cards) and other portable internet devices can also facilitate emergency communications, especially to friends and family outside of the disaster area.

For more information on residential emergency preparedness, please see Chapter V.2. Ready, Set, Go in Part V of this CWPP.

- *Prepare for wildfire and other emergencies by creating family disaster and evacuation plans.* —Humboldt County Residents **(S, O, ✋)**
- *Consider storing valuable items in a fire-safe urban area during extreme fire weather conditions.* —Humboldt County Residents in Very High Hazard, Remote Rural Areas **(S, O)**
- *Organize emergency phone trees in each neighborhood and keep them up to date. Make sure everyone in the neighborhood is on someone's call list, and that deaf residents (and others with disabilities that may affect their communication abilities) get contacted in person.* —Local FSCs, Homeowners Associations **(S)**
- *Conduct disaster-preparedness and emergency-response drills, throughout Humboldt County.* —Humboldt County OES, Identified Emergency Management Staff Members of the County and Cities, Law Enforcement, Local Fire Departments, Local FSCs, Red Cross, Senior Centers. **(S, O)**
- *Outreach to local businesses to create disaster preparedness plans through the HSU Regional Training Institute -- Community Disaster Preparedness.* —Chambers of Commerce, Business Associations **(S, O)**

III.8. Ensuring Safe and Effective Evacuation

There are myriad issues regarding evacuation in Humboldt County. Chapter V.2. Ready, Set, Go explains how residents can safely and effectively evacuate—or get out—during an emergency situation such as wildfire.

Many neighborhoods in Humboldt County have limited evacuation options, especially due to *one-way-in and one-way-out roads*. Being prepared in the event of evacuation can literally make the difference between life and death. When a wildfire is moving especially fast, such as during crown-fire[28] events, firefighters need to be able to move quickly in their protection efforts. In those cases, it is critical that roads are kept clear of all traffic, another reason to evacuate early and efficiently.

In an example of a worst-case scenario for Humboldt County, a large earthquake could occur during fire season with multiple fire events. In this case there will be many isolated communities and neighborhoods because of blocked access routes. Evacuation planning needs to consider such scenarios.

If residents are trapped because their escape is cut off and the fire is already at their location, such as in the scenario above, there are steps to take to increase the chance of survival. In such cases, residents may need to make decisions on their own about seeking shelter where they can survive the passage of the wildfire until they can reach an evacuation site. It can be very difficult to determine the right thing to do as the fire approaches. Before a wildfire threatens, community members should talk to their local fire department about evacuation procedures in their neighborhood.

For more information on evacuation, please see the Planning Unit Action Plans in Part IV and Chapter V.2. Ready, Set, Go!; adapted from CAL FIRE's publication "Ready, Set, Go!"[29]

- *Provide information about evacuation during a wildfire event. Make sure residents know multiple escape routes for a variety of different wildfire scenarios.* —Humboldt County OES, Cities, Law Enforcement, Red Cross, CAL FIRE, Local Fire Departments, Local FSCs **(S, O)**
- *Develop and distribute local shelter-in-place information in the event that citizens are unable to evacuate.* —Fire Agencies, Law Enforcement ***(*S, O)**
- *Develop and distribute "Ready, Set, Go" evacuation-planning materials to educate residents on evacuation in their community.* —Humboldt County OES, Cities, Law Enforcement, Red Cross, CAL FIRE, Local Fire Departments, Local FSCs **(S, O)**

III.8.1. Developing Evacuation Routes and Sites

Potential evacuation options are identified in each Planning Unit Action Plan *(see Part IV).* These routes may change depending on fire behavior, wind pattern, and other factors. They generally consist of a primary way in and out of a community (a highway or main county road in many cases) and several smaller connecting roads that could be used as ingress and egress to and from the main road.

Community members used their local knowledge to identify potential evacuation routes and sites on the maps at the 2012 community CWPP workshops. This information is being passed on to local law enforcement and fire agencies to review for potential use, as well as being incorporated into the Humboldt County Web GIS database.[30] It will be helpful as potential evacuation routes, evacuation sites, and temporary survival areas are evaluated and, if appropriate, shared with community members.

[28] *See Chapter II.1. Wildfire Environment for more information on crown fires.*

[29] CAL FIRE (California Department of Forestry and Fire Protection), Ready for Wildfire. (2012). *Go! Evacuation Guide.* Retrieved from www.readyforwildfire.org/go

[30] http://gis.co.humboldt.ca.us/

It is important to emphasize that the safest evacuation route and sites will depend on the location of the wildfire. Evacuation plans for wildfire that identify specific evacuation routes are challenging to develop and could be misleading. Humboldt County relies on adaptable procedures that will guide the development of evacuation plans for specific events. It is, however, important to inform residents about evacuation preparedness and procedures and make sure that they are aware of multiple possible evacuation routes in and out of their communities. *Information about evacuation routes and sites can be found in Chapter V.2. Ready, Set, Go!*

- *Collaborate to develop local evacuation preparedness materials and planning processes, with input from local FSCs and other community groups.* —Local Fire Departments, Humboldt County OES, Law Enforcement, Local FSCs, Homeowners Associations, Neighborhood Groups **(S, O)**
- *Identify local evacuation sites and temporary survival areas and ensure neighborhood residents know where they are.* —Local Fire Departments, Humboldt County OES, Law Enforcement, Local FSCs, Homeowners Associations, Neighborhood Groups **(S, O)**
- *Develop and/or upgrade appropriate sites (including those identified at community meetings) to function as evacuation sites and/or disaster centers during emergency situations.* —Local Fire Departments, Red Cross **(M)**
- *Survey gathering places in each neighborhood and include in local evacuation planning.* —Local FSCs, Homeowners Associations, Local Fire Departments, Law Enforcement **(S)**
- *Review the community-identified evacuation information generated through this planning process for development as incident-specific evacuation areas and routes.* —Local Fire Departments, Humboldt County OES, Law Enforcement **(S)**
- *Review feasibility of alternate evacuation routes*. —Local Fire Departments, Humboldt County OES, Law Enforcement, Neighborhood and Homeowners Associations, Local FSCs **(M)**
- *Review and incorporate the community-identified evacuation information generated through this planning process into Humboldt County GIS database.* —Local Fire Departments, Humboldt County OES, Law Enforcement, County Planning and Building (GIS) **(S,)**
- *Identify leadership and resources to develop evacuation procedures and information for vulnerable populations.* —County of Humboldt, Cities, Social Services Agencies, Senior Centers, Law Enforcement, Local Fire Departments, Red Cross, Local FSCs, Humboldt County OES, Other Interested Local, State, And Federal Agencies **(M)**

III.8.2. Evacuating Pets and Large Animals

Many Humboldt residents have pets, large animals (especially horses), or both. Large animals require pre-planning for safe and effective evacuation. A system of *evacuation sites* for both pets and livestock needs to be developed at both the local and county scale. Many community shelters will not allow animals other than assistance or service dogs into their facilities during an emergency. Humboldt County OES is in the process of developing an animal control plan that will assist in the safe evacuation of animals during a disaster. *See section V.2.3 in Part V. Fire-Safe Communities for more information on preparing for the safety of pets and livestock during emergencies.*

- *Work with Plan Partners, Red Cross, Humane Society, County of Humboldt, and local veterinarians to identify existing options for local pet and livestock emergency evacuation. Work through local feed stores, veterinarians, boarding facilities, and animal associations to educate residents on options.* —Local FSCs, Humboldt County OES **(M, O)**

- *Collaborate to develop local horse[31] evacuation plans.* —Horse Owners, Local Fire Departments, Humboldt County OES, Law Enforcement **(S, O)**
- *Trailer-train horses to safely evacuate.* —Horse Owners **(S, O)**
- *Distribute existing pet and large-animal evacuation literature to Humboldt County residents.* —Local FSCs, Veterinarians **(S, O)**

III.8.3. Ensuring Gates Function During Emergencies

Gates can pose a serious obstacle to safe and effective evacuation. Automatic gates that do not open during power outages are especially dangerous, and may be illegal.

- *Initiate informational programs to educate residents about the importance of easily passable gates during emergencies.* —Law Enforcement, Local Fire Departments, Local FSCs, Homeowners Associations **(S, O)**
- *Educate residents regarding the need to unlock gates during wildfire and other emergencies.* —Local Fire Departments, Local FSCs, Homeowners Associations **(S, O)**
- *Explore incentives and options for fire-safe gates.* —Law Enforcement, Fire Chiefs, CAL FIRE, Local FSCs, Homeowners Associations **(M)**
- *Encourages residents and neighborhoods to use* Knox Boxes[32] *and provide gate codes to local Fire Departments.* —Humboldt County Residents, Local Fire Departments **(S, O)**

III.9. Hardening Homes to Survive Wildfire: Reducing Structural Ignitability

As detailed throughout this CWPP, effective fire-safe communities begin by making homes and other structures ready for wildfire. Reducing the chance that structures (our homes, businesses, etc.) will burn is a fundamental component of any CWPP.

> "Research shows that a home's ignition potential during extreme wildfires is determined by the characteristics of its exterior materials and design and their response to burning objects within one hundred feet and firebrands (burning embers)."[33]

The California State Fire Marshal's Office has developed state-of-the-art building standards[34] for use within the WUI zone. The current standards became effective in 2011. Humboldt County homeowners need to become familiar with these standards so they can upgrade their homes to improve wildfire survivability. Part V. Fire-Safe Communities, of this CWPP, summarizes these standards.

Local FSCs and homeowner associations could explore the options of neighborhood-wide, wholesale purchase and installation of WUI-building materials such as fire-safe vents. This is an effective and efficient way to reduce costs and wildfire risk; it can reduce the chances of *home-to-home ignition*. Other creative financing options should be explored. For instance, financial incentives are sometimes given for improving home energy efficiency; such as upgrading to double-pane windows, which would also increase a house's structural integrity against wildfire.[35] *For*

[31]Staples, M. (2012). *How Do You Spell Rescue? If You Have Horses, the Answer is L-A-R.* Mendocino Fire Safe Council, Horse Owner Preparedness [pdf]. Retrieved from http://firesafemendocino.org/pdf/horseall.pdf.

[32] *See Part V. Fire-Safe Communities for more information on Knox Boxes.*

[33] Cohen, Jack. (2008). The wildland-urban interface problem–A consequence of the fire exclusion paradigm. (p. 23.)

[34]CAL FIRE. (2012). *Wildland Hazard/Building Codes.* Retrieved from www.fire.ca.gov/fire_prevention/fire_prevention_wildland.php.

[35] *For more information on energy retrofits contact the Redwood Coast Energy Authority at:* http://www.redwoodenergy.org/.

more information on hardened homes and structural ignitability, please see Chapter II.2. Values and Assets at Risk, and Part V. Fire-Safe Communities.

- *Continue to educate residents on the importance of replacing unrated, untreated wood-shake roofs with rated roofs, kept in good condition and free of combustible debris.* —Fire Agencies, County Planning and Building, Federal Partners, Local FSCs **(S)**
- *Develop incentive-based programs for residents to replace untreated wood-shake roofs.* —County of Humboldt, Cities **(M)**
- *Educate residents on the need to have double-paned windows throughout their homes, with recommendations to upgrade to tempered glass for fire safety where possible.* —Local FSCs, Utilities, Interested Partners **(O)**
- *Explore incentive programs to upgrade windows to double pane or higher standards.* —Local FSCs, Utilities, Energy-Conservation Organizations, Interested Partners **(M)**
- *Educate residents on need for separation of heat loads from residences.* —Local FSCs, Fire Prevention Officers, Other Interested Partners **(O)**
- *Work together to enforce clearing 100 ft. (or to the property line) around structures, as per State law.* —Fire Protection Districts, CAL FIRE, Humboldt County Code Enforcement **(M)**
- *Educate residents on the need to have vegetative and flammable-material clearance around propane tanks and other fuel storage areas near residences, and keep these at least thirty feet from homes and outbuildings.* —Local FSCs, Other Plan Partners **(O)**
- *Educate residents on the risks of having wood fences attached to homes.* —Local FSCs, Other Plan Partners **(O)**
- *Educate Humboldt County residents on current California WUI (Chapter 7A) building standards and the products approved by the State Fire Marshal's office.* —County Planning and Building, HCFSC, Local FSCs, Homeowners Associations **(S, O)**
- *Create a handout to distribute to residents graphically depicting current WUI building standards in a user-friendly format.*[36] —County Planning and Building **(S, ✋)**
- *Stay current on applicable WUI standards and new legislation through the California Fire Marshal's Office*. —County of Humboldt, Cities **(O, ✋)**
- *Create and implement educational programs on hardening homes, including the possibility of a WUI-building products fair*. —Local FSCs, Plan Partners **(M)**
- *Work with State Fire Marshal-approved WUI building product vendors*[37] *to create discounted wholesale purchases and installation of products to harden homes at the neighborhood scale.* —Local FSCs, Homeowners Associations. **(S, O)**
- *Explore parallel incentive programs that can finance upgrading homes to current WUI-building standards.* —HCFSC, County Planning and Building, Cities **(M)**

[36] *Look to other California counties for examples, particularly Ventura County:* County of Ventura, Resource Management Agency. (2011, November). *High Fire Hazards/Fire Hazards Severity Zone Requirements*. Building and Safety Division. Retrieved from www.ventura.org/rma/build_safe/pdf/handouts/b-60.pdf.

[37] CAL FIRE, Office of the State Fire Marshal. (2007). *Building Materials Listing—Search Listing Services.* Retrieved from http://osfm.fire.ca.gov/licensinglistings/licenselisting_bml_searchcotest.php.

III.10. Enhancing Emergency Notification and Communications

Effective communication between all fire agencies, emergency medical service, and allied agencies, is critical to the health and safety of local residents and emergency services personnel. Communication includes information sharing, dispatch, and inter- and intra-departmental radio communication.

The Humboldt Operational Area Communications Committee (HOACC) was recently formed,[38] composed of representatives of local, state, and federal agencies and other area organizations operating radio communications systems in the county. This group can help provide leadership on this issue.

For more information on emergency communications, please see Chapter II.3. Wildfire Protection Capabilities.

- *Improve communication and coordination between local fire departments, CAL FIRE, and federal agencies during fires and other emergencies.* —HOACC, HCFSC Improve Emergency Dispatch Services Committee, Fire Chiefs, CAL FIRE, Federal Agencies **(M)**
- *Support communication and collaboration between fire and public safety agencies while maintaining the integrity of their distinct public service roles.* —HOACC, HCFSC Improve Emergency Dispatch Services Committee **(S, O)**
- *Encourage radio users to install all state and federally authorized standard inter-operability frequencies in all radios*—All Emergency Responders (including Local Fire Departments and Law Enforcement) **(S, O)**

III.10.1. Improving Emergency Dispatch Services

Dispatch services throughout Humboldt County are provided by a variety of entities. The majority of local fire departments are dispatched through the Fortuna Interagency Command Center (FICC), also known as the dispatch center. Countywide dispatch is dependent upon communications equipment that is in some cases unreliable. Personnel cost increases for dispatch services are not being matched with the necessary revenue increase to maintain the status quo. Excellent coordination between dispatch centers, adequate personnel, and reliable equipment are crucial to the provision of quality emergency services. The FICC dispatch console and the CAL FIRE Humboldt—Del-Norte (HUU) repeater systems are in the process of a full-system upgrade. The upgrade is projected to address unreliability and dead zone issues, and is scheduled to be completed by the end of 2013.

Community input provided through this CWPP process indicates that there are still problems with how fire departments are being dispatched and confusion about how road names and home addresses are organized in some areas. It has been identified that coordination between CAL FIRE, County Sheriff, local fire departments, County Public Works, and County Planning could address some of the dispatch, addressing, and road name issues. Further consolidation of dispatch services could eliminate duplication of efforts and confusion over different data sources and procedures, reduce cost, and improve efficiency.

There are many areas in the county where several different names are used to identify the same road or street, which can cause unneeded confusion during *dispatch* and emergency situations. When members of the public report emergencies, they will sometimes refer to the incident location as they know it from an historical perspective or a general location reference. If this location does not match information in the FICC Computer-Aided Dispatch (CAD) system, uncertainty about where responders should go can result. Several specific areas continue to create the most problems, including Highway 211/Ferndale Highway, and Wilder Ridge/Mattole Road/Bull Creek Road. Local dispatch and first responders need to agree on standardized naming usage for these areas, and educate other affected parties (e.g. other first responders) as to the protocol. Programming the CAD system to automatically pull up “also known as” (a.k.a.) road names could also help reduce confusion.

[38] *For more information, see Section I.3.4. Plan Implementation Progress Review.*

- *Encourage more effective communication between fire departments and dispatch centers (including a semi-annual feedback survey, dispatch center staff field trips, and fire department visits to the dispatch center.).* —HOACC, HCFSC Improve Emergency Dispatch Services Committee **(S, O)**
- *Share datasets, to keep data current, and to integrate community-identified information received by the County.* —FICC, County Sheriff's Department, County Planning and Building (GIS) **(S, O, ✋)**
- *Consolidate dispatch services where it can be accomplished, both within and across agencies.* —All Emergency Responders (including Local Fire Departments and Law Enforcement) **(S, O)**
- *Program unofficial," a.k.a." road names into the FICC CAD and enable the system to automatically recognize and pull up the correct location.* –CAL FIRE Dispatch Center, Battalion Chiefs, Local Fire Departments **(M)**
- *Augment staffing levels during peak fire season at the FICC.* —CAL FIRE, Fire Chiefs **(M)**
- *Secure funding to expand the program of outfitting emergency response vehicles with on-board computers that enhance dispatch and aid firefighters in their efforts to locate incidents.* —Fire Chiefs, Humboldt County OES **(M)**
- *Add Repeaters/Tones in dead zones/holes to help communications between firefighters and the FICC (i.e. Miranda, Myers Flat, Weott, Whale Gulch, Whitethorn, Ettersburg, Honeydew).* – Fire Chiefs, Humboldt County OES, CAL FIRE **(M**, **L)**

III.10.2. Facilitating Effective Notification and Communications to Residents

Difficulties exist regarding how to effectively and rapidly alert residents, especially in the rural areas of the county. Options need to be explored to improve emergency communication in these areas. Social networking alternatives such as Facebook and Twitter, while not infallible, are proving their usefulness in rapid and effective communication when normal networks may not be functioning. Using these communication tools should be fully explored.

Local radio stations are able to disseminate emergency information to Humboldt County residents. Large numbers of residents have ready access to FM and AM radios and are encouraged by emergency preparedness organizations, such as the Humboldt County OES, CalTrans, and the Red Cross, to tune in for information and updates in emergency situations. Currently, KMUD FM radio utilizes information from CAL FIRE, California Highway Patrol, the County Sherriff's Department, and the Southern Humboldt Fire Chiefs Association Public Information Team to provide live emergency updates on-air, through Facebook and Twitter, and to answer questions via phone calls from concerned residents.

The County of Humboldt has an operable reverse calling notification system available for use during emergency events. The system does not however, include access to all area telephone numbers throughout the county. It only includes listed numbers by AT&T and Frontier; these numbers are updated monthly. There is currently no process whereby individual telephone numbers can be input into the system by the public, as currently occurs elsewhere in the state.

Finally, some areas of the county have unreliable cellular phone coverage. Some such areas were identified during the community workshops. This lack of coverage can increase emergency communication challenges, especially in more remote areas of the county where communication issues already tend to already be greater.

- *Upgrade County's mass notification system to include all local phone numbers, and ability for residents to register their home and cellular numbers into the system.* —Humboldt County OES, County Sheriff's Department, HOACC, Fire Chiefs **(M)**
- *Elevate awareness and use of existing notification systems such as KMUD FM & KHUM FM radio and other local FM and AM radio stations.* — Fire Chiefs, Humboldt County OES, HCFSC **(S, O, ✋)**

- *Collaborate to explore additional measures for alerting residents to pending emergencies, including social networks, local radio broadcasts (using what KMUD has developed as a model).* —HCFSC, Humboldt County OES, Law Enforcement, Fire Agencies, Local FSCs, Homeowners Associations **(S, O)**
- *Contact cellular providers to explore additional cellular tower locations*. —Homeowners Associations, Local FSCs, Neighborhood Organizations **(S)**

III.11. Designating Wildland-Urban Interface Areas

Referred to throughout this CWPP, the WUI is a general term describing the area where homes and wildland meet. It also has a federal definition as the "line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel as defined in the Federal Register."[39] It is within the WUI that specific federal management actions take place in order to reduce fuel risks, based on guidelines established by the Healthy Forests Restoration Act (HFRA).

> "The HFRA provides administrative procedures for hazardous-fuel-reduction projects on [federal] lands in the WUIs of at-risk communities. The act encourages the development of Community Wildfire Protection Plans under which communities will designate their WUIs, where HFRA projects may take place."[40]

Concurrently, federal agencies are charged with developing WUI designations for the properties they manage. WUI designations have been made in all the existing, local CWPPs in the county; this CWPP supports those designations. Those areas without a local CWPP still need to have WUI defined, on a case-by-case basis.

- *Accept those areas of the county already designated as WUI in local CWPPs.* —Federal Agencies ***(S,*** ***)***
- *Gather all locally identified WUI information and create a map of existing WUIs in Humboldt County.* —HCFSC, County Panning and Building (GIS) **(S,)**
- *Create a map to identify potential WUI areas for those areas without local designation, and share with local residents.* —HCFSC, County Planning and Building GIS **(M)**

III.12. Utilizing Excess Fuels

Under preferable conditions, fuels removed from hazardous areas can be utilized in some way to help defray fuel-reduction costs. Humboldt County is fortunate in that it still has an intact timber industry; hence there is capacity for utilization of *small-diameter wood products* (e.g. creating finished products such as furniture).

Woody biomass is organic material from living matter and in this case refers to the materials produced from fuel-reduction projects. Biomass and its by-products can be used as sources of energy and in a variety of other value-added products. Care must be taken to ensure biomass efforts do not further damage impaired forest ecosystems.

There are also several biomass facilities in the county and significant research into biomass is happening here, especially through the Schatz Energy Center at HSU. Biomass information, such as studies and periodic workshops and conferences, is shared among and between UCCE, Schatz Energy Center, the Redwood Coast Energy Authority (RCEA), the HCFSC, and local FSCs. RCEA hosts the Humboldt Biomass list-serve to facilitate

[39] Office of the Federal Register, National Archives and Records Administration. (2001, January 4). Implementation direction for identifying and prioritizing hazardous fuel reduction in wildland-urban interface/intermix. *Federal Register, Vol. 66(3),* (pp. 751-754.) Retrieved from http://www.gpo.gov/fdsys/pkg/FR-2001-01-04/content-detail.html

[40] Healthy Forests Initiative and Healthy Forests Restoration Act. (2004, February). *Interim Field Guild, Title I, Wildland-Urban Interfaces Within or Adjacent to At-Risk Communities.* FS-799. (p. 15.) Retrieved from www.fs.fed.us/projects/hfi/field-guide/web/page15.php.

communication and coordination. However, this list-serve and its hosting is only feasible if there is active participation, which has been lacking in the past.

Successful implementation of a self-sustaining biomass utilization program will require the following steps: 1) establishment of an industry and agency working group (including resource and air quality management agencies as well as environmental interests); 2) compilation of all local and regional biomass utilization studies; 3) identification of additional local biomass utilization resources and assets; 4) identification of potential local, state, and federal funding sources and programs; and 5) development of recommendations by the industry and agency working group mentioned above to stimulate biomass utilization and fire hazard and risk reduction.

The combination of increased coordination between hazardous-fuel reduction projects and woody biomass utilization will lead to a more strategic and sustainable approach to reducing the buildup of hazardous fuels in Humboldt County.

For more information on biomass, please see Part V. Fire-Safe Communities.

- *Develop a biomass utilization program to develop commercially viable markets for fuel-reduction project wood byproducts and residues such as slash, small diameter logs, foliage, wood chips, etc.* —RCEA, Schatz Energy Center, Public and Private Land Managers, UCCE, HCFSC **(L)**
- *Continue to share latest information related to biomass utilization. Revitalize communication tools, such as the Humboldt Biomass list-serve.* —RCEA, HCFSC **(S, O)**
- *Create information sources that support woody biomass utilization feasibility studies. Document where biomass sources are located, how much is available, and their locations relative to other sources and utilization industries. Characteristics of the sources, such as species, size and moisture content should be included in this documentation.* —RCEA, HCFSC, UCCE, California Fire Science Consortium, Conservation Organizations **(M)**
- *Promote local use of biomass for energy, particularly in areas with high fuel costs and low proximity to industrial utilization. Develop and publish maps of firewood and chip piles available for public use. Investigate wood stove promotion and available rebates such as the North Coast Unified Air Quality Management District's (NCUAQMD) Wood Stove Exchange Program.* -–RCEA, HCFSC, NCUAQMD, Conservation Organizations **(M)**
- *Investigate distributed generation biomass-to-energy technology.* -–RCEA, Schatz Energy Research Center **(L)**

III.13. Maintaining Air Quality

Community protection from wildfire includes efforts to limit the negative health impacts that may result from wildfire incidences. Smoke produced during wildfires and structure fires contains chemicals and fine-particulate matter that can be harmful to human health. Concentrations of smoke vary depending on location, weather, and distance to the fire. Young children, pregnant women, elderly people, and individuals with respiratory disease, such as asthma, are at the greatest risk of experiencing symptoms from smoke inhalation; even healthy adults can suffer the impacts. Air pollution from smoke can also cause damage to agricultural crops, animals, and property values.[41]

The North Coast Unified Air Quality Management District (NCUAQMD) is the regional environmental regulatory agency which has jurisdiction over the air quality in Humboldt County, including the neighboring counties of Del Norte and Trinity. The NCUAQMD regulates opening burning throughout the year by issuing burn permits and allows burning only on designated "Permissive Burn Days" when meteorological conditions are conducive to good smoke management. The NCUAQMD goal is to best mitigate any affects from open burning through the issuance of burn permits, allowable burn days, and by coordinating burn projects. The public must call the NCUAQMD's Burn Day Status line each day at (866) BURNDAY or (866) 287-6329 to determine whether

[41] North Coast Unified Air Quality Management District. (n.d.). *North Coast Air Quality Information*. Retrieved November 6, 2012, from http://www.ncuaqmd.org/index.php?page=air.quality

burning is allowed. The NCUAQMD's opening burning regulations allows residents to dispose of vegetation on their property, and allows for burning by commercial (e.g. timber companies, etc.), government (CalTrans, State Parks, etc.) and even FSC projects.

The NCUAQMD issues daily Air Quality Alerts through Public Service Announcements during any wildfires to keep the public advised if air quality is considered Unhealthy or Hazardous so that appropriate action can be taken.

For more information on air quality, please see Chapter II.2. Values and Assets at Risk and section V.4.2 in Fire-Safe Communities.

- *Distribute kraft paper coverings for burn piles on an "as-needed" basis in order to maintain low moisture levels within vegetation piles prior to burning.* —NCUAQMD, Local FSCs, Local Fire Departments, CAL FIRE **(M, O)**
- *Educate public on the importance of complying with regulations and obtaining burn permits prior to burning vegetation piles.* —NCUAQMD, Local FSCs, HCFSC, Local Fire Departments, CAL FIRE **(S, O)**
- *Encourage the public to use ncuaqmd.org, call 1-866 BURN DAY, or listen to local radio stations for burn-day status information.* —NCUAQMD, Local FSCs, HCFSC **(S, O)**
- *Encourage community members to explore alternatives to burning, such as composting and biomass utilization, when disposing of vegetation piles.*[42] —NCUAQMD, Local FSCs, HCFSC **(S, O)**

III.13.1. Managing Air Quality Information During Wildfires

The North Coast Unified Air Quality Management District (NCUAQMD), the Public Health Branch of the Humboldt County Department of Health and Human Services, and the National Weather Service (NWS) in Eureka, work together to distribute information to the public regarding smoke from wildfires. During wildfire events, NCUAQMD's goal is to keep the public informed and educated about the concentration of harmful smoke in their areas. Concentrations of smoke will vary depending upon location, weather, and distance to the fire(s).

Air Quality Alerts are officially issued by the NCUAQMD as Public Service Announcements (PSA) when the concentration of smoke in an affected area meets the criteria of "Unhealthy" or "Hazardous". The PSAs are distributed to the County's Health Department, NOAA, and other public agencies. In addition, the PSAs are sent via email distribution lists to the media, school districts, and interested parties. Based upon this information, the County's Public Health Officer may take official action in regards to public events and schools. School Districts upon receiving the PSA, may take action to limit school activities. The PSAs can also be heard by calling 1-866-Burn-Day or 1-866-287-6329 and can also be found at the NCUAQMD's website, www.ncuaqmd.org. The National Weather Service (NWS) office in Eureka collaborates with the NCUAQMD to distribute the PSA information to the public using their NOAA Weather Radio transmitter scripts.

In some cases, the NCUAQMD may deploy additional portable air quality monitors (EBAMs) during wildfire events to better determine the smoke concentration in the region. The NCUAQMD currently has several portable monitors for such use, and the data from these and other monitors is utilized in determining Air Quality Alerts. Other monitors can be obtained as needed from neighboring air districts, the California Air Resources Board (CARB), and the U.S. Forest Service (USFS).

- *Expand the practice of running smoke plume models to more accurately pin point where and when smoke issues are going to be most significant, and communicate the resulting information to AQMD for inclusion in their message development for the public*. — NWS Eureka, AQMD, *USDA-FS Northern Region* **(S)**
- *Increase access to critical smoke information for community members in rural areas without such access through the purchase of NOAA Weather Radios for public buildings.* —Local, State, and Federal Agencies **(S)**

[42] *See Section III.1.14. Utilizing Excess Fuels below for more information.*

- *Improve coordination and communications between wildfire managers, NCUAQMD, and local radio and news organizations.* —NCUAQMD, Wildfire Managers, Local Radio and News Organizations **(S, O)**
- *Increase availability of mobile air-quality monitors to better protect and inform local communities.* —NCUAQMD, Humboldt County OES **(M)**

III.14. Integrating Fire-Safety Actions with Local Regulations and Policy

An effective CWPP recognizes and addresses the many levels of land-use planning that go into community making. Throughout California, as people build homes, businesses, and public places, there are many local, state, and federal requirements designed to address fire, public safety, community design, and environmental safeguards. A successful CWPP recognizes these requirements and incorporates their positive benefits into its recommended actions.

Ongoing residential development in unincorporated rural areas of the county, and multi-agency involvement in the implementation of fire-safe standards, both present a challenge to building and maintaining fire-safe communities here. The topic of community protection from wildfire has received much attention in recent years and many new strategies and techniques have been developed. It is crucial at this time to determine whether and how new community protection findings should be incorporated into current fire-safe standards. The implementation of uniform fire-safe standards can reduce future losses of life and property. The Humboldt County Fire Safe Standards were last updated in 1991, long before the current WUI building codes and knowledge regarding *structural ignitability* and effective fuel-reduction practices were known. Updating these standards will ensure that the most current fire-safe techniques are incorporated into the planning regulations, and that the enforcement of these regulations is well coordinated in local jurisdictions throughout the county.

Compliance must be ensured throughout the county with both the WUI building standards (Chapter 7A of the California Building Code) and the County Fire Code 1952. The associated requirements of these standards must be clearly communicated to builders and home and business owners. This will be an important avenue to reduce structural ignitability throughout Humboldt County.

Humboldt County has been in an extensive process of updating its General Plan (GPU), since before the publication of the 2006 Master Fire Protection Plan (MFPP). Because of the planning process and outcomes of the MFPP, the HCFSC has had the opportunity to actively and effectively participate in the GPU. HCFSC reviewed policy recommendations and provided input to the County Planning Commission that was incorporated into the most recent draft of the General Plan (as of late 2012).

Integrating wildfire prevention and planning into other planning efforts and policies is a cost-effective, long-term fire prevention strategy for Humboldt County. In addition to those integrated planning actions already described in this document, the following list of policy actions will further the goals of this CWPP and fire prevention in Humboldt County.

For more information on existing fire-safe regulations, please see Chapter V.4. Legal Requirements.

- *Update Humboldt County Fire Safe Standards to identify specific hazard zones, improve fire-safe measures for community planning areas and/or other unincorporated rural residential areas in the county, and address structural ignitability, roads, vegetation setbacks, and enforcement.* —County Planning and Building, Fire Chiefs, HCFSC, CAL FIRE **(S)**
- *Ensure that the most current fire-safe techniques are incorporated into County regulations, and that the enforcement of these regulations is well coordinated in local jurisdictions throughout the county.* —County Planning and Building, County Public Works, Fire Chiefs, CAL FIRE **(S, O)**
- *Ensure fire-safe development and effective fire-protection service by approving and supporting the relevant policies, standards, and implementation measures of the Community Infrastructure and Services Element in the General Plan—including procedures to address subdivisions and other development outside of Fire District*

Boundaries—and by encouraging new development in areas with existing, adequate fire protection. —BOS **(S, O)**

- *Ensure effective emergency management and pre-wildfire planning by approving and supporting the relevant policies, standards, and implementation measures of the Safety Element in the General Plan.* —BOS **(S, O)**
- *Continue to provide guidance to County Planners towards completion and implementation of the General Plan Update* —HCFSC **(S)**
- *Assist in the implementation of relevant policy and implementation measures from the current General Plan Safety Element, Community Infrastructure and Service Element, and any other relevant Elements.* —HCFSC **(O)**
- *Continue to improve property ownership transactions/new building permit notifications to local fire departments.* —County Planning and Building **(S, O)**
- *Create user-friendly information regarding applicable local and state environmental laws and regulations that property owners might need to know to implement vegetation management actions to reduce wildfire hazard.* —HCFSC, Local FSCs, UCCE, Foresters, Conservation Organizations **(M)**
- *Prepare outreach materials designed to increase understanding of the WUI building standards and County Fire Code 1952.* —County Planning and Building **(S)**
- *Explore options for ecologically based fuel reduction in Streamside Management Zones, through modification of the County permitting process and ordinance, in order to minimize permitting bureaucracy and costs.* —HCFSC, Local FSCs, County Planning and Building, Foresters, Restoration Practitioners **(M)**
- *Prioritize the actions in this CWPP and include by reference in the Humboldt Operational Area Hazard Mitigation Plan, and any subsequent updates of the Local Hazard Mitigation Plan.* —Humboldt Operational Area Agencies **(S, O)**
- *Draft standardized procedures and roles for performing building-permit inspections and implementation of County Fire Code 1952. Towards that end, County Planning and Building, CAL FIRE, and Fire Departments reach agreement on their roles in the process and implementation of procedures.* —County Planning and Building, Fire Prevention Officers, CAL FIRE, **(S)**
- *Coordinate the adoption of the California Fire Code amongst County Agencies.* —Fire Chiefs, Larger Fire Departments **(S, O)**
- *Support policy development that can facilitate rapid and effective response to protect resources at risk from SOD*. —County Planning and Building, BOS **(S)**
- *Advocate for permit streamlining to help facilitate rapid and effective response to protect resources at risk from SOD.* —HCFSC, Fire Chiefs, Conservation Organizations **(S)**
- *Advocate for restrictions on selling SOD-infected plants in nurseries within the county*. —HCFSC, Local FSCs, Conservation Organizations **(S)**

III.15. Designating Communities at Risk

As described in the Values and Assets at Risk chapter of the Risk Assessment, most eligible communities in Humboldt County have already been designated as a *Community at Risk* (CAR), either by federal or state designation. The two remaining communities that need to be added to this CAR list are Redwood Valley and Titlow Hill. The California Fire Alliance has a process to add new communities to this list, which is found on its website: www.cafirealliance.org/communities_at_risk/communities_at_risk_addtolist.

For more information on communities at risk, please see Chapter II.2. Values and Assets at Risk.

- *Add Redwood Valley and Titlow Hill communities to the Communities at Risk list.* —HCFSC **(S, ✋)**

Part IV. Planning Unit Action Plans

Overview

The Planning Unit Action Plans provide an individual wildfire analysis for each of the thirteen *Planning Units* within Humboldt County. The Planning Unit boundaries were determined based on several considerations, including geographic divisions such as *watershed* basins, distribution of community groups, and the jurisdictional boundaries of fire protection services. The thirteen Planning Units in Humboldt County are:

1. Redwood Park
2. Up River
3. East Klamath
4. Hoopa
5. Trinidad
6. Redwood Creek
7. Trinity
8. Eureka Plain
9. Kneeland-Maple Creek
10. Eel
11. Mad-Van Duzen
12. Mattole-Lost Coast
13. Southern Humboldt

The purpose of these chapters is to examine various factors contributing to *wildfire risks*, and to assess the level of emergency preparedness and fire protection capabilities within the communities in each Planning Unit. These local analyses were abetted by a series of community workshops, held at central locations within each Planning Unit as part of the update process of this countywide *community wildfire protection plan* (CWPP). These workshops were conducted by the Humboldt County *Fire Safe Council* (FSC) in partnership with local FSCs, fire protection entities, the California Department of Forestry and Fire Protection (CAL FIRE), and tribal groups within the Planning Units. Where applicable, representatives from each of these groups gave presentations that provided workshop participants with information on how to improve fire-safety within their homes and communities.

Seven of the thirteen Planning Units in Humboldt County contain a local FSC or tribal group which has produced or is in the process of producing a local CWPP specific to the community or communities within those Planning Units. Where these fire-safety groups existed, they played a significant role in shaping the community workshops and enhancing fire awareness among local residents. Many community members in Planning Units with local fire-safety groups demonstrated a high degree of understanding about *hazard mitigation* and fire risks in their communities due to the efforts of their local FSC or tribe. Furthermore, community workshops in these Planning Units tended to be more heavily attended than those without a local fire-safety group. Members of local FSCs and the CWPPs they produced contributed significant amounts of useful, locally specific information, which was incorporated into the following Unit Action Plans.

Most of the countywide community fire planning workshops included a group mapping exercise, which invited participants to help identify *fire hazards*, *protection resources*, and *assets at risk* within the area. Community members also reviewed existing project ideas from the 2006 Humboldt County Master Fire Protection Plan and compiled a list of new wildfire mitigation project proposals. Lists, maps, and descriptions of these community-identified assets, fire hazards, protection resources, and proposed projects are included within each Planning Unit chapter. Each chapter also includes a description of the Planning Unit area, its wildfire environment, its values and assets at risk, community preparedness efforts, fire protection services and capabilities, and evacuation planning in the area.

Unit descriptions provide a general overview of the Unit area. They include characteristics such as local watersheds, primary transportation corridors, central communities, and common land uses within the Planning Unit. This section also contains a list of some of the assets at risk in

each Unit, identified by community members at the CWPP workshops. A map at the end of this section displays the Unit area as well as key aspects within it, such as roads, waterways, fire protection response boundaries, and land ownership patterns. An interactive map displaying this same information is also available on the Humboldt County Web GIS[1] Portal in the Fire Planning section at: http://gis.co.humboldt.ca.us/.

The **Community Process** section provides details pertaining to the community workshops conducted within each Planning Unit, including the dates, locations, groups involved in hosting these meetings, as well as a description of the group mapping exercise and primary discussion points. This section is intended to inform the reader about the origin and generation of the "community-identified" information discussed throughout each Unit Action Plan.

The **Wildfire Environment** section of each Unit Action Plan looks at aspects influencing the Unit's susceptibility to wildfire risks. This section describes the local *vegetation types* and *fire hazard severity zoning* throughout the Unit area. It also examines the region's fire history, including management regimes, wildfire occurrences, and likely *ignition sources*. Finally, this section assesses factors contributing to: *structural ignitability*; accessibility of *ingress and egress* routes; and the availability of *fire protection water* within the communities of these Planning Units. Tables presented towards the end of this section list a sample of community-identified *drafting sites* that may be used to access fire protection water in these areas. A complete list of community-identified wildfire protection resources such as water sources, fire stations, evacuation routes, and emergency assembly sites can be found in the Web GIS Portal mentioned above. A map showing these features is also located at the end of each Unit Action Plan.

The **Values and Assets at Risk** section describes the things within each Planning Unit that are of significant value and importance to the community that can be threatened with destruction or loss from wildfire. Community assets may include structures, such as homes and businesses, as well as environmental values, such as parks and wildlife habitat. Tables in this section list some of the community-identified assets at risk within the Unit.

The **Community Preparedness** section describes activities and efforts undertaken by community members and groups within the Planning Unit to improve fire safety in their neighborhoods. This section acknowledges the endeavors and successes of communities that have formed local FSCs, developed local CWPPs, achieved national *Firewise* recognition, and/or implemented fire hazard reduction programs within their communities, such as Community *Chipper Days* or the *FLASH*[2] program. Contact information for local FSCs is listed in this section where applicable.

The **Wildfire Protection Capabilities** section lists the local, state, and federal fire protection entities that service the communities within each Planning Unit. In addition to outlining the jurisdictional responsibilities, protection priorities, equipment, manpower, and *mutual aid agreements* for each of these entities, this section also describes some of the primary needs and challenges faced by these fire protection services. Contact information for local fire protection services is listed in this section.

The **Evacuation** section of each Unit Action Plan addresses transportation networks and lists the primary access roads to be used in case of emergency evacuation, as well as any additional routes that may offer alternative access. Potential impediments that may hinder emergency access or evacuation within the Unit are listed. This section also offers a brief discussion on the process of designating community evacuation sites and encourages residents to plan ahead for evacuation in the case of a catastrophic wildfire event.

[1] Geographic Information Systems (GIS).

[2] County of Humboldt, Natural Resources Planning. (2012). FLASH: Fire-adapted Landscapes and Safe Homes. *Humboldt County Fire Safe Council.* Retrieved from www.co.humboldt.ca.us/natural-resources/fire_safe_council/fsc_flash.aspx

The **Community-Identified Projects** portion of these chapters contains a matrix displaying projects proposed by community members to help reduce fire hazards existing throughout the Planning Unit area. In some cases, a list of non-geographic project proposals is also included. Projects were identified by local residents who participated in the group mapping exercise at the CWPP workshops.

The matrix in this section includes information for each proposed project, including all or some of the following descriptors: its location in the community, the acreage, the type of *treatment*, the urgency of the project, the suggested year for completion, types of vegetation to be removed, maintenance required, and potential sources for funding the project. A key that provides a description of each element included in the matrix is available in Appendix G: Descriptive Characteristics for Community Identified Projects Matrix. Each project listed in the matrix has a number corresponding to its location on the project map, which is available at the end of each Unit Action plan as well as within the "Fire Planning" section of the Humboldt County Web GIS Portal: http://gis.co.humboldt.ca.us/. This map also contains the locations of hazard reduction projects that have already been completed within the Unit. Details about these completed projects are not listed in the above mentioned matrix but can be found in the Portal.

The final section of each Unit Action Plan is the actual **Action Plan**, which contains a list of the initial priorities recommended by this countywide CWPP to guide communities in their efforts to improve their fire safety and decrease their vulnerability to wildfire. These action items are suggested based on a combination of input from the community workshops, guidance from County and local FSC members, assessments of local wildfire environments, and in recognition of the needs and capabilities of community members and fire protection services within each Planning Unit.

IV.1. Redwood Park Planning Unit Action Plan

IV.1.1. Redwood Park Planning Unit Description

The Redwood Park *Planning Unit* encompasses 100,020 acres situated in the northwestern corner of Humboldt County. The Unit shares its northern border with Del Norte County and the Yurok Reservation lies to the east. The communities of Big Lagoon and Trinidad are located south of the Unit, along the coast. Highway 101 is the main transportation route through the Unit, which follows the coastline before veering inland just north of Orick and leading through National Park land. The Unit is part of the Redwood Creek *watershed*; the terrain consists of mostly mountainous, forested areas ranging from sea level to about 5,300 feet elevation. Redwood Creek enters into the southeastern portion of the Unit, flowing in a northerly direction towards Orick where it drains into the Pacific Ocean. Major Redwood Creek *tributaries* include Lostman Creek and Prairie Creek, the latter of which flows into Orick from the north.

This Planning Unit consists primarily of parklands and few residential communities exist in the area. The town of Orick comprises the community population center. Located near the coast at the approximate north-south midpoint of the Unit, Orick is a rural town characterized by flat bottomlands with steeply sloping forested hillsides to the east, and the Pacific Ocean to the west. The town is recognized as the "southern Gateway Community to Redwood National and State Parks."[1] Redwood National Park (RNP) dominates approximately three-quarters of the Unit, while the northwestern quadrant of the Unit contains Prairie Creek State Park.

The National Park Service (NPS) primarily manages the land in this Unit. The majority of private-land ownerships are residential and commercial developments clustered around Orick and Highway 101. The northeastern portion of the Unit contains land owned by Green Diamond Resource Company. A map of this Planning Unit can be viewed in Figure IV.1-1. Redwood Park Unit: CWPP Unit Map.

IV.1.2. Redwood Park Community Process Summary

A community workshop was held on June 26, 2012 at the Orick Community Hall for the purpose of gathering local information and garnering public input regarding various factors contributing to the extent of wildfire risk and/or preparedness among the communities in this Unit, and to provide information about the countywide *community wildfire protection plan* (CWPP) update process. Approximately ten community members were in attendance. A group exercise, which involved maps of the Planning Unit area, invited those present to help identify and pinpoint on the map where particular fire hazards exist, the location of protection resources, such as fire water drafting sites, as well as values and assets at risk within the community that could be threatened by wildfire. These workshop processes also provided an opportunity for participating community members to ask questions and provide information based on their local knowledge.

Participants were also asked to review pre-existing information illustrated on the maps which had been added by community members during similar workshops that took place during the initial planning process in 2006. This workshop and mapping exercise also facilitated discussion among community members about potential actions that could be taken to reduce fire risk in their community. Through discussion and collaborative processes, participants identified major hazard areas and compiled lists of project proposals for enhancing their community's fire preparedness.

[1] Humboldt County Department of Community Development Services. (2003, July). *Orick Community Action Plan*. (p.4.) Retrieved from http://www.co.humboldt.ca.us/planning/planning/documents/action_plans/2003_plans/orck_web.pdf

The community-identified fire hazards, protection resources, and values and assets at risk discussed throughout the following sections of this Planning Unit Action Plan reflect information generated by these community workshop mapping exercises, as well as information resulting from direct outreach to local fire departments and residents.

The project proposals resulting from community member discussions are contained in section IV.1.8. Community-Identified Projects in this Planning Unit Action Plan.

IV.1.3. Redwood Park Wildfire Environment

The majority (72%) of the Redwood Park Planning Unit is zoned "High *Fire Hazard Severity*," as determined by the California Department of Forestry and Fire Protection (CAL FIRE).[2] However, the populated areas surrounding Orick, Highway 101, and the central coast region of the Unit are zoned "Moderate Fire Hazard Severity" (12%). Some areas in the north- and south-eastern portions are zoned "Very High Fire Hazard Severity" (15%).

The climate is mostly Mediterranean, with mild, wet winters and warm, dry summers. *Vegetation types* throughout the Unit vary regionally, and there exists a wide diversity of forest types, grassland prairies, oak woodlands, and *riparian* areas containing big-leaf maple, black cottonwood, California bay, red alder, and willow species.

The array of forest types provides a variety of ecosystems for local wildlife within Redwood National Park. The varying *stand compositions* also result in different degrees of vulnerability and *resiliency* to wildfire. The following describes the makeup of these forest types:[3]

- **Old growth forests** are dominated by coastal redwoods and other coniferous trees, including Douglas-fir, grand fir, Sitka spruce, and western hemlock, as well as hardwood species such as tan oak, madrone, big-leaf maple, California bay, and red alder. Understory species include sword fern, rhododendron, huckleberry, azalea and several types of berries.
- **Second growth forests** are naturally predominately redwoods; however, they have been subordinated by Douglas-fir, which was seeded into many logged areas after timber harvests.
- **Dry forests** are mainly Douglas-fir, tan oak, and madrone, although California bay, big-leaf maple, chinquapin, canyon live oak, and poison oak are also common.
- **Alder forests** are found primarily on coastal facing slopes and are dominated by red alder, with big-leaf maple, cascara, willow and coniferous trees interspersed. Several varieties of berries and ferns populate this forest type as well.
- **Sitka spruce forests** are typically in lowlands and coastal areas and are predominantly Sitka spruce, with western hemlock and redwood as well.

Fire management in this Unit has undergone several regime shifts. Native Americans in this region used intentional burning to increase the production of cultural resources, such as acorns and basketry materials, and to influence the growth of particular grasses favored by the deer and elk they hunted for food. White settlers in the mid-1800s also used fire to clear pasture areas for livestock animals. However, when total *fire suppression* became a national policy in the 1930s,

[2]CAL FIRE. (2007). *Fire Resources Assessment Program (FRAP).* [Map showing Fire Hazard Severity Zone ratings within various geographic areas, mapped by county]. Fire Hazard Severity Zones Map. Retrieved from http://frap.cdf.ca.gov/

[3]U.S. Department of the Interior: National Park Service. (2010). *Redwood National and State Parks Fire Management Plan.* (pp.19-21.) Retrieved from http://www.nps.gov/redw/parkmgmt/firemanagement.htm

the *landscape* ecosystems that had developed through centuries of natural and human-caused *ignitions* were fundamentally altered.[4]

Years of fire exclusion along with development and cultivation have enabled the encroachment of Douglas-fir and grand fir into oak woodland and prairies, altering unique wildlife habitat. Some areas of encroachment on oak woodlands have resulted in total conversion to *conifer forest*. Observing these patterns, resource managers and vegetation management staff of the NPS recognized the need for *prescribed fire* to restore and manage these ecosystems, and the park's first prescribed burn was conducted in 1980 in the Bald Hills.[5] The prescribed fire program blossomed throughout the 1990s and evolved to include management of redwood forests, particularly second growth forests. The conifer cutting program involves aggressive removal of encroaching fir in prairies and oak woodlands, and was initiated in 1991. The progress of this program has slowed, however, "due to requirements for increased consultations to ensure compliance with protections for threatened, *endangered*, and *sensitive wildlife species* and cultural resources."[6]

Fire Management in Redwood National Park today is divided, based on ecosystem type, into various Fire Management Units (FMU), including: the Coniferous Forest FMU, the Coastal FMU, the Bald Hills FMU, the Little Bald Hills FMU, the *wildland-urban interface* (WUI) FMU, and the State Parks FMU. Approaches to maintaining these FMUs include a variety of techniques that take into account the "values to be protected" within each area, as well as specific "management considerations," such as the existence of endangered species or the proximity to areas of cultural significance.[7]

Fire events within this Planning Unit between the years 2000-2010 include:

- The Tuk Fire, 2003: 279 acres.
- The Lower Gann's Fire, 2002: 13 acres.
- The Tall Fire, 2009: 5 acres.
- The Overlook Fire, 2008: 2 acres.

Possible *ignition sources* include human-related causes, such as arson, poorly maintained campfires or brush piles, smoking, equipment use, and vehicles or vehicular accidents. Lightning and downed power lines are other potential fire starters in this Unit.

Dead plant matter and vegetation with low *moisture levels* within 100-150 feet of buildings pose some of the greatest threats to *structural ignitability*. Of particular concern are structures with needles and leaves accumulating on rooftops or in rain gutters. Structures with wooden rooftops and sidings add to this risk, as do the presence of wooden decks, particularly those with dead plant matter accumulated beneath them. RNP outposts and ranger stations situated within the forests generally maintain *defensible space* buffers; however, they are often surrounded on all sides by the dense vegetation of the *wildland* in more remote locations, which increases their risk of structural ignitability resulting from wildfire.

[4] U.S. Department of the Interior: National Park Service. (2010). *Redwood National and State Parks Fire Management Plan.* (p.5.)

[5] U.S. Department of the Interior: National Park Service. (2010). *Redwood National and State Parks Fire Management Plan.* (p.7.)

[6] U.S. Department of the Interior: National Park Service. (2010). Appendix M: Fire Monitoring Plan. *Redwood National and State Parks Fire Management Plan.* Retrieved from http://www.nps.gov/redw/parkmgmt/firemanagement.htm

[7] U.S. Department of the Interior: National Park Service. (2010). *Redwood National and State Parks Fire Management Plan.* (pp.19-40.)

Homes within Orick and along Highway 101, adjacent to state and national park lands could be vulnerable to ignition from *embers* from nearby wildfires. Studies and firefighter experience have shown that homes can be destroyed by flying embers from a wildfire sometimes miles away. If there are places on or around the home for embers to take hold, this increases a home's vulnerability to loss. Based on field observations, there are many homes where steps need to be taken to ensure structure survival when wildfire is nearby. The sawdust and residue from the many redwood carving businesses in this Unit are particularly vulnerable to ignition from burning embers and could spread fire to adjacent residences and community values. Figure IV.1-2 found at the end of this Planning Unit Action Plan illustrates risks and hazards identified by community members at public workshops and can be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/.

Highway 101 is the central *ingress and egress* route, with a few smaller roads providing access throughout the parklands and also connecting residences and neighborhoods in the southwestern Unit area to the highway. Although emergency transportation depends heavily on Highway 101, it is a well-maintained road, and few residences exist outside of Orick. Bald Hills Road is also accessible through Orick, if an alternative route were required. The smaller, more remote park service roads lack an alternative ingress/egress route, and the potential for landslides, fallen trees, or downed power lines could create serious complications, for both evacuation and emergency response.

Potable water and *fire protection* services are provided to the residents of this Planning Unit by the Orick *Community Services District*. The District serves a land area of approximately 2.3 square miles and is funded by local taxes, water customer fees, and donations. Critical infrastructure and equipment include: two 100,000 gallon tanks, pumps, a chlorinator, 5 miles of pipeline, 23 hydrants, 132 hook ups, and fire protection equipment.[8] *Fire protection water* may also be drawn from the following locations: [9]

- The Pacific Ocean
- Freshwater Lagoon
- Garland Pond, off of Bald Hills Rd.
- Charlie's Pond
- Pond below Elk Camp Barn
- Community water tanks

The map in Figure IV.1-2 found at the end of this Unit Action Plan illustrates these *drafting sites* as well as other community-identified wildfire *protection resources*. The map can be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/.

IV.1.4. Redwood Park Values and Assets at Risk

Assets at risk can be defined as those things that are important to quality of life that can be threatened with destruction or loss from wildfire. These may include community assets such as homes and businesses, as well as environmental values such as wildlife habitat, natural resources, and air quality, along with any other important attribute that individual communities rely on for their well being. Loss or damage to community assets as a result of wildfire can have short- or long-term impacts of varying severity, depending on the asset. Short-term loss caused by a *wildfire* can include the destruction of residences, commercial assets, timber, wildlife habitat,

[8]County of Humboldt, Natural Resources Planning. (2008). *Humboldt Operational Area Hazard Mitigation Plan; Volume 2 – Planning Partner Annexes.* (pp.12-1—12-2.) Retrieved from http://www.co.humboldt.ca.us/natural-resources/hazardmitigation/?inc=finaldraft

[9] County of Humboldt, Natural Resources Planning. (2006, August). Appendix G: Community Identified Values, Protection Resources, Risks and Hazards, and Projects. (p.G-12.) *Humboldt County Master Fire Protection Plan.*.

scenic vistas, and *watersheds*. Long-term effects may include displaced persons, smaller timber harvests, reduced access to affected recreational areas, and destruction of cultural, ecological, and economic resources, and community infrastructure.

The majority of *assets at risk* in this Planning Unit are residential homes, along with commercial and service industries, community and town centers, schools, as well as infrastructure components, such as a PG&E substation and the Rodgers Peak Repeater. The map in Figure IV.1-2 found at the end of this Planning Unit Action Plan illustrates values and assets at risk to wildfire identified by community members at public workshops. The map can be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS[10] Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/. Some of the community-identified assets at risk within this Unit include: [11]

- Orick Inn
- Cell phone tower, Radio Repeaters (e.g. Rodgers Peak)
- Community Service District office and water pumps
- Orick Fire Hall
- Little Red Inn historic site
- Simpson Mill A

Other assets at risk in this Planning Unit include campgrounds, RNP visitor centers, and *access roads*.

The parklands in this Unit encompass a range of *landscapes* and *ecosystem* types, which provide *habitat* for an array of wildlife. The value of these habitats to the ecological *biodiversity* in this region emphasizes the environmental significance of these parklands. Freshwater Lagoon, and Lady Bird Johnson Grove constitute other environmentally important areas in this Unit.

IV.1.5. Redwood Park Community Preparedness

The Redwood National Park Service (RNPS) has an extensive *Fire Management Plan*, the primary objectives of which are: to ensure the safety of firefighters and people while protecting public and private property, and while protecting the natural and cultural resources of the parks; to use fire as a management tool to meet resource objectives; to manage wildland *fuel* complexes in order to protect values at risk and minimize negative impacts from fire; to cooperate with landowners and land management agencies in fire management activities; to increase the understanding of the role and function of fire in the parks; and "to restore fire as an ecosystem process in the park's *biotic* communities to the fullest extent practical."[12]

The RNPS also has an active *fire prevention* program that includes participation in interagency fire prevention programs at local schools and community events. Trained employees help educate the public about the role of fire within park ecosystems and the mission of the parks' prescribed fire program. They also provide information about how to prevent unwanted fires, emphasizing the distinction between management-ignited fires and unwanted human-caused fires, and illustrating the severe impacts that unwanted fires can have on communities and ecosystems. In addition to the prescribed fire program, the RNPS also has a *mechanical fuels reduction* program.

[10] Geographic Information Systems (GIS).

[11] County of Humboldt, Natural Resources Planning. (2006, August). Appendix G: Community Identified Values, Protection Resources, Risks and Hazards, and Projects. (p.G-12.) *Humboldt County Master Fire Protection Plan.* Retrieved from http://www.co.humboldt.ca.us/natural-resources/fire_safe_council/fsc_mfpp_cwpp.aspx

[12] U.S. Department of the Interior: National Park Service. (2010). *Redwood National and State Parks Fire Management Plan.* (p.15.)

The Fire Management Plan is abetted by the RNP's fire ecology program, which has put forth an elaborate Fire Monitoring Plan that provides monitoring and research support to the Fire Management Plan. This helps ensure that fire protection strategies are well-informed and that fire management is based upon the best available science and knowledge.[13]

Through *hazard mitigation* planning and activities, the community of Orick has successfully achieved Tsunami Ready and Storm Ready status.[14] These initiatives could potentially be springboards for an additional effort to become a *Firewise* Community. Additionally, many of the preparedness activities and outreach associated with these established programs (emergency supply kits, evacuation drills, communitywide communication networks) will benefit residents during a large wildfire event. During the community outreach process in Orick, there was also community interest expressed in possibly forming a local *fire safe council*.

IV.1.6. Redwood Park Fire Protection Level of Service

Community fire protection services are provided through the Orick Community Services District (OCSD) by the Orick *Volunteer Fire Department* (OVFD). The OVFD has 10 volunteers who provide fire protection as well as medical and rescue services to approximately 400 residents in the area. Their *apparatuses* include: one type-1 engine with a 500 gallon capacity, a quick attack engine with 250 gallons, a medium-duty rescue truck, and one 1,800 gallon *water tender*. [15] The OCSD includes a fairly focused community area of 2.3 square miles surrounding Orick. However, it is not uncommon for OVFD firefighters to respond to emergency calls, particularly vehicle accident calls, up and down Highway 101 to the north and south and to the east along Bald Hills Road; the OVFD's total *response area* is approximately 123.8 square miles.[16] The OVFD may be contacted by calling (707) 488-2475, or by visiting the OCSD website: http://www.orickcsd.com/.

The County of Humboldt contracts with CAL FIRE to provide fire protection within *County Service Area* #4 (CSA #4), which covers an area from just north of McKinleyville, near Moonstone Beach, up to the OCSD boundary. CAL FIRE responds from their fire station in Trinidad, which staffs two engine crews in the summer and one crew year-round. They respond to multiple incident types and frequently provide additional support during emergencies within and beyond this Planning Unit. CSA#4 may be contacted by calling (707) 677-3638. Another CAL FIRE station, known as Elk Camp, is located in Orick but is staffed only seasonally, during the declared *fire season*.

RNP staffs two fire engines within their jurisdiction. These resources are equipped for wildland firefighting and can be called out nationwide to respond to wildfires. Their larger wildland engine, which holds five crew members, is staffed from June to October. A smaller engine is staffed year-round. National Park resources will respond to traffic accidents but are primarily staffed to respond to wildfires. They also conduct prescribed burning on National Park Land. The RNP Service may be contacted by calling (707) 464-9150, or by visiting their website at: http://www.nps.gov/redw/index.htm.

[13] U.S. Department of the Interior: National Park Service. (2010). Appendix M: Fire Monitoring Plan. *Redwood National and State Parks Fire Management Plan.*

[14] County of Humboldt, Natural Resources Planning. (2008). *Humboldt Operational Area Hazard Mitigation Plan; Volume 2 – Planning Partner Annexes.* (p.12-4.) Retrieved from http://www.co.humboldt.ca.us/natural-resources/hazardmitigation/?inc=finaldraft

[15] County of Humboldt, Natural Resources Planning. (2012). *Humboldt County Fire Chiefs Association Annual Report, 2010*. Humboldt County Fire Safe Council. Retrieved from http://www.co.humboldt.ca.us/natural-resources/fire_safe_council/fireserviceannualreport.aspx

[16] Orick Community Services District. (n.d.) *Fire Protection and Emergency Services.* Retrieved September 26, 2012, from http://www.orickcsd.com/p/fire-dept.html

The OVFD participates in the countywide *Mutual Aid Agreement* and provides assistance to and receives aid from other Humboldt County fire service provides. The OVFD also has mutual aid agreements with CAL FIRE and the RNP Service, so that these entities can provide additional support to each other as needed. The OVFD and CAL FIRE often coordinate to provide community fire protection and emergency services within the southern and northern parts of their respective service areas. The OVFD will also respond to calls from the east, along Bald Hills Road, to emergency incidents near the roadway and on private lands on the west side of the Klamath River. These activities are often coordinated with the Yurok Volunteer Fire Company.

The OVFD's priority is structure fires while CAL FIRE and the RNP Service are primarily responsible for *wildland fires* within the Unit. The RNP Service's familiarity with *fire behavior*, informed by experience with its prescribed burn program, enhances their preparedness for managing and addressing wildland fires. The OVFD, CAL FIRE, and RNP resources are dispatched by the Fortuna Interagency Command Center (FICC).

The key issues of concern for the fire services in this Unit are the following:

- Road access during emergency response is sometimes difficult because of road conditions and lack of access permission;
- More volunteers are needed for the OVFD, particularly during the day when many people from within the community are at jobs located outside of Orick;
- Insufficient home address signs can delay emergency response – Kane Road is an example of this (small, difficult to see signs are also a problem);
- Insufficient availability of fire protection water outside the OCSD.

IV.1.7. Redwood Park Evacuation

Evacuation from the Redwood Park Planning Unit will travel either north or south along Highway 101, depending on law enforcement recommendations based on fire behavior, wind pattern, traffic, and ingress of emergency vehicles. Although Highway 101 is the central route through most of the Unit, Newton B Drury Scenic Drive runs parallel to Highway 101 and offers an alternative route through Prairie Creek Redwoods State Park. Bald Hills Road provides access through the southeastern portion of the Unit, eventually connecting with Highway 169. Although Highway 169 is non-continuous and offers limited northern access, it is connected to Highway 96, another major transportation corridor, which offers ingress and egress south towards Willow Creek, and northeast towards Orleans.

Evacuation impediments may include: landslides, fallen trees, downed power lines, overgrown vegetation, poorly marked streets and intersections, and *one-way-in, one-way-out roads* that could inhibit evacuation and emergency response vehicles, or leave residents stranded should the roads become blocked.

During wildfire events that have the potential to threaten personal safety, community evacuation sites may be established where residents can go to survive a wildfire. Evacuation sites will be established in different locations depending on the anticipated path of the wildfire. The determination for the location of these sites is normally made by Humboldt County Emergency Operations Center Incident Commander in cooperation with an *Incident Management Team.* The Humboldt County Sheriffs and Emergency Officials will use mass communication and door-to-door methods to inform residents about the threat and where residents should go to take shelter.

If a catastrophic event occurs, residents may not be able to reach designated evacuation sites. In such cases, residents may need to make decisions on their own about seeking shelter where they can survive the passage of the wildfire until they can reach an evacuation site. It can be very difficult to determine the right thing to do as the fire approaches. Before a wildfire threatens,

community members should talk to their local fire department about evacuation procedures in their neighborhood.

See section V.2.3 in Part V. Fire-Safe Communities for more information on preparing for safe evacuation and evacuation planning for pets and livestock. Also see section II.3.5 Evacuation Routes and Vulnerability in Part II. Risk Assessment for information about evacuation procedures and challenges in Humboldt County.

IV.1.8. Community Identified Potential Projects

The following list and matrix includes community identified proposed projects based on input from the community processes discussed above. A detailed description of each heading in the matrix can be found in Appendix G: Descriptive Characteristics for Community Identified Projects Matrix. These projects are illustrated on the community-identified projects map found at the end of this Unit Action Plan (Figure IV.1-3). Projects include those carried over from the 2006 fire planning process and those identified and refined during the 2012 CWPP update process. This information can also be viewed on the fire planning GIS Portal. The GIS Portal allows users to search for and view specific fire planning features by location or to zoom into a desired area from an aerial view. To access the Portal, go to: http://gis.co.humboldt.ca.us/ and choose "Fire Planning" from the list of mapping applications. The data collected through this planning process are included in the GIS layers within the Portal.

No vegetation *treatments* recommended in this plan will be carried out without the consent and involvement of the property owner and all applicable local, state and federal regulations must be observed.

Non-geographic community identified proposed projects based on community workshop notes:

- Identify and address road access issues wherever possible.
- Install more road and address signs.
- Increase water availability outside Community Services District. Install tanks for firefighting water with proper fittings that are well marked (maybe even mapped).
- Initiate the *Blue Dot Program* within the community. Maybe use GIS students from Humboldt State University as a resource for design.
- Initiate evacuation planning and begin running drills in key areas.
- Replace damaged fire hydrants.
- Hold Community *Chipper Days* (may be able to get someone from Del Norte Fire Safe Council to come down or work with the CAL FIRE Chipper Program).
- Design and implement a fire department recruitment strategy to get more volunteers (volunteers who can respond during the day are especially needed).

LOCATION		Treatment/Project Information Eel Fire Planning Unit							
Number Corresponds with location on map	**Community, Structure, or Area (Value at Risk)**	**Description**	**Status**	**Year**	**Type**	**Acres**	**Veg Type**	**Maintenance (actual or proposed)**	**Funding source (actual or proposed)**
ORI036	Riverview Road, W of Hwy 101	Fix Riverview Road Access - Private drive, mitigate stream diversion issues	Action Need	2012	Other - Access	0			grant-landowner-Assn.
ORI037	Gunst Road	Gunst Rd - road thinning for access	Treat-Med	2010	Roadside Clearance	0			grant-landowner-Assn.
ORI038	Redwood Creek, Orick	Levee vegetation - brush clearing / burning as needed	Treat-Med	2012	Other - Creek Side	0			grant-landowner-Assn.
ORI039	Bald Hills Road	Stop burning at Redwood National Park at Bald Hills in Summer	Action Need	0	Other - Burning	0			grant-landowner-Assn.
ORI040	Hwy 101 & Barnum St	Remove fence at Haygoods & Elkhorn to improve access - Wrk w/Property Owner	Action Need	2012	Other - Access	0			grant-landowner-Assn.
ORI041		Additional Hydrants in the Blocks	Action Need	0	Other - Water	0			grant-landowner-Assn.
ORI043	Old State Highway	Owl Gulch brush clearing (in conjunction w/ chipper days)	Treat-Med	2010	Defensible Space and Roadside Clearance	17.94			grant-landowner-Assn.

LOCATION		Treatment/Project Information Eel Fire Planning Unit							
Number Corresponds with location on map	**Community, Structure, or Area (Value at Risk)**	**Description**	**Status**	**Year**	**Type**	**Acres**	**Veg Type**	**Maintenance (actual or proposed)**	**Funding source (actual or proposed)**
ORI045	Old State Highway, Eris Ln, Hiltons Rd	Hilton brush clearing (in conjunction w/ chipper days)	Treat-High	2012	Defensible Space	22.62			grant-landowner-Assn.
ORI047	Gunst Road	Gunst Rd neighborhood brush clearing (in conjunction w/ chipper days)	Treat-Med	2010	Defensible Space	13.99			grant-landowner-Assn.
ORI048	Hufford Road	Hufford brushing (in conjunction w/ chipper days)	Treat-Med	2010	Landscape	18.35			grant-landowner-Assn.
ORI049	Riverview Road	Riverview neighborhoods brush clearing (in conjunction w/ chipper days)	Treat-Med	2010	Defensible Space	17.79			grant-landowner-Assn.
ORI050	Foothill Road and Viewcrest Drive	Foothill neighborhoods brush clearing (w/ chipper days) - Viewcrest Dr./Foothill	Treat-Med	2012	Defensible Space	23.83			grant-landowner-Assn.
ORI053	Old State Hwy, E of Hwy 101	Post more address signs to facilitate emergency response	Action-Needed	2012	Other - Signage				

LOCATION		Treatment/Project Information Eel Fire Planning Unit							
Number Corresponds with location on map	**Community, Structure, or Area (Value at Risk)**	**Description**	**Status**	**Year**	**Type**	**Acres**	**Veg Type**	**Maintenance (actual or proposed)**	**Funding source (actual or proposed)**
ORI054	Robinson Rd, W of Hwy 101	Post more address signs to facilitate emergency response	New	2012	Other - Signage				

IV.1.9. Redwood Park Action Plan

The following items are the initial priorities for community action for the Redwood Park Planning Unit as recommended by this Humboldt County CWPP (not listed in order of priority). In an ideal world, everything recommended here would be implemented. However, it must be understood that implementation will be subject to the availability of funds and other resources and the willingness/ability of community members and Plan Partners to take action. This Action Plan can be cited in grant applications to leverage needed implementation funds and used to guide and inspire action.

Enhancing Fire Protection

- **Sustainable Fire Departments:** Community members within this Planning Unit should support their local fire department through activities such as volunteering as firefighters or auxiliary members, making donations, supporting fundraisers, writing grants, and/or helping with administrative tasks. With community support, local fire departments can continue to provide a wide variety of vital emergency services. Focus initial efforts on the following priority:
    - Develop a strategy for recruiting more volunteer firefighters.
- **Road Improvements:** Upgrade and/or repair roads that hinder access by emergency responders. Begin by systematically identifying and mitigating such access impediments. Also, take into consideration privately owned roads, the use of which may be necessary during emergency situations; work with property owners to ensure access availability. The following priority access issues were identified at a community workshop and are recommended for initial action in this plan:
    - Fix access on private drive along Riverview Road. Mitigate stream diversion issues as well. If property owners can not resolve disagreements about an approach to this, consider alternative routes or methods.
    - Remove fence at Haygoods & Elkhorn to improve emergency access.
- **Signage:** To aid emergency responders, residents and road associations should improve road and address *signage* throughout their communities. Make signs larger and reflective to increase visibility and install road and address signs where they are missing. Less noticeable but more sentimental address signs may remain but it is important to also post reflective signs with lettering at least three inches in height. Focus initial efforts in the following areas:
    - Robinson Road, west of Highway 101.
    - Old State Highway, east of Highway 101.
- **Firefighting Water:** Increase the availability of water for fire protection by making water access locations known to fire departments and investing in more community water tanks. Neighborhood and road associations and/or Firewise Communities work with local fire departments to develop a “Blue Dot” program, which identifies the location of firefighting water sources by marking them with a blue reflective dot. This program also ensures that tanks and water systems are outfitted with fittings compatible with firefighting equipment. Begin by identifying where such a program is most needed. Focus initial efforts in the following areas:
    - Neighborhoods outside of the Community Service District boundaries.

Creating Fire Safe Communities

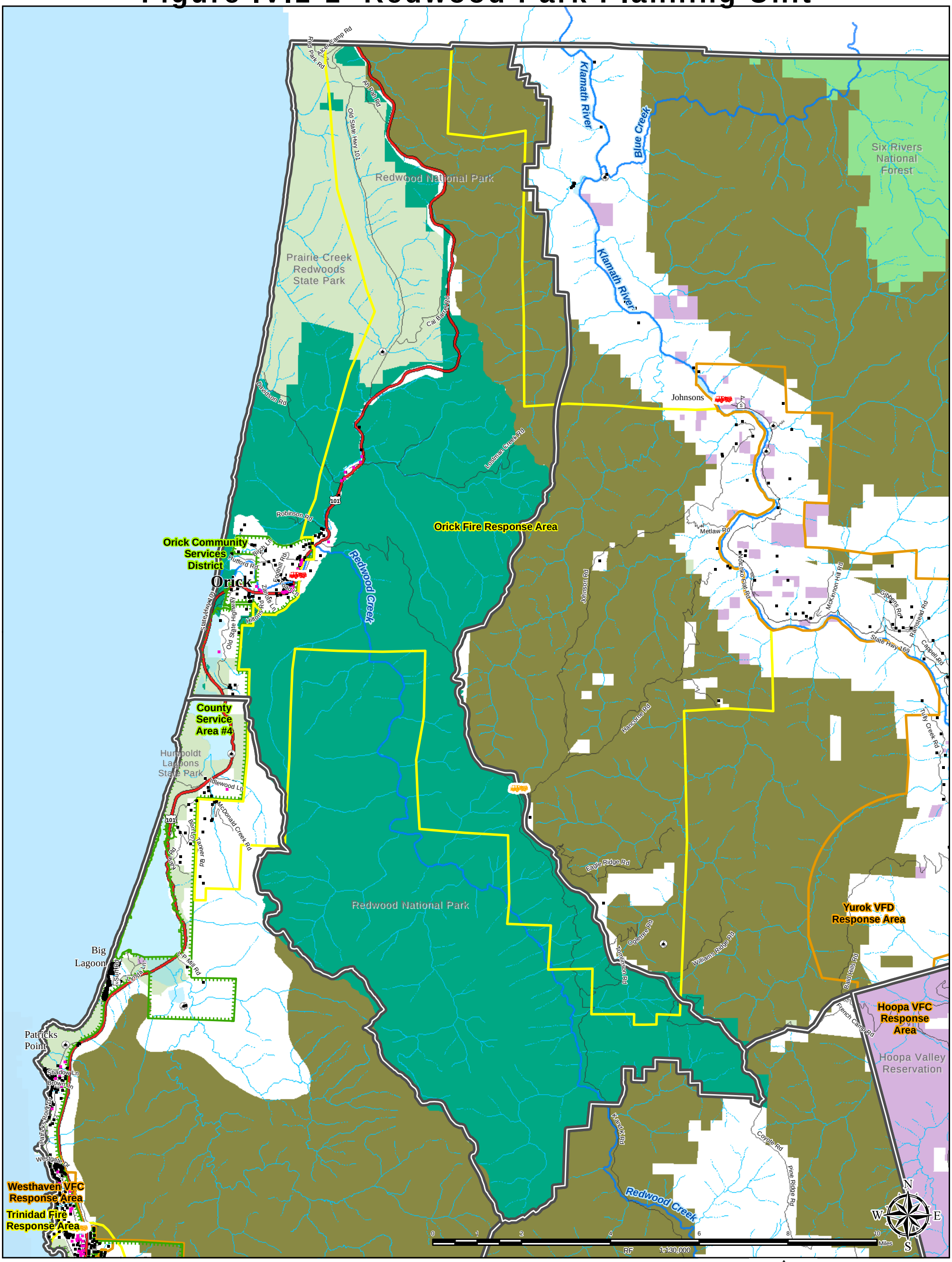
- **Firewise Communities:** Pursue participation in the Firewise Communities/USA recognition program with neighborhood groups in developed areas adjacent to the

wildland. Actively implement and maintain the Firewise action plan on an annual schedule.

Reducing Wildfire Fuels (Flammable Vegetation)

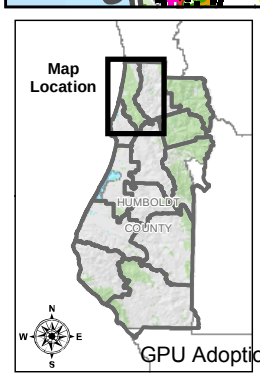
- **Defensible Space:** Those residents living in areas within this planning unit that are at risk to wildfire should manage the flammable vegetation within their *Home Ignition Zone*. Maintaining *defensible space* through vegetation treatments should be a routine and ongoing practice for all homes and landscapes. Community *Chipper Days* can facilitate this process by helping landowners get rid of *slash* and *brush* piles so that they do not become an additional hazard. Begin by identifying where defensible space is most needed within the planning unit. The following priority areas were identified at community meetings and are recommended for treatment in this plan:
  - Neighborhoods along Hufford Road, west of Orick.
  - Neighborhoods along roads branching off of Hufford Road, including: Foothill Drive, Viewcrest Drive, and Gunst Road.
  - Neighborhood along Riverview Road, north of Orick.
- **Roadside Clearance:** Manage roadside vegetation in order to improve and maintain access for emergency vehicles and ensure safe evacuation. Consider working with the California Conservation Corps or County Public Works Roads Division. Focus initial efforts along the following roads:
  - Brush thinning along Gunst Road.
  - Collaborate with the Public Works Roads Division to better understand and provide input to the process of setting priorities for roadside vegetation maintenance.
- **Landscape Fuels Reduction:** Construct *shaded fuelbreaks* as buffers between residential areas and wildlands to slow the progress of wildfires. This allows firefighters a higher probability of successfully protecting communities from wildfire damage. These buffers may also protect the wildlands from the spread of fires originating within communities. The following are recommended for priority treatment in this plan:
  - Areas along Hufford Road, west of Orick; ideally, this project should correlate with Chipper Days.

Figure IV.1-1 Redwood Park Planning Unit



CWPP Unit Map

Map Location



GPU Adoption

Legend

- CWPP Planning Unit Boundary

Emergency Response
- Local Fire Station
- CAL Fire Station
- Six Rivers Fire Station

Hospitals and Clinics
- Hospital/Medical Center
- Red Cross

Lookout, Lights, Radio
- Lighthouse
- School

Local Fire Organization Response Area
- District
- Out of District
- Non-Tax (Volunteer Fire Company (VFC))
- Proposed District Annexation Area (PDAA)

Improved Parcels
- Improved Parcel (not actual location of improvement)
- Commercial or Industrial Lot (not actual location)

Airports
- Landing Strip

Highways and Roads
- HWY 101
- State HWY
- HWY or Secondary Road
- Local Road or Street

Hydrography
- Major River or Stream

Infrastructure
- Gauging Station
- Water Tank or Source
- Historic Locations

Land Ownership

AGENCY
- Bureau of Land Management
- National Park Service
- State Park or Other State Lands
- Six Rivers National Forest
- U.S. Fish and Wildlife Service
- Tribal Lands
- Private
- Industrial Timber
- Cities

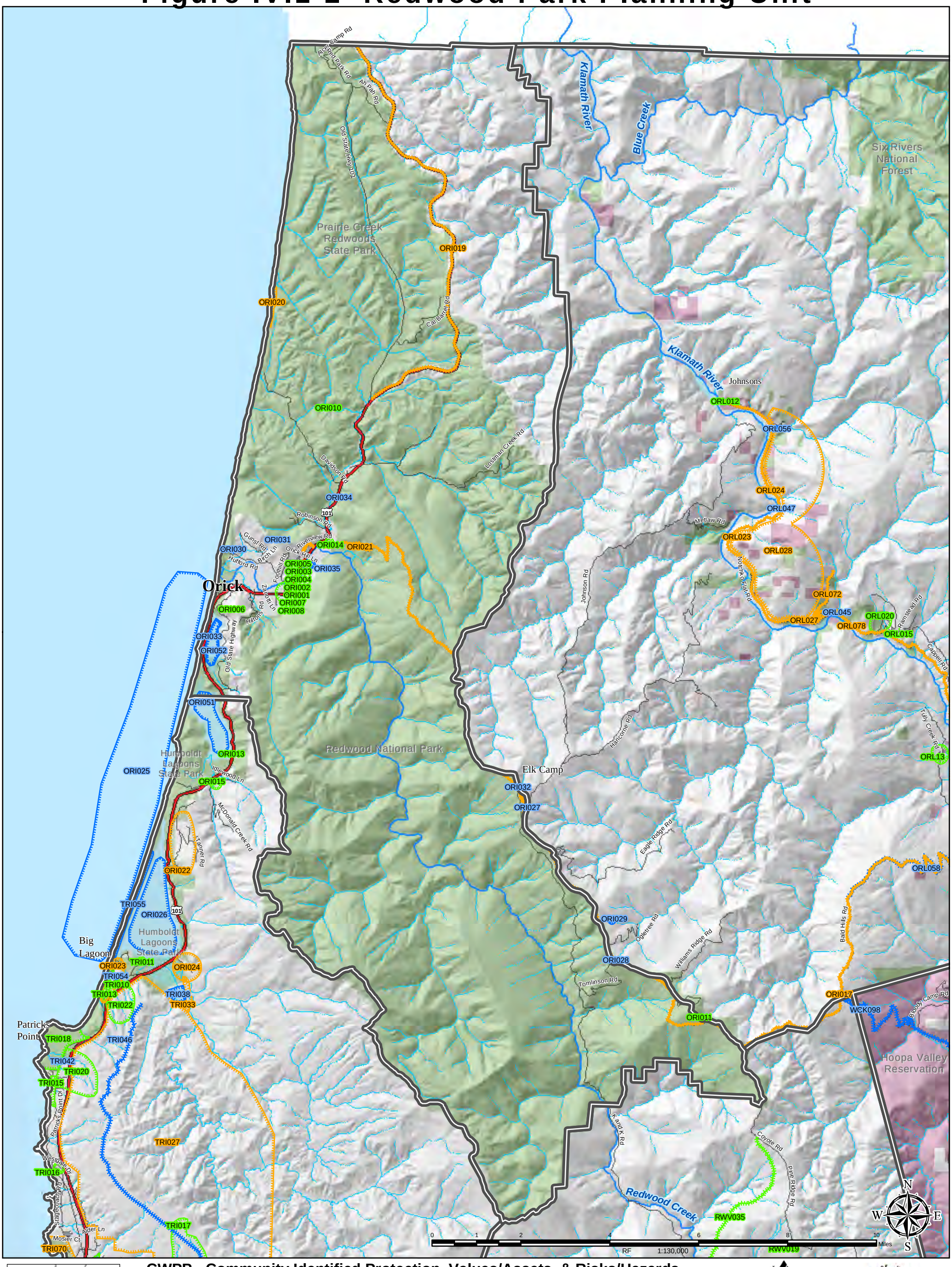
Land ownership and infrastructure data has been compiled by The County of Humboldt. Fire planning features identified at community workshops by residents; local, state, and federal fire service personnel; and Humboldt County staff. Other data sources were the 2006 Humboldt County Master Fire Protection Plan

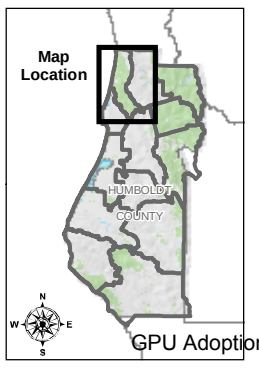
This map is intended for planning purposes and should not be used for precise measurement or navigation.

Map compiled by County of Humboldt, March 2013.
Online maps visit: http://gis.co.humboldt.ca.us/
Contact: cimmit@co.humboldt.ca.us or jvondohlen@co.humboldt.ca.us

October 23, 2017

Figure IV.1-2 Redwood Park Planning Unit





CWPP - Community Identified Protection, Values/Assets, & Risks/Hazards

Legend

- CWPP PlanningUnit Boundary
- **Community Identified Features**
  - Protection/Evacuation
  - Value/Asset
  - Risk/Hazard
- **Land Ownership**
  - Parks/Public Land
  - Reservation/Tribal Land
  - Cities
- **Highways and Roads**
  - HWY 101
  - State HWY
  - HWY or Secondary Road
  - Local Road or Street
- **Hydrography**
  - Major River or Stream
  - Perennial Stream
  - Intermittent Stream

Land ownership and infrastructure data has been compiled by The County of Humboldt. Fire planning features identified at community workshops by residents; local, state, and federal fire service personnel; and Humboldt County staff. Other data sources were the 2006 Humboldt County Master Fire Protection Plan

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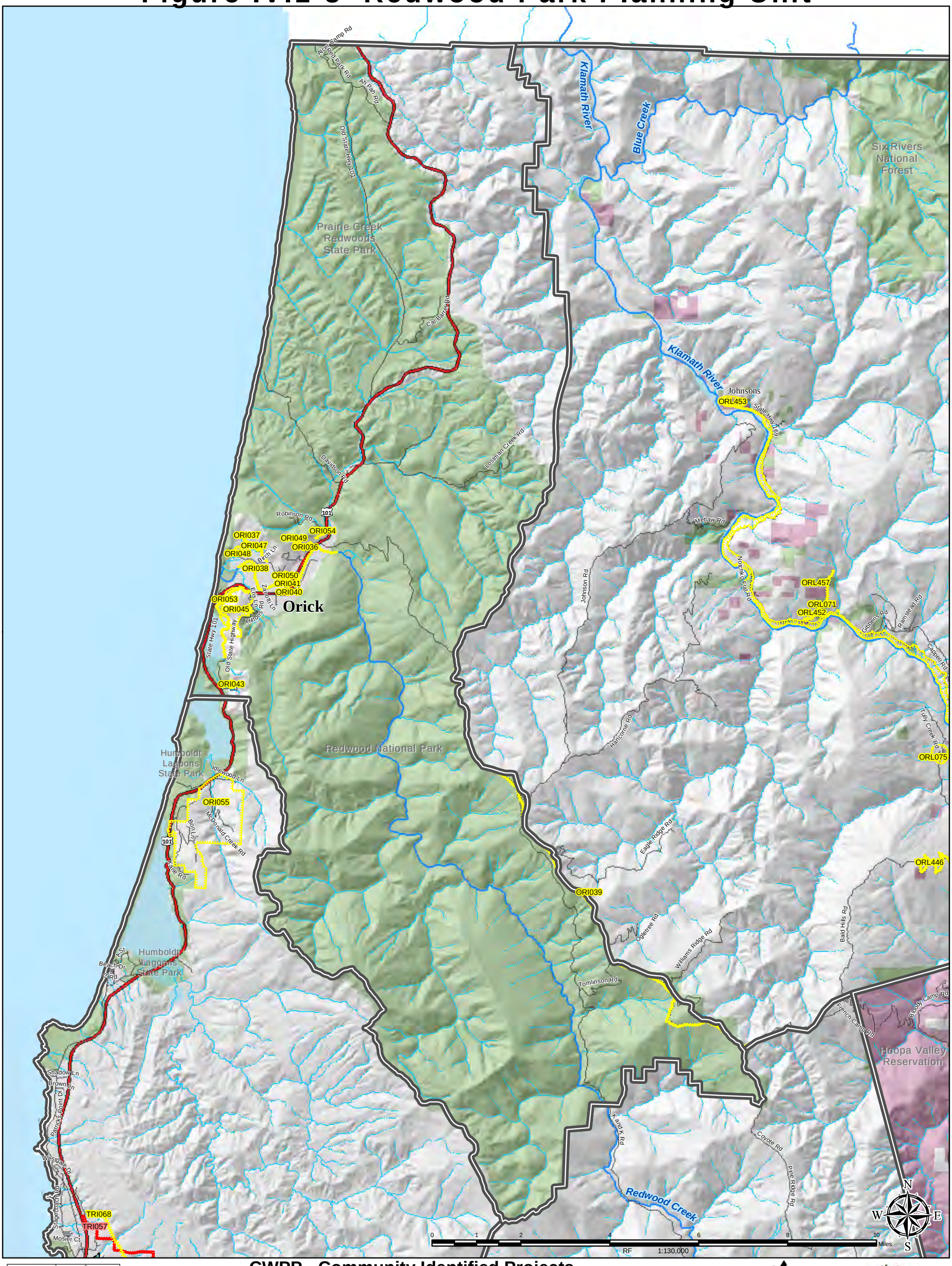
Contact: cimmit@co.humboldt.ca.us or jvondohlen@co.humboldt.ca.us

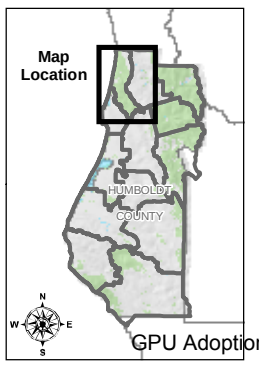
GPU Adoption

October 23, 2017

Figure IV.1-3 Redwood Park Planning Unit



CWPP - Community Identified Projects



Legend

- CWPP Planning Unit Boundary
- **Community Identified Projects**
  - Proposed Project
  - Treated Project
- **Land Ownership**
  - Parks/Public Land
  - Cities
- **Highways and Roads**
  - HWY 101
  - State HWY
  - HWY or Secondary Road
  - Local Road or Street
- **Hydrography**
  - Major River or Stream
  - Perennial Stream
  - Intermittent Stream

Land ownership and infrastructure data has been compiled by The County of Humboldt. Fire planning features identified at community workshops by residents; local, state, and federal fire service personnel; and Humboldt County staff. Other data sources were the 2006 Humboldt County Master Fire Protection Plan

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Map compiled by County of Humboldt, March 2013.
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Contact: cimmit@co.humboldt.ca.us or jvondohlen@co.humboldt.ca.us

IV.2. Up River Planning Unit Action Plan

IV.2.1. Up River Planning Unit Description

The Up River *Planning Unit* encompasses 150,722 acres situated in north-central Humboldt County. Redwood National Park lies to the west, Del Norte County to the north, Six Rivers National Forest lines the eastern border, and the Hoopa Valley Reservation is located to the south. The geography of the Unit is characterized by the Klamath River *basin* and its many *tributaries*, which include: [1]

- Mettah Creek
- Pecwan Creek
- Coon Creek
- Halagow Creek
- Roach Creek
- Ah Pah Creek
- Notchko Creek
- Bear Creek
- Achelth Creek
- Surpur Creek
- Pine Creek
- Blue Creek

Highway 169 is the main transportation corridor, following the Klamath River in a north-south direction across the Unit. However, it is important to note that Highway 169 is a non-continuous route, which comes to a dead-end near the Johnsons community in the northern portion of the Planning Unit.

The heart of the Unit area falls within the Yurok Tribe's Territory, which consists entirely of Ancestral Lands, specifically including, but not limited to, the Yurok Reservation; the Reservation extends one mile out on each side of the Klamath River, from the mouth of the river to an upriver distance of about 44 miles. The Yurok Indian Reservation is comprised of 63,035 acres spanning Humboldt and Del Norte Counties. The Yurok Tribe is the largest Indian Tribe in California, with over 5,000 enrolled members. The entire Reservation has a population of approximately 2,100.[2]

The majority of communities in this Planning Unit are largely contained within the *up-river* portion of the Reservation; the *down-river* portion of the Reservation is located in Del Norte County. The *up-river* area (the Humboldt County portion of the reservation) includes several small communities or villages; they are:

- Weitchpec
- Tulley Creek
- Notchco
- Pecwan
- Bald Hills
- McKinnon Hill
- Ke'pel
- Wautec

Based on the communities at risk analysis conducted by the California Fire Alliance, all of the communities listed above have been identified by the Yurok Tribe as "*communities at risk* for

[1]Dyett & Bhatia. (2002, September). Lower Klamath Watershed. *Humboldt 2025 General Plan Update: Natural Resources and Hazards; Vol. 2: Detailed Watershed Characteristics and Regulatory Framework Analysis.*(p.43.) Retrieved from http://www.co.humboldt.ca.us/gpu/documentsbackground.aspx..

[2] County of Humboldt, Natural Resources Planning. (2008). *Humboldt Operational Area Hazard Mitigation Plan; Volume 2 – Planning Partner Annexes.* (pp.2-13—2-14.) Retrieved from http://www.co.humboldt.ca.us/natural-resources/hazardmitigation/?inc=finaldraft

wildfire."[3] Weitchpec--situated in the southeastern corner of the Unit near the confluence of Highways 169 and 96-- is the hub of community life in this Planning Unit. Weitchpec contains the Yurok Tribal Office and Community Center, where many community services are located and events take place.

While much of the Reservation is owned by the Yurok Tribe, a substantial amount of land within the Planning Unit is privately owned as well. Private lands include residential parcels, large tracts of ranchlands, and industrial timberlands. A small section of the northeastern portion of the Unit falls within Six Rivers National Forest boundaries and is therefore managed by the U.S. Forest Service. Only a small portion of the Yurok Reservation has been developed for residential housing, and much of that lacks basic services such as electricity and telephone service.[4] A map of this planning unit can be viewed in Figure IV.2-1. Up-River Unit: CWPP Unit Map.

IV.2.2. Up River Community Process Summary

An open-house community workshop was held on June 20, 2012 at the Weitchpec Community Center for the purpose of gathering local information and garnering public input regarding various factors contributing to the extent of wildfire risk and/or preparedness among the communities in this Unit, and to provide information about the countywide community wildfire protection plan (CWPP) update process. The workshop was held in conjunction with the Yurok Tribe and their consultants, Tetra Tech, and the information gathered will inform both this plan and the local Yurok CWPP; approximately 25 community members were in attendance. A group exercise, which involved maps of the Planning Unit area, invited those present to help identify and pinpoint on the map where particular *fire hazards* exist, the location of *protection resources*, such as fire water drafting sites, as well as values and *assets at risk* within the community that could be threatened by wildfire. These workshop processes also provided an opportunity for participating community members to ask questions and provide information based on their local knowledge.

Participants were also asked to review pre-existing information illustrated on the maps which had been added by community members during similar workshops that took place during the initial planning process in 2006. This workshop and mapping exercise also facilitated discussion among community members about potential actions that could be taken to reduce fire risk in their community. Through discussion and collaborative processes, participants identified major hazard areas and compiled lists of project proposals for enhancing their community's fire preparedness.

The community-identified fire hazards, protection resources, and values and assets at risk discussed throughout the following sections of this Planning Unit Action Plan reflect information generated by these community workshop mapping exercises, as well as information resulting from direct outreach to local fire departments and residents.

The project proposals resulting from community member discussions are contained in section IV.2.8. Community-Identified Projects in this Planning Unit Action Plan.

IV.2.3. Up River Wildfire Environment

Approximately 87% of the Up River Planning Unit is zoned "Very High *Fire Hazard Severity*," as determined by the California Department of Forestry and Fire Protection (CAL

[3] Tetra Tech: Prepared for Yurok Tribe. (January 2013). Chapter 13 Community Wildfire Protection Plan (p.13-13). *Yurok Tribe Hazard Mitigation Plan, Draft 3*. Klamath, CA. Retrieved from http://yuroktribe.org/departments/planning/documents/Yurok_Tribe_HMP&CWPP_2013-01-16.pdf..

[4] County of Humboldt, Natural Resources Planning. (2008). *Humboldt Operational Area Hazard Mitigation Plan; Volume 2 – Planning Partner Annexes.* (pp.2-13—2-14.)

FIRE).[5] However, several small areas throughout the Unit, particularly in the southern region near Pine Creek and Weitchpec, and surrounding Highway 169 are zoned "High Fire Hazard Severity" (totaling 11%). The Unit area is largely comprised of rugged, steep forest land with valleys and *drainages* running from the mountainous regions toward the ocean. The steep slopes within this Unit can increase *fire risk* by accelerating the rates at which fires spread uphill; these slopes can have topographical influences on wind patterns as well.

The Unit is characterized by cold, wet winters and hot, dry summers. The land is predominantly forested, with Green Diamond Resource Company timberlands and other lands zoned for timber production covering a majority of the area. *Vegetation types* include forest communities such as mixed *conifer forests*, with fir and pine, as well as redwood *stands*, oak woodlands, and *chaparral*. The forestlands surrounding the eastern and western sides of the Unit are predominantly mixed conifer, coastal redwoods, Douglas-fir, spruce, and intermixed hardwoods, including madrone and tanoak. Vegetative *fuel* types throughout the Unit include *brush*, hardwood *litter*, *understory*, as well as *slash* and closed timber litter left from previous logging operations. During the hot summer months, the abundant vegetation in this region dries out and increases *hazardous fuel* levels.

Ecosystems and *plant communities* in this region are historically adapted to wildfire occurrence to the extent that some varieties are not only fire-tolerant but *fire-dependent* for healthy *ecosystem functioning*. In the past, Yurok tribal members implemented intentional burns throughout the Reservation area for ecological and cultural purposes. However, a history of *fire suppression* beginning in the 1930s has allowed the accumulation of dense, flammable vegetation in the forest understory. This vegetation can fuel wildfires and increases the risk of high-intensity burns. The exclusion of fire from these *landscapes* adapted to low-intensity fires that would burn off brush and newer starts in the understory has led to overcrowding of forests, accumulated fuels, and alterations in *species compositions* and forest structure. This ecosystem dynamic is creating risk for *wildfires* of greater intensities and on a larger scale than the local vegetation is adapted to withstand. The extent that the landscape has been altered as a result of fire suppression is reflected in the *condition class* of the Unit area. Condition class describes the degree of departure from the historical natural *fire regime*. Where the condition class indicates that fire has been absent for an unnaturally long time, the hazard and potential damages are high to both the environment and human developments in the area. Approximately 50% of the Up River Planning Unit is condition class 3, meaning the fire regime is significantly altered from the historical range; and approximately 39% of the area is condition class 2, or moderately altered from the historical range.

On average, there are between ten and twelve brush fires each year on the Yurok Indian Reservation.[6] Fortunately, despite its "Very High" fire hazard severity zoning, there have been few fire events in the Unit within the past decade. These fire events include:

- The Tectah Fire, 2003: 97 acres.
- The Johnson Fire, 2003: 5 acres.
- The Cappel Fire, 2007: 13 acres.

Fires in the lands adjacent to this Planning Unit have impacted residents of the Reservation as well. The Megram Fire in November, 1999 was located approximately 60 miles east of Weitchpec, and generated dense smoke and ashes which spread throughout Northern California,

[5]CAL FIRE (California Department of Forestry and Fire Protection). (2007). *Fire Resources Assessment Program (FRAP).* [Map showing Fire Hazard Severity Zone ratings within various geographic areas, mapped by county]. Fire Hazard Severity Zones Map. Retrieved from http://frap.cdf.ca.gov/

[6] Tetra Tech: Prepared for Yurok Tribe. (January 2013). Chapter 13 Community Wildfire Protection Plan (p.13-44). *Yurok Tribe Hazard Mitigation Plan, Draft 3*.

decreasing visibility and air quality. Many people were evacuated from the Reservation at this time, due to health concerns. Similarly, the Biscuit Fire in July 2002, which began in Southern Oregon as a result of lightning strikes, generated smoke that created health problems for residents within a 100-mile radius. [7]

Possible *ignition sources* within this Unit include human-related causes, such as arson, campfires, brush piles, smoking, playing with fire, equipment use, and vehicle accidents, as well as lightning and downed power lines.

Communities in this Unit exist within the *wildland-urban interface* (WUI), where there is an increased likelihood that *structural fires* will be able to spread into the wildlands, and vice versa. *Dead plant matter* and vegetation with low *moisture levels* within 100-150 feet of homesteads pose some of the greatest threats to *structural ignitability*. Of particular concern are houses with needles and leaves accumulating on rooftops or in rain gutters. Houses with wooden rooftops and siding add to this risk, as do the presence of wooden decks, particularly those with dead plant matter accumulated beneath them. These items are generally more susceptible to combustion from *embers* or radiant heat and, if lighted, could cause the rest of the home to catch fire as well. Figure IV.2-2 found at the end of this Unit Action Plan illustrates risks and hazards identified by community members at public workshops and can be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/.

Highway 169 is the central *ingress and egress* route; however, its use in emergencies should be cautioned with the knowledge that this is a non-continuous route that dead ends in the northern portion of the Unit, far from any other major roads. The abrupt end of the primary access route in this Unit exacerbates risks associated with the remoteness of homes in this area and limits residents' options for evacuation. A number of smaller roads branching off Highway 169 connect residences and neighborhoods to the main highway. Poor or complete lack of *signage* at these roads and at intersections pose potential problems for emergency responders; this is especially true for more remote residences further away from any community center. The narrowness of smaller roads leading to remote residences could create serious complications for emergency vehicles trying to gain access during simultaneous home evacuations. Many roads are also grown over with vegetation, and some properties have inadequate vehicle t*urn around spaces*. The potential for landslides in the area could also inhibit access.

The Public Utilities Division within the Yurok Tribe's Planning and Community Development Department provides potable water and *fire protection water* to residents throughout the Reservation. Fire protection water may also be drawn from the following locations:

- Pine Creek
- Burrill Creek
- Garland Pond
- Charlie's Pond
- Gist Creek
- School Creek
- Rube Ranch
- Ha Amar Creek
- Klamath River at Martin Ferry Bridge

However, these smaller, cold water creeks are extremely valuable to fisheries health in the area, and fire fighters should always attempt to *draft* fire protection water from the river prior to accessing the cooler creeks.

[7] Tetra Tech: Prepared for Yurok Tribe. (January 2013). Chapter 13 Community Wildfire Protection Plan (p.13-41). *Yurok Tribe Hazard Mitigation Plan, Draft 3*.

The map in Figure IV.2-2 found at the end of this Planning Unit Action Plan illustrates these *drafting sites* as well as other community-identified wildfire *protection resources*. The map can be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/.

IV.2.4. Up River Values and Assets at Risk

Assets at risk can be defined as those things that are important to quality of life that can be threatened with destruction or loss from wildfire. These may include community assets such as homes and businesses, as well as environmental values such as wildlife habitat, natural resources, and air quality, along with any other important attribute that individual communities rely on for their well being. Loss or damage to community assets as a result of wildfire can have short- or long-term impacts of varying severity, depending on the asset. Short-term loss caused by a *wildfire* can include the destruction of residences, commercial assets, timber, wildlife habitat, scenic vistas, and *watersheds*. Long-term effects may include displaced persons, smaller timber harvests, reduced access to affected recreational areas, and destruction of cultural, ecological, and economic resources, and community infrastructure.

The majority of *assets at risk* in this Planning Unit are residential homes along with commercial and service industries, community facilities, schools, fire stations, as well as infrastructure components, such as communications towers, power lines, and bridges. Commercial assets at risk in this Planning Unit include timber *stands* and livestock.

The map in Figure IV.2-2 found at the end of this Planning Unit Action Plan illustrates values and assets at risk to wildfire identified by community members at public workshops. The map can be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS[8] Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/. Some of the community-identified assets at risk within this Unit include:

- Yurok Tribal Office
- Weitchpec Water Tanks
- Lyon's Ranch Barns –Historical
- Gibbons Road Water/Power

The Reservation contains many culturally significant ancestral territories, which are often also areas of environmental significance. Protecting these spaces is a top priority for communities in this Planning Unit. Currently, the Yurok Tribe is partnering with the Western Rivers Conservancy to help conserve the Blue Creek *watershed* by buying 47,000 acres from Green Diamond Resource Company. Blue Creek is a vital tributary to the lower Klamath River that provides high-quality spawning *habitat* for *endangered* chinook and coho salmon as well as steelhead trout. This project will help restore salmon runs and will benefit the watershed, which provides valuable habitat for other important wildlife species, such as marbled murrelets, northern spotted owls, deer, and bears. Equally important, this project will help re-establish a homeland and economic base for the Yurok Tribe.[9]

IV.2.5. Up River Community Preparedness

In May 2006, The Yurok Tribe *Hazard Mitigation* Plan (HMP) reached completion. The purpose of the plan was to: "identify hazards, establish community goals and objectives, and select mitigation activities that are appropriate for the Yurok Indian Reservation."[10] Now, in

[8] Geographic Information Systems (GIS).

[9] Western Rivers Conservancy. (n.d.). *Blue Creek Salmon Sanctuary and Yurok Tribal Reserve*. Current Projects: California. Retrieved November 28, 2012, from http://www.westernrivers.org/pages/blueCreek.html

[10] Yurok Tribe, Planning and Community Development. (2006, May 25). *Yurok Tribe Hazard Mitigation Plan.* (p.3.) Retrieved from

2012, this hazard plan is being updated and the updated version will include a *community wildfire protection plan* (CWPP).

The Yurok Tribe is working towards establishing a local *fire safe council* (FSC) to guide the CWPP development and implementation process. This group will help educate residents about *fire safety* and wildfire preparedness. The Tribe recruited potential FSC members from the HMP update Steering Committee. The planning process involved a compilation of efforts from various groups and agencies from throughout the planning area that came together in an effort to address the mitigation of wildfire hazards to communities at risk.

"The CWPP is intended to serve as the guiding document for reducing the risk of fire to the Yurok Reservation and its surrounding communities and to serve the following uses:

- Promote fire safety;
- Build capacity of local fire organizations;
- Coordinate local activities with the federal and state agencies charged with *fire protection* and management responsibilities;
- Incorporate planning for fire safe communities into the County land use planning process;
- Provide planning tools for fire safe communities;
- Identify funding sources to support local organizations that provide fire prevention and protection services."[11]

IV.2.6. Up River Wildfire Protection Capabilities

Community fire protection within the Unit is provided by the Yurok *Volunteer Fire Company* (YVFC). The YVFC was formed in 2004 with support from grant funds to build two fire stations. Funding, equipment and facilities are provided by the Yurok Tribe. The YVFC operates out of two fire stations--one in Weitchpec and one in Wautec--and serves an area of 80 square miles, with approximately 350 residents. The YVFC is made up of ten volunteers who respond to structural and *wildland fires*, as well as calls for medical and rescue services. In addition to responding to emergency calls, the YVFC also works with the Yurok Reservation Community, providing fire suppression service for cultural burns. The YVFC also provides services during tribal ceremonies and cultural events. Their *apparatuses* include: a type-2 engine, a type-4 wildland engine, and a rescue truck.[12] The YVFC may be reached by calling (530) 625-9232.

There is also the Yurok Wildland Fire Crew, which operates out of Tulley Creek where there is a fire station that was built with the assistance of FEMA grant funds. In addition to the YVFC, the Yurok Wildland Fire Crew and CAL FIRE also respond to fires within this Planning Unit. The YVFC has a *mutual aid agreement* with CAL FIRE, and emergency calls typically dispatch YVFC volunteers as well as the CAL FIRE engine from Elk Camp on Bald Hills Rd. Response times can range anywhere from one to two hours, depending the incident site.[13] The CAL FIRE Elk Camp station can be reached by calling (707) 499-2240.

Water availability can be a challenge for firefighters in this Unit. There are six hydrants located within this Planning Unit, although they are seldom used because of concerns about

http://yuroktribe.org/departments/planning/documents/Yurok_Hazard_Mitigation_Plan_ApprovedMay252006.pdf.

[11] Tetra Tech: Prepared for Yurok Tribe. (January 2013). Chapter 13 Community Wildfire Protection Plan (p.13-2). *Yurok Tribe Hazard Mitigation Plan, Draft 3*.

12 Humboldt County Fire Chiefs Association. (2012). 2012 Local Fire Protection Survey.

13 Tetra Tech: Prepared for Yurok Tribe. (January 2013). Chapter 13 Community Wildfire Protection Plan (p.13-10). *Yurok Tribe Hazard Mitigation Plan, Draft 3*.

potential damage to waterlines, depleting water available for residential use, and worries that drafting water out of cold streams could compromise their ecological benefits on the Reservation. According to the 2006 Yurok HMP:

> "A lack of fire hydrants, adequate water storage and modern fire suppression equipment inhibit the effect fire suppression efforts. When fire strikes, structures are almost always at a total loss. In most cases, structures are uninsurable due to the lack of adequate fire hydrants and water storage. Without increased fire suppression equipment, adequate water storage and hydrants, it is anticipated that structural fires on the Reservation would continue and create a greater risk of wildland fires."[14]

IV.2.7. Up River Evacuation

Evacuation from the Up River Planning Unit will travel south along Highway 169, connecting with Highway 96 to precede either northeast towards Orleans, or south towards Hoopa. If evacuation is blocked to the east and south, Bald Hills Road may also be used to travel west. Evacuation decisions will always depend on law enforcement recommendations based on *fire behavior*, wind pattern, traffic, and ingress of emergency vehicles.

There are numerous smaller roads connecting residences and neighborhoods to Highway 169, Highway 96, and Bald Hills Road. Adequate ingress and egress along these roads is vital to a large portion of the community that may need access to main *evacuation routes* and for firefighters who will be using the roads to access wildfires in these areas. Many of the smaller roads throughout the Reservation are in poor condition, which can challenge effective delivery of fire suppression resources.

To those without intimate knowledge of the area and a four-wheel drive vehicle, Highway 169 is a dead-end road. This is very problematic for a primary transportation route in such a far-removed location and creates the potential for dangerously long emergency *response times* and severely limited evacuation opportunities. Johnson Rd. and Hancorne Rd., in addition to Bald Hills Rd., could potentially provide emergency evacuation westward into Redwood National Park.

Evacuation impediments may include: landslides, fallen trees, downed power lines, overgrown vegetation, poorly marked streets and intersections, and *one-way-in, one-way-out roads* that could inhibit evacuation and emergency response vehicles, or leave residents stranded should the roads become blocked.

During wildfire events that have the potential to threaten personal safety, community evacuation sites may be established where residents can go to survive a wildfire. Evacuation sites will be established in different locations depending on the anticipated path of the wildfire. The determination for the location of these sites is normally made by Humboldt County Emergency Operations Center Incident Commander in cooperation with an *Incident Management Team*. The Humboldt County Sheriffs and Emergency Officials will use mass communication and door-to-door methods to inform residents about the threat and where residents should go to take shelter.

If a catastrophic event occurs, residents may not be able to reach designated evacuation sites. In such cases, residents may need to make decisions on their own about seeking shelter where they can survive the passage of the wildfire until they can reach an evacuation site. It can be very difficult to determine the right thing to do as the fire approaches. Before a wildfire threatens, community members should talk to their local fire department about evacuation procedures in their neighborhood.

[14] Yurok Tribe, Planning and Community Development. (2006, May 25). *Yurok Tribe Hazard Mitigation Plan.*

See section V.2.3 in Part V. Fire-Safe Communities for more information on preparing for safe evacuation and evacuation planning for pets and livestock. Also see section II.3.5 Evacuation Routes and Vulnerability in Part II. Risk Assessment for information about evacuation procedures and challenges in Humboldt County.

IV.2.8. Up River Community Identified Potential Projects

The following list and matrix includes community identified proposed projects based on input from the community processes discussed above. A detailed description of each heading in the matrix can be found in Appendix G: Descriptive Characteristics for Community Identified Projects Matrix. These projects are illustrated on the community-identified projects map found at the end of this Planning Unit Action Plan (Figure IV.2-3). Projects include those carried over from the 2006 fire-planning process and those identified and refined during the 2012 CWPP update process. This information can also be viewed on the fire planning GIS Portal. The GIS Portal allows users to search for and view specific fire planning features by location or to zoom into a desired area from an aerial view. To access the Portal, go to: http://gis.co.humboldt.ca.us/ and choose "Fire Planning" from the list of mapping applications. The data collected through this Planning process are included in the GIS layers within the Portal.

No vegetation *treatments* recommended in this plan will be carried out without the consent and involvement of the property owner and all applicable local, state and federal regulations must be observed.

Non-geographic community identified proposed projects based on community workshop notes:

- All roads should be evaluated for understory clearing needs.
- When clearing for wildfire hazard mitigation is done, burning or chipping the piles as soon as possible should be a priority so they do not become a hazard.
- Write a comprehensive burn plan that will assist efforts to start burning traditional, cultural burn areas again to improve ecological resource production.

LOCATION		Treatment/Project Information Eel Fire Planning Unit							
Number Corresponds with location on map	Community, Structure, or Area (Value at Risk)	Description	Status	Year	Type	Acres	Veg Type	Maintenance (actual or proposed)	Funding source (actual or proposed)
ORI039	Bald Hills Road	Stop burning at Redwood National Park at Bald Hills in Summer	Action Need		Other - Burning				Grant, landowner, Tribal funding, neighborhood or road association
ORL064	Weitchpec Rd/Hwy 169	Fuelbreak from Hwy 96 to Weitchpec Elementary School	Treat-Med	2010	Roadside Clearance	12.68			Grant, landowner, Tribal funding, neighborhood or road association
ORL065	Weitchpec	Upper Prairie Lake Rd.: Fuelbreak (as needed)	Treat-Med	2010	Roadside Clearance				Grant, landowner, Tribal funding, neighborhood or road association
ORL067	Cappell Rd & Rube Rd	Upper Cappell hazardous fuels reduction	Treat-Med	2010	Landscape	20.41			Grant, landowner, Tribal funding, neighborhood or road association
ORL071	McKinnon Hill Rd	McKinnon Hill Rd (slash removal)	Treat-Med	2010	Roadside Clearance				Grant, landowner, Tribal funding, neighborhood or road association
ORL075	Tully Creek Road	Tully Creek Subdivision	Treat-Med	2010	Defensible Space				Grant, landowner, Tribal funding, neighborhood or road association

LOCATION		Treatment/Project Information Eel Fire Planning Unit							
Number Corresponds with location on map	Community, Structure, or Area (Value at Risk)	Description	Status	Year	Type	Acres	Veg Type	Maintenance (actual or proposed)	Funding source (actual or proposed)
ORL089	Bluff Creek Resort - Hwy 96	Creek Resort Thinning and burning - Clear around existing structures and along Hwy 96	Treat-High		Landscape	24.63	Mixed Conifer-Hardwood	Every 3-10 years	Grant, landowner, Tribal funding, neighborhood or road association
ORL446	Understory Burning - Bald Hills Road	Understory burning on Bald Hills Rd. to support fire protection / bear grass resource production	Treat - Med	2012	Other - Burning				Grant, landowner, Tribal funding, neighborhood or road association
ORL447	Understory Burning - Po'to'yo Road (Iron Gate Rd)	Understory burning and hazardous fuels reduction to support fire protection.	Treat - Med	2012	Landscape and Other - Burning				Grant, landowner, Tribal funding, neighborhood or road association
ORL448	Fuel Reduction - Alameda Road	Alameda Road shaded fuel reduction, 50ft buffer.	Treat - Med	2012	Landscape				Grant, landowner, Tribal funding, neighborhood or road association
ORL449	Defensible Space - Weitchpec Tribal Center	Defensible space and fuel reduction around the Weitchepec Tribal Cener.	Treat - High	2012	Landscape and Defensible Space				Grant, landowner, Tribal funding, neighborhood or road association

LOCATION		Treatment/Project Information Eel Fire Planning Unit							
Number Corresponds with location on map	Community, Structure, or Area (Value at Risk)	Description	Status	Year	Type	Acres	Veg Type	Maintenance (actual or proposed)	Funding source (actual or proposed)
ORL450	Fuel Reduction - Old Village	Fuel reduction--fine fuels and grass-- for the Old Village Area; structure protection from arson ignition	Treat - Med	2012	Landscape and Defensible Space				Grant, landowner, Tribal funding, neighborhood or road association
ORL452	Shaded Fuelbreak - Head Start School	Head Start School shaded fuelbreak and water supply.	Treat - High	2012	Defensible Space and Other - Water				Grant, landowner, Tribal funding, neighborhood or road association
ORL453	Defensible Space - Wo-tekw Village Area	Defensible space and fuel reduction in and around the Wo-tekw Village area.	Treat - Med	2012	Defensible Space				Grant, landowner, Tribal funding, neighborhood or road association
ORL454	Defensible Space - Weitchpec School	Defensible space and fuel reduction in and around the area	Treat - High	2012	Defensible Space and Landscape				Grant, landowner, Tribal funding, neighborhood or road association
ORL457	Understory Burning - HWY 169 to Klamath River	Understory burning between highway 169, Klamath River for fire protection and hazel production	Treat - Med	2012	Landscape and Other - Burning				Grant, landowner, Tribal funding, neighborhood or road association

LOCATION		Treatment/Project Information Eel Fire Planning Unit							
Number Corresponds with location on map	**Community, Structure, or Area (Value at Risk)**	**Description**	**Status**	**Year**	**Type**	**Acres**	**Veg Type**	**Maintenance (actual or proposed)**	**Funding source (actual or proposed)**
ORL458	Fuel Reduction - New Village	Fuel reduction New Village Area include defensible space, access clearance	Treat - Med	2012	Defensible Space and Other - Access				Grant, landowner, Tribal funding, neighborhood or road association

IV.2.9. Up River Action Plan

The following items are the initial priorities for community action for the Up River Planning Unit as recommended by this Humboldt County CWPP (not listed in order of priority). In an ideal world, everything recommended here would be implemented. However, it must be understood that implementation will be subject to the availability of funds and other resources and the willingness/ability of community members and Plan Partners to take action. This Action Plan can be cited in grant applications to leverage needed implementation funds and used to guide and inspire action.

Enhancing Fire Protection

- **Sustainable Fire Departments:** Community members within this Planning Unit should support their local fire department through activities such as volunteering as firefighters or auxiliary members, making donations, supporting fundraisers, writing grants, and/or helping with administrative tasks. With community support, local fire departments can continue to provide a wide variety of vital emergency services.
- **Firefighting Water:** Increase the availability of water for fire protection by making water access locations known to fire departments and investing in more community water tanks. Neighborhood and road associations and/or *Firewise* Communities work with local fire departments to develop a *"Blue Dot" program*, which identifies the location of firefighting water sources by marking them with a blue reflective dot. This program also ensures that tanks and water systems are outfitted with fittings compatible with firefighting equipment. Begin by identifying where such a program is most needed. The following priority area was identified at the community meeting and is recommended for treatment in this plan:
    - Head Start School fire protection water supply.

Creating Fire Safe Communities

- **Firewise Communities:** Pursue participation in the Firewise Communities/USA recognition program with neighborhood groups in developed areas adjacent to the wildland, particularly where there are many residences located along dead-end roads. Actively implement and maintain the Firewise action plan on an annual schedule.

Reducing Wildfire Fuels (Flammable Vegetation)

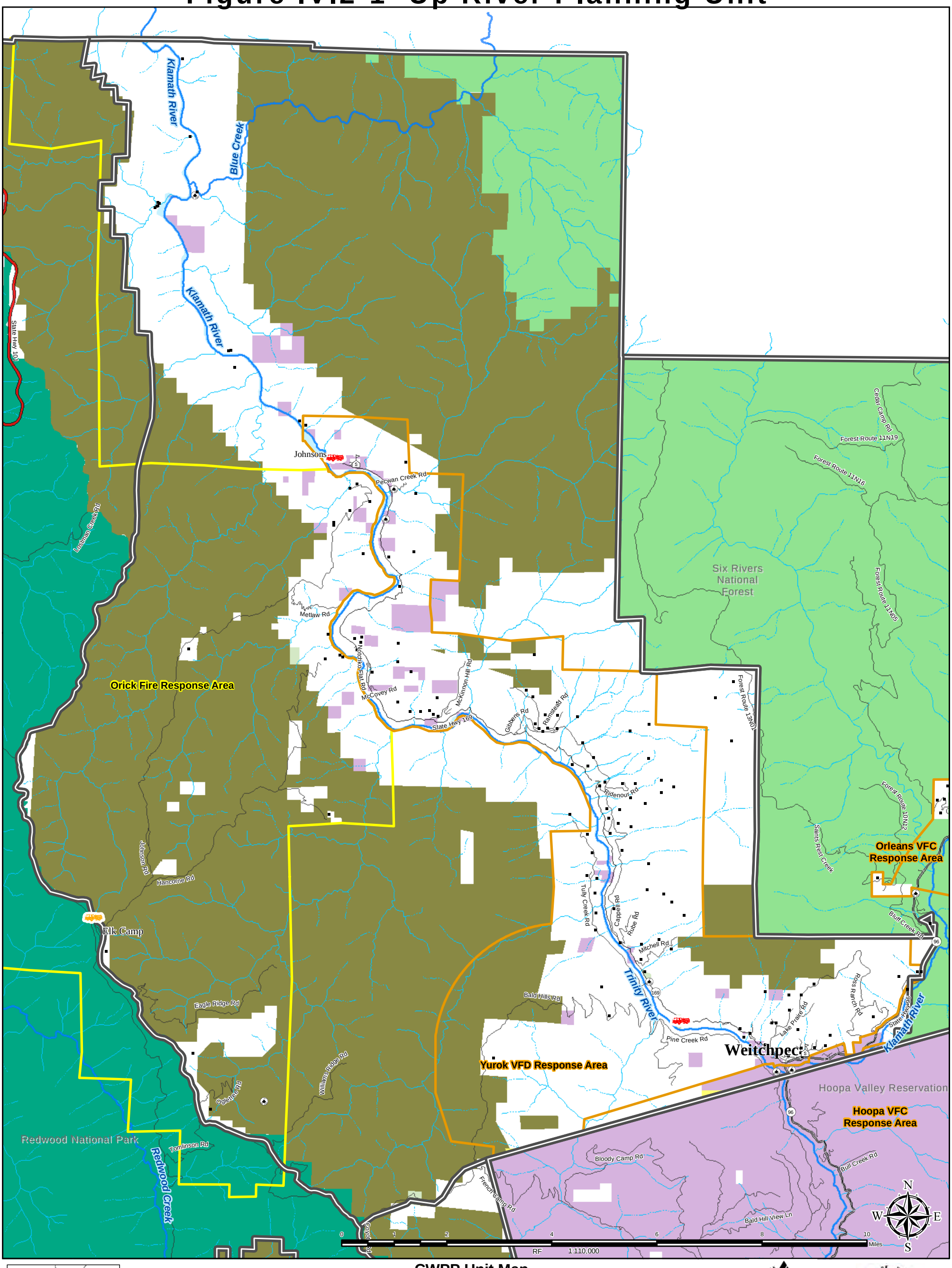
- **Defensible Space:** Those residents living in areas within this Planning Unit that are at risk to wildfire should manage the flammable vegetation within their home ignition zone. Maintaining *defensible space* through vegetation treatments should be a routine and ongoing practice for all homes and landscapes. Community *Chipper Days* can facilitate this process by helping landowners get rid of slash and brush piles so that they do not become an additional hazard. Begin by identifying where defensible space is most needed within the planning unit. The following priority areas were identified at community meetings and are recommended for treatment in this plan:
    - Subdivision on Tully Creek Road, west of Highway 169.
    - Landscape surrounding Head Start School.
    - Landscape around Weitchpec School.
    - Landscape surrounding Weitchpec Tribal Center.
    - Wo-tekw Village area.
    - New Village area, off of Highway 96.
- **Roadside Clearance:** Manage roadside vegetation in order to improve and maintain access for emergency vehicles and ensure safe evacuation. Consider working with the

California Conservation Corps or County Public Works Roads Division. Focus initial efforts along the following roads:

- Weitchpec Road, between Highway 169 and Weitchpec School.
- Upper Prairie Lake Road.

- **Landscape Fuels Reduction:** Construct *shaded fuelbreaks* as buffers between residential areas and wildlands to slow the progress of wildfires. This allows firefighters a higher probability of successfully protecting communities from wildfire damage. These buffers may also protect the wildlands from the spread of fires originating within communities. The following areas are recommended for priority treatment in this plan:
  - Continue to work collaboratively with all interested partners to create and maintain a comprehensive burn plan for the purposes of community safety and preservation of cultural and ecological resources.
  - Hazardous fuels reduction (as needed) along upper Cappell Road and Rube Road.
  - Brush thinning along Highway 96 near Bluff Creek Resort.
  - Hazardous fuels reduction and understory burning along Po'to'yo Road (Iron Gate Road), off of Cappell Road.
  - A shaded fuelbreak along Alameda Road.
  - Reduce fine fuels and grass in Old Village Area.
  - Conduct understory burning between Highway 169 and the Klamath River.

Figure IV.2-1 Up River Planning Unit



CWPP Unit Map

Map Location

GPU Adoption

Legend

- CWPP Planning Unit Boundary

Emergency Response
- Local Fire Station
- CAL Fire Station
- Six Rivers Fire Station

Hospitals and Clinics
- Hospital/Medical Center
- Red Cross

Lookout, Lights, Radio
- Lighthouse
- School

Local Fire Organization Response Area
- District
- Out of District
- Non-Tax (Volunteer Fire Company (VFC))
- Proposed District Annexation Area (PDAA)

Improved Parcels
- Improved Parcel (not actual location of improvement)
- Commercial or Industrial Lot (not actual location)

Airports
- Landing Strip

Highways and Roads
- HWY 101
- State HWY
- HWY or Secondary Road
- Local Road or Street

Hydrography
- Major River or Stream

Infrastructure
- Gauging Station
- Water Tank or Source
- Historic Locations

Land Ownership

AGENCY
- Bureau of Land Management
- National Park Service
- State Park or Other State Lands
- Six Rivers National Forest
- U.S. Fish and Wildlife Service
- Tribal Lands
- Private
- Industrial Timber
- Cities

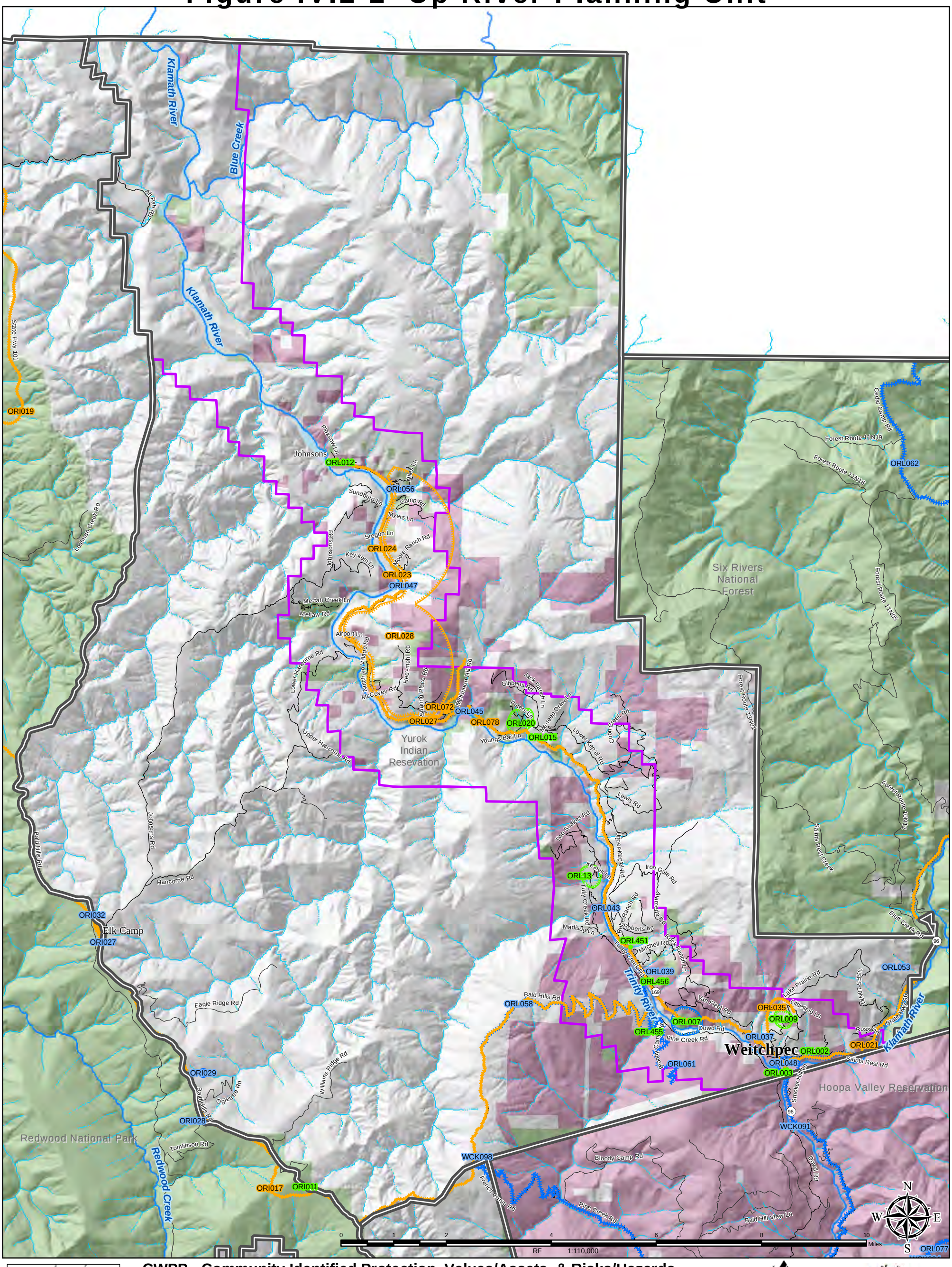
Land ownership and infrastructure data has been compiled by The County of Humboldt. Fire planning features identified at community workshops by residents; local, state, and federal fire service personnel; and Humboldt County staff. Other data sources were the 2006 Humboldt County Master Fire Protection Plan

This map is intended for planning purposes and should not be used for precise measurement or navigation.

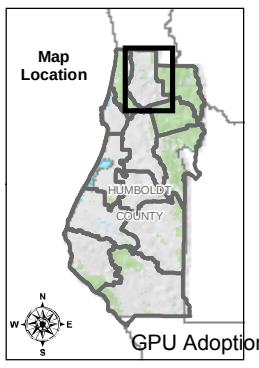
Map compiled by County of Humboldt, March 2013
Online maps visit: http://gis.co.humboldt.ca.us
Contact: cimmit@co.humboldt.ca.us or jvondohlen@co.humboldt.ca.us

October 23, 2017

Figure IV.2-2 Up River Planning Unit



CWPP - Community Identified Protection, Values/Assets, & Risks/Hazards



Legend

- CWPP Planning Unit Boundary
- **Community Identified Features**
  - Protection/Evacuation
  - Value/Asset
  - Risk/Hazard
- **Land Ownership**
  - Parks/Public Land
  - Reservation/Tribal Land
  - Cities
  - Reservation Boundary
- **Highways and Roads**
  - HWY 101
  - State HWY
  - HWY or Secondary Road
  - Local Road or Street
- **Hydrography**
  - Major River or Stream
  - Perennial Stream
  - Intermittent Stream

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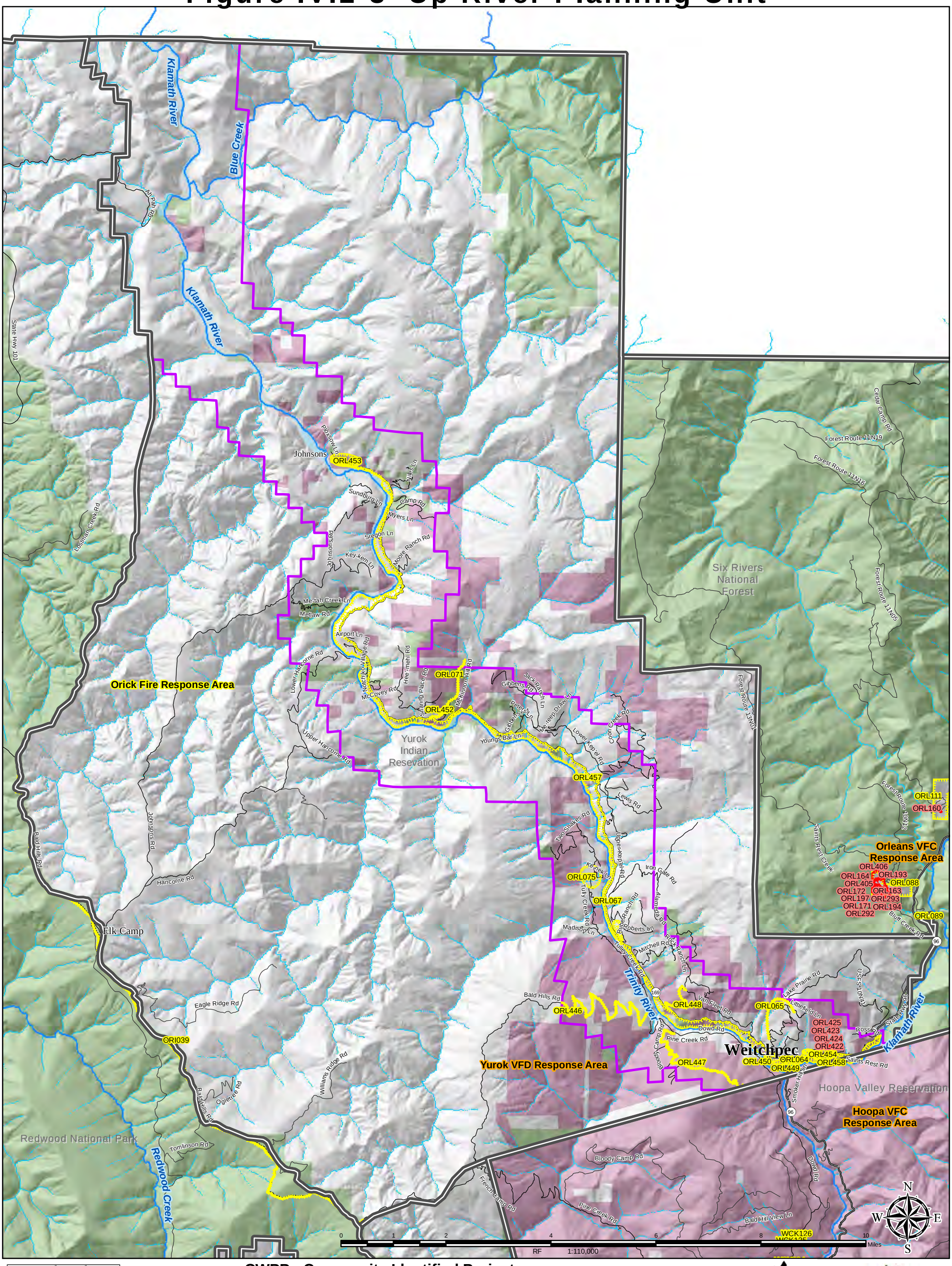
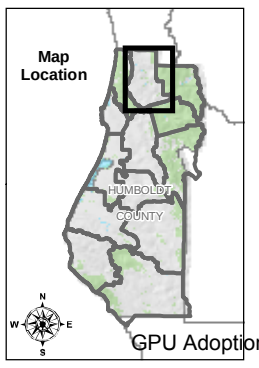
Figure IV.2-3 Up River Planning Unit



CWPP - Community Identified Projects



Legend

- CWPP Planning Unit Boundary
- **Community Identified Projects**
  - Proposed Project
  - Treated Project
- **Land Ownership**
  - Parks/Public Land
  - Reservation/Tribal Land
  - Cities
  - Reservation Boundary
- **Highways and Roads**
  - HWY 101
  - State HWY
  - HWY or Secondary Road
  - Local Road or Street
- **Hydrography**
  - Major River or Stream
  - Perennial Stream
  - Intermittent Stream

Land ownership and infrastructure data has been compiled by The County of Humboldt. Fire planning features identified at community workshops by residents; local, state, and federal fire service personnel; and Humboldt County staff. Other data sources were the 2006 Humboldt County Master Fire Protection Plan

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Contact: cimmit@co.humboldt.ca.us or jvondohlen@co.humboldt.ca.us

IV.3. East Klamath Planning Unit Action Plan

IV.3.1. East Klamath Planning Unit Description

The East Klamath *Planning Unit* encompasses 135,466 acres situated in the northeast corner of Humboldt County with the Siskiyou County border to the northeast, the Del Norte County boundary to the north, and the communities of Weitchpec and Hoopa to the southwest. Highway 96 is the main transportation route through the Planning Unit and cuts diagonally across the area following along the Klamath River (the second largest river system in California). The Lower Klamath sub-*basin* dominates the geography of the area. The Unit encompasses that portion of the Lower Klamath sub-basin and its *tributary watersheds* from just downstream of the confluence of the Salmon River with the Klamath, near the Siskiyou-Humboldt County line, to the confluence of the Trinity River with the Klamath, near Weitchpec. Klamath River tributaries in this Unit include Red Cap, Bluff, Camp, Hopkins, Slate, Pearch, and Aikens Creeks.

The town of Orleans comprises the community population center of this Planning Unit. Orleans is included on the California Fire Alliance's list of *communities at risk* to damage from wildfire.[1] Several other small neighborhood groupings border the Highway 96 corridor with a few outlying in-holdings scattered throughout the surrounding National Forest. These neighborhoods are known as the communities of:

- Ten Eyck
- Donahue Flat
- Pearch Creek
- Owl Mine Road
- Lammon
- Bluff Creek
- Red Cap
- Upper Ishi Pishi
- Lower Ishi Pishi
- Thunder Mountain/Madrone Lane/Bark Shanty
- Camp Creek
- Cedar Camp
- Slate Creek

Not all residents in these communities have access to electricity or telephone service.

The Six Rivers National Forest predominantly manages the land in this unit. The majority of private-land ownerships are at low- to mid-elevations, clustered around Orleans and along Highway 96. A significant portion of the private land in this Planning Unit falls within the Karuk Ancestral Territory as defined by the Karuk Tribe. The 2010 Census reported 605 people in Orleans, with approximately 39% having Native American heritage, mainly of the Karuk Tribe.[2] A map of this planning unit can be viewed in Figure IV.3-1. East Klamath Unit: CWPP Unit Map.

Parcels in this Planning Unit range from less than one acre to more than 1,200 acres, with average parcel size between five and ten acres. Real estate values are moderate due to factors such as remoteness, driving values down, while the relatively small number of parcels for sale drives prices up. The general building type is wooden houses built before *wildland urban interface* (WUI) building standards (Chapter 7A of the California Building Code required since January 1, 2008) were in place. Recent development in the area has been primarily by the Karuk Tribal Housing Authority on tribal lands in the Orleans Valley.

[1] California Fire Alliance. (2012). *Communities at Risk List.* Retrieved from www.cafirealliance.org/communities_at_risk/communities_at_risk_list

[2]Firewise Communities/USA Recognition Program. (2011). *Orleans Community Assessment.*

IV.3.2. East Klamath Community Process Summary

The community process that informed the development of this Unit Action Plan was multifaceted. The Orleans/Somes Bar Fire Safe Council (OBS FSC) worked closely with the County of Humboldt to evaluate the 2006 list of wildfire mitigation projects for their area; adding much value to the 2009-2010 Humboldt County Hazardous Fuels Reduction Plan Update. Much effort also went into completing the local Orleans/Somes Bar Community Wildfire Protection Plan (CWPP). The OSB FSC, the Orleans Volunteer Fire Department (OVFD), County staff, and the California Department of Forestry and Fire Protection (CAL FIRE) worked together to design and facilitate a collaborative local CWPP review and input process among community partners and the public. This process involved multiple committee, neighborhood, and community-wide meetings and workshops. The end result of the multi-year process was: a finished local fire plan with all of the required signatures certifying it as a CWPP, a *Firewise* Community Assessment and Action Plan, and a list of concerns and action items born out of neighborhood wildfire safety and emergency response meetings.

A community workshop was hosted by the OSB FSC in coordination with OVFD on March 23, 2012 in the Panamnik Building for the purpose of gathering local information and garnering public input regarding various factors contributing to the extent of wildfire risk and/or preparedness among the communities in this Unit, and to provide information about the countywide CWPP process. The gathering was also held to celebrate the completion of the Orleans/Somes Bar CWPP and the recognition of Orleans as a national Firewise Community/USA site. A group exercise, which involved maps of the Planning Unit area, invited those present to help identify and pinpoint on the map where particular *fire hazards* exist, the location of *protection resources*, such as fire water drafting sites, as well as values and *assets at risk* within the community that could be threatened by wildfire. These workshop processes also provided an opportunity for participating community members to ask questions and provide information based on their local knowledge.

Participants were also asked to review pre-existing information illustrated on the maps which had been added by community members during similar workshops that took place during the initial planning process in 2006. This workshops and mapping exercise also facilitated discussion among community members about potential actions that could be taken to reduce fire risk in their community. Through discussion and collaborative processes, participants identified major hazard areas and compiled lists of project proposals for enhancing their community's fire preparedness.

The community-identified fire hazards, protection resources, and values and assets at risk discussed throughout the following sections of this Planning Unit Action Plan reflect information generated by these community workshop mapping exercises, as well as information resulting from direct outreach to local fire departments and residents.

The project proposals resulting from community member discussions are contained in section IV.3.8. Community-Identified Projects in this Planning Unit Action Plan.

IV.3.3. East Klamath Wildfire Environment

Nearly the entire East Klamath Planning Unit (99%) is zoned "Very High *Fire Hazard Severity*," as determined by CAL FIRE.[3] The unit is composed of rugged, mountainous terrain with elevations ranging from around 400 feet along the Klamath River corridor to over 6,000 feet at Orleans Mountain. Steep slopes, which can increase fire spread, dominate the forestlands, with much of the area in the 60% or greater slope class.

[3] CAL FIRE (California Department of Forestry and Fire Protection). (2007). *Fire Resources Assessment Program (FRAP).* [Map showing Fire Hazard Severity Zone ratings within various geographic areas, mapped by county]. Fire Hazard Severity Zones Map. Retrieved from http://frap.cdf.ca.gov/

This Unit is characterized by warm, dry summers and cool, wet winters. Local vegetation includes a variety of mixed evergreen forests, including Douglas-fir (particularly in the eastern forests), tanoak, madrone, and black oak. Exposed, rocky sites can contain continuous stands of canyon live oak, and brush fields composed of wedge leaf ceanothus, incense cedar, and Jeffery Pine. Willows, black cottonwood, big leaf maple and red alder fill the floodplains of larger waterways, while riparian areas without a defined floodplain more closely resemble the surrounding forest type, with a greater proportion of maples and alders.[4]

Traditionally, Karuk tribal management systems have incorporated low-intensity intentional burns, in part to help manage the availability of acorns and basketry materials, many of which are fire-dependent.[5] However, a history of *fire suppression* since the early 1900's has dramatically altered the *landscape* and fostered the accumulation of dense, flammable vegetation in the forest understory, which acts as *fuel* and increases the risk of high-intensity wildfires. Forest ecosystems, accustomed to low-intensity fires that would burn off brush and newer starts in the *understory*, become threatened by overcrowded forests and accumulated fuel. This ecosystem dynamic is creating risk for *wildfires* of greater intensities and on a larger scale than the local vegetation is adapted to withstand. The introduction of *invasive and exotic species*, which can alter the structure of native plant communities, may exacerbate this fuel problem.[6] The extent that the landscape has been altered as a result of fire suppression is reflected in the *condition class* of the Unit area. Condition class describes the degree of departure from the historical *natural fire regime*. Where the condition class indicates that fire has been absent for an unnaturally long time, the hazard and potential damages are high to both the environment and human developments in the area. Approximately 48% of the East Klamath Planning Unit is condition class 3, meaning the fire regime is significantly altered from the historical range; and approximately 41% of the area is condition class 2, or moderately altered from the historical range.

In the past decade there has been frequent wildfire activity within and adjacent to the Unit. The names, year, and acreage covered by the most recent major fire events within this Unit are as follows:[7]

- Backbone Fire, 2009: 6,712 acres.
- Siskiyou/Blue 2 Fire, 2008: 99,797 acres.
- Panther Fire, 2008: 53,149 acres.
- The Ukonom Fire, 2008: 80,147 acres.
- The Anthony Milne Fire, 2008: 1,778 acres.
- Elk Complex Fire, 2006: 73 acres.
- Somes Fire, 2006: 15,624 acres.
- Uncles Fire, 2006: 3,760 acres.
- Titus Fire, 2006: 6,272 acres.
- Hancock Fire, 2006: 22,170 acres.

Humans and lightning strikes are the main wildfire *ignition sources* here. While lightning-caused ignitions are fewer and scattered sporadically throughout the unit, human-caused ignitions

[4]Firewise Communities/USA Recognition Program. (2011). *Orleans Community Assessment.* (p.4.)
[5] Orleans/Somes Bar Fire Safe Council. (2007, September). *Orleans/Somes Bar Community Wildfire Protection Plan.* (p.6.) Retrieved from http://www.mkwc.org/publications/fireandfuels/firesafecouncil/CWPP_OSB_9_21_07_NoPictures.pdf.
[6] Orleans/Somes Bar Fire Safe Council. (2007, September). *Orleans/Somes Bar Community Wildfire Protection Plan.* (p.12.)
[7] For a more detailed list, including fire severity, please refer to page 11 of the *2012 Orleans/Somes Bar Community Wildfire Protection Plan.*

are more densely centralized near Orleans and along creeks, rivers, and roads.[8] Vehicles can also be ignition sources where accumulated *fuel loads* exist on the side of the road.

Dead plant matter and vegetation with low *moisture levels* within 100-150 feet of homesteads pose some of the greatest threats to *structural ignitability*. Of particular concern are houses with needles and leaves accumulating on rooftops or in rain gutters. Houses with wooden rooftops and sidings add to this risk, as do the presence of wooden decks, particularly those with dead plant matter accumulated underneath. Vegetation around structures vary; some residences on high river bars may support farms and gardens, while other parcels may be largely forested or contain pastures in small-to-medium openings in the forest.[9] Although private properties tend to be located on more gentle terrain, some homes are surrounded by steep slopes that can limit their defensible areas and put structures in the line of up-hill spreading wildfires. Figure IV.3-2 found at the end of this Unit Action Plan illustrates risks and hazards identified by community members at public workshops and can be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/.

Highway 96 is the central *ingress and egress* route, with numerous smaller roads connecting residences and neighborhoods to it. Poor, or complete lack of *signage* at roads and intersections pose potential problems for emergency ingress and egress; this is especially true for more remote residences that are further away from the town. The narrowness of smaller roads leading to these remote residences could create serious complications for emergency vehicle responses trying to gain access during simultaneous home evacuations. Routes may also be overgrown with vegetation, and many properties have inadequate vehicle *turn-around spaces*.[10] The potential for landslides in the area could also inhibit access.

According to the Orleans/Somes Bar CWPP, the risk of fuel hazard and wildland fire occurrence is "low" around many of the important community structures, such as the Karuk Medical Clinic and Department of Natural Resources, the Orleans Elementary School, and the Panamnik Building. However, the vast majority of neighborhoods and residences within the Unit are designated "medium" and "high" risk for fuel hazard and wildland fire occurrence.[11]

The Orleans Community Service District provides potable water to a population of approximately 300 and services 1.59 square miles. Their critical infrastructure and equipment includes: approximately 100 miles of water mains, a water treatment facility, and three filters; one 100,000 gallon redwood tank, and one pump station with one 5-hp pump; and two computerized pumps, as well as 33 fire hydrants.[12] Residents outside the Service District obtain water through other means, such as drawing from nearby creeks and holding tanks. *Fire protection water* may also be *drafted* from the following locations:

- Big Bar
- Orleans Bar
- Red Cap Bar
- Ullathorne

The map in Figure IV.3-2 found at the end of this Planning Unit Action Plan illustrates these *drafting sites* as well as other community-identified wildfire *protection resources*. The map can

[8] Orleans/Somes Bar Fire Safe Council. (2007, September). Figure 3.2: Fire starts by cause and ignition density. *Orleans/Somes Bar Community Wildfire Protection Plan.*

[9] Firewise Communities/USA Recognition Program. (2011). *Orleans Community Assessment.* (p.5.)

[10] Firewise Communities/USA Recognition Program. (2011). *Orleans Community Assessment.* (p.8.)

[11] Orleans/Somes Bar Fire Safe Council. (2007, September). Table 4.1: Risk assessment for structures at risk. *Orleans/Somes Bar Community Wildfire Protection Plan*.

[12] County of Humboldt, Natural Resources Planning. (2008). *Humboldt Operational Area Hazard Mitigation Plan; Volume 2 – Planning Partner Annexes.* (p. 11-1.) Retrieved from http://www.co.humboldt.ca.us/natural-resources/hazardmitigation/?inc=finaldraft

be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/.

Because of the severe level of wildfire risk and past experiences with wildfire, residents in this Planning Unit have an acute understanding of the need to take fire *hazard mitigation* action. This high level of awareness coupled with the fire safety education efforts of the OSB FSC and the OVFD have led to many residents taking steps to reduce their vulnerability to damage from wildfire. Wildfire mitigation steps include managing hazardous vegetation around homes through *manual and mechanical fuel reduction*, *prescribed burning*, improving signage, development of water sources to increase firefighting capacity, *fuels treatment* along critical *access routes*, and extensive pre-fire planning efforts in conjunction with the Six Rivers National Forest – Orleans Ranger District. However, there remains work to be done; wildfire mitigation recommendations are made below in the unit action plan.

IV.3.4. East Klamath Values and Assets at Risk

Assets at risk can be defined as those things that are important to quality of life that can be threatened with destruction or loss from wildfire. These may include community assets such as homes and businesses, as well as environmental values such as wildlife habitat, natural resources, and air quality, along with any other important attribute that individual communities rely on for their well being. Loss or damage to community assets as a result of wildfire can have short- or long-term impacts of varying severity, depending on the asset. Short-term loss caused by a *wildfire* can include the destruction of residences, commercial assets, timber, wildlife habitat, scenic vistas, and *watersheds*. Long-term effects may include displaced persons, smaller timber harvests, reduced access to affected recreational areas, and destruction of cultural, ecological, and economic resources, and community infrastructure.

The majority of *assets at risk* in this community are residential homes, as well as community, tribal, and United States Forest Service (USFS) facilities, and farmlands. The Panamnik Elder Building, where the Mid Klamath Watershed Council meets, is another noteworthy asset at risk. River recreation is popular during the summer months and river access locations are also values at risk. Fewer than a dozen small campgrounds border rivers and creeks in the area, and the Forest Service maintains public river access spots as well. Additionally, Sandy Bar Ranch, just north of Orleans, supports several small visitor cabins along the Salmon River. Other assets in this unit include communications and utility infrastructure.

The map in Figure IV.3-2 found at the end of this Unit Action Plan illustrates values and assets at risk to wildfire identified by community members at public workshops. The map can be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS[13] Portal, "Fire Planning" section: http://gis.co.humboldt.ca.us/. Some of the community-identified assets at risk within this Unit include:

- Karuk Community Center
- Thunder Mountain/Madrone Neighborhood Water Supply
- Crawford Creek Watershed
- Perch Creek Area

IV.3.5. East Klamath Community Preparedness

Orleans has a rich recent history of community preparedness. The community has been informed and abetted by the OSB FSC since 2001, now also known as the Orleans Firewise Board.

> "The mission of the OBS FSC is to help plan, implement, and monitor the reinstatement of historic fire regimes primarily through strategic fuel reduction in

[13] Geographic Information Systems (GIS).

a manner that protects life, property, improves forest health, and enhances the resources valued by its stakeholders."[14]

The OSB FSC has been awarded nearly $1 million in grant funding to support projects such as constructing *shaded fuelbreaks*, prescribed burning programs, community volunteer brushing and burning workdays, and a community mow and *chip program.* [15]

To date, the OSB FSC has facilitated the construction of over 1,400 acres of shaded fuelbreaks, burned nearly 400 acres of private lands, and mowed approximately 60 acres annually as part of its "mow and chip" program. As part of the OSB FSC's ongoing community fire awareness campaign, they have created a model *Fire Safe* Demonstration Garden at the Karuk Tribe's Native Plant Demonstration Garden behind the Orleans Medical Clinic. The OSB FSC has also produced two videos ("Sparking a Change: Burning for a Fire-Safe Community and Forest," which documents their prescribed burning program, and "Lifestyles of the Rural and Fire Safe," which highlights local residents who utilize diverse methods to protect their homes from wildfires), and is currently working on a larger video project documenting the movement to increase the use of prescribed fire as a land management tool for improving the *resiliency* of communities and ecosystems to wildfire.

Additionally, the OSB FSC has collaborated with the County of Humboldt to implement the *Fire-adapted Landscapes and Safe Homes (FLASH) program*. FLASH is a rebate program that reimburses property owners for *hazardous vegetation management* completed around their homes, along access routes, and in particularly hazardous areas. Between 2010 and 2011, over 46 acres were treated under the FLASH program and 26 site visits including a home risk assessment were conducted by FSC staff. The program has received additional funding for 2012-2013 and the goal is to treat 25 more acres.

The OSB FSC, in collaboration with the OVFD, the County of Humboldt, and CAL FIRE, achieved national Firewise recognition for the community of Orleans in November 2011. The National Fire Protection Association's (NFPA) Firewise Communities program teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action to wildfire prevent losses. The program provides many tools and resources to communities. The Orleans Firewise Community Assessment and Action Plan provide residents with information and guidance for taking action on an individual and community-wide level to address wildfire hazards.

The OBS FSC also coordinated the creation of the Orleans-Somes Bar CWPP, which was completed in January 2012. Collaborators included: Orleans VFD, USFS, Karuk Tribe, CAL FIRE, Salmon River FSC, the Humboldt County FSC, and the FSC of Siskiyou County. The Plan's primary goals are "to protect life, property, and resources in and around the Orleans/Somes Bar community, especially in regards to protection from wildland fire."[16] The Plan is also intended to enhance collaboration between local, state, tribal, and federal wildland fire protection agencies as well as community members, and to provide communities, agencies and the Karuk Tribe with information that can be used to guide the planning and implementation of community fire-safety projects.

The OBS FSC can be reached by calling Dale or Giselle Nova (joint coordinators) at (530)-926-2089, by e-mail at: nova@firesafesiskiyou.org, or by visiting their website at: http://firesafesiskiyou.org/OrleansSomesBar/HomePage.

[14] Orleans/Somes Bar Fire Safe Council. (2007, September). *Orleans/Somes Bar Community Wildfire Protection Plan.* (p.3.)

[15] Firewise Communities/USA Recognition Program. (2011). *Orleans Community Assessment.* (p. 6.)

[16] Orleans/Somes Bar Fire Safe Council. (2007, September). *Orleans/Somes Bar Community Wildfire Protection Plan.* (p. 3.)

IV.3.6. East Klamath Fire Protection Level of Service

Community fire protection within the Unit is provided by the OVFD, which serves 30 square miles, and provides *mutual aid* on another 30 square miles. The OVFD is comprised of 12 volunteer firefighters with 6 support volunteers. Their *apparatuses* include: one type-1 engine, one type-3 engine, a rescue rig, and a 3,500 gallon *water tender*. This group also provides *Advance Life Support/Basic Life Support* (ALS/BLS) medical support to the Lower Middle Klamath River community. The OVFD can be reached by calling (530) 627-3344.

The USFS is responsible for wildland fire protection. A cooperative agreement enables the USFS to respond to fires on private properties, with consent from landowners, tribal representatives, and the OVFD. Additionally the USFS Orleans Ranger District may provide firefighting resources if the OVFD is in need of aid; reciprocally, the OVFD may respond to requests for additional support from the USFS. These two agencies also share the responsibility of responding to threats of fire spreading as a result of vehicular accidents.

Many communities in this Unit have various needs associated with improving the availability of emergency water for wildfire protection. There are some locations where firefighting water is not available or where emergency water storage is needed to supplement the potentially over-taxed municipal water supply. Many existing water sources are in need of maintenance, protection, or improvements. There is also a need to make the location of existing water sources more apparent to firefighters, and for community members to ensure that their water sources are properly outfitted for firefighting equipment.

IV.3.7. East Klamath Evacuation

Evacuation from the East Klamath Planning Unit will travel either south-west or north-east along Highway 96, depending on law enforcement recommendations based on *fire behavior*, wind pattern, traffic, and ingress of emergency vehicles. There are numerous smaller roads connecting residences and neighborhoods to Highway 96. Adequate ingress and egress along these roads is vital to a large portion of the community that may need access to the main highway *evacuation route* and for firefighters who will be using the roads to access wildfires burning in up-slope areas. Because of their importance, some of these roads have been given an overall community priority rating as emergency access routes in the Orleans/Somes Bar CWPP.

Overall priority for emergency access routes was identified by using a simple point scale corresponding to overall risk and community value rankings. Community value was determined by “the number of people served by the route and the route’s strategic placement for fire protection for the entire community.”[17] The majority of the emergency access routes were assessed as having "high" or "medium" overall risk based on fuel hazard, risk of wildland fire occurrence, and level of firefighting capability. The following roads rated "high" in overall priority as emergency access routes in the Orleans/Somes Bar CWPP and should be the first to receive wildfire hazard mitigation treatments:[18]

[17] Orleans/Somes Bar Community Wildfire Protection Plan, January 2012, p.30

[18] Orleans/Somes Bar Fire Safe Council. (2007, September). Table 5.3: Priority for other areas of community importance. *Orleans/Somes Bar Community Wildfire Protection Plan.*

- Eyeese Road
- Lower and Upper Nantucket Roads
- Ishi Pishi Road
- Ten Eyck Mine Road
- Bark Shanty Road
- Madrone Lane Thunder Mountain Road
- East and West Pearch Creek Roads
- Orleans School Road
- Ferris Ranch Road
- Red Cap Road
- Gold Dredge Road
- Big Rock Road
- Camp Creek Road
- Lower Camp Creek Road.

Evacuation impediments may include: landslides, fallen trees, overgrown vegetation, poorly marked streets and intersections, and *one-way-in, one-way-out roads* that could inhibit evacuation and emergency response vehicles, or leave residents stranded should the roads become blocked.

During wildfire events that have the potential to threaten personal safety, community evacuation sites may be established where residents can go to survive a wildfire. Evacuation sites will be established in different locations depending on the anticipated path of the wildfire. The determination for the location of these sites is normally made by Humboldt County Emergency Operations Center Incident Commander in cooperation with an *Incident Management Team*. The Humboldt County Sheriffs and Emergency Officials will use mass communication and door-to-door methods to inform residents about the threat and where residents should go to take shelter.

If a catastrophic event occurs, residents may not be able to reach designated evacuation sites. In such cases, residents may need to make decisions on their own about seeking shelter where they can survive the passage of the wildfire until they can reach an evacuation site. It can be very difficult to determine the right thing to do as the fire approaches. Before a wildfire threatens, community members should talk to their local fire department about evacuation procedures in their neighborhood.

See section V.2.3 in Part V. Fire-Safe Communities for more information on preparing for safe evacuation and evacuation planning for pets and livestock. Also see section II.3.5 Evacuation Routes and Vulnerability in Part II. Risk Assessment for information about evacuation procedures and challenges in Humboldt County.

IV.3.8. East Klamath Community Identified Potential Projects

The following section includes a summary of potential projects identified through the community processes discussed above. Some of the potential projects are illustrated on the community-identified projects map found at the end of this Unit Action Plan (Figure IV.3-3). This map includes projects carried over from the 2006 fire-planning process and those identified and refined during the OSB local CWPP and the 2012 County CWPP update process. In addition, Figure IV.3-2 illustrates community-identified Values and Assets, Hazards and Risks, and Wildfire Protection Resources. The maps in Figure IV.3-2 and Figure IV.3-3 can each be used as a key to access detailed descriptions of community-identified fire planning features on the Humboldt County Web GIS Portal, “Fire Planning” section: http://gis.co.humboldt.ca.us/.

Because of the tremendous amount of work that has been accomplished within this unit and the continued refinement of priorities that is underway, a project matrix was not included in this Unit Action Plan. All of the community identified project information is cataloged in the Web GIS Portal described above and this CWPP incorporates that information by reference here. This information will continue to be made available as a resource for capturing grant funds and continued project implementation tracking.

Project ideas are also listed that are not visible on the maps, because they are not geographically based. These proposed actions also add to and expand upon the 2006 plan, based on the 2012 process (including the County CWPP update, the completion of the local CWPP, and

the Firewise action plan). Because of the complexity of the planning process in this unit, the proposed projects are broken out into the following three categories:

- CWPP Action Items,
- Neighborhood Meeting Action Items, and
- Firewise Action Items

CWPP Action Items

The Orleans/Somes Bar CWPP lists and outlines various types of projects that have been proposed to improve fire safety in the area in a five to ten year action plan. These projects fall under the categories of:

- Education
- Planning and Coordination
- Fuels Reduction
- Policy Modification;
- Infrastructure
- Fire protection
- Utilization, and
- Research and Monitoring.

The Orleans Somes Bar CWPP also includes a compilation of community-identified proposed projects, which was generated through evaluation of projects from the 2006 Humboldt County Master Fire Protection Plan and 2009-2010 Humboldt County Hazardous Fuels Reduction Plan Update. These projects were reviewed and refined in 2012 by local FSC representatives, Humboldt County staff, and fire agency personnel. Mapped projects are shown on the map in Figure IV.3-3 and the project codes correlate with a description that can be found in the Humboldt County Web GIS Portal (http://gis.co.humboldt.ca.us/).

The following summarizes the projects proposed in the Orleans/Somes Bar CWPP. A complete copy of the Orleans/Somes Bar CWPP, which includes the table of coded projects mentioned above, can be found on the Mid-Klamath Watershed Council and Humboldt County FSC websites.

- Proposed **Education** projects include workshops and trainings designed to provide community members with skills and information related to fire safety for the home, prescribed fire uses, and fire protection. Conferences designed to foster mutual understandings of management and research needs among scientists, agencies, and local residents are also proposed.
- Projects proposed to improve **Planning and Coordination** include: meetings to address community fire safety and preparedness; collaborative strategizing to produce community-accessible plans and maps; and community surveys to inform fire prevention efforts.
- Proposed **Fuels Reduction** projects aim to reduce fire risk by creating and maintaining defensible spaces, emergency access routes, ¼ mile buffers in between WUI and residential areas, and prioritized control features, such as firelines, ridge trails, and rivers and creeks.
- Proposed projects related to **Policy** include pushing for community collaboration with regulatory agencies, federal government, the Karuk Tribe, and insurance companies, to promote more inclusive fire management and safety options.
- Proposed **Biomass Utilization** projects are aimed at facilitating the sustainable development and marketing of alternative forest products and small-diameter wood products, which are byproducts of the fuel reduction industry, as well as developing plans for biomass utilization.

- **Fire Protection** projects include keeping the Orleans/Somes Bar Emergency Response Book up to date, and facilitating resident awareness of evacuation options.
- Proposed **Infrastructure** projects include: maintaining emergency access routes, updating community and emergency communication systems, ensuring the availability of adequate water for fire-suppression efforts, and supporting the local fire and rescue organization.
- Projects related to **Research and Monitoring** focus on improving coordination among all stakeholders in the implementation of CWPP objectives, as well as in research efforts to better understand the effects of fire in forest ecosystems. Proposed research efforts include: understanding the effects fuel reduction activities have on various vegetation types and non-timber forest products; understanding the relationship of upslope management on in-stream flows; and examining the flammability of fuel properties.
- Community-identified projects include: creating and maintaining **defensible space** in residential areas; conducting **roadside clearance** projects along transportation corridors and emergency access routes; and maintaining the **landscape** with fuel hazard reduction efforts in priority areas.

Neighborhood Meetings

The OVFD and OSB FSC compiled results from neighborhood wildfire safety and emergency response meetings conducted during the months of January and February in the neighborhoods of Camp Creek, Red Cap, Slate Bluff Lammon, Orleans, Perch Creek, Ti Bar/Patterson, and Somes Bar/Offield/Butler. At these meetings, community members discussed and identified needs and potential projects needed to reduce fire hazard and risk and to improve community preparedness in their neighborhoods. The following provides a summary of the projects proposed at these meetings; the full text of notes from these meetings can be found at http://www.mkwc.org/publications/index.html.

- Implement **hazardous fuel reduction** projects throughout the region: along roadsides, in neighborhoods with areas of brush accumulation, within residential defensible spaces, near campgrounds, near water systems, and in between neighborhoods and National Forest areas. Devise alternate methods of completing these projects, as grant funding becomes scarcer.
- Improve community **communication networks** and increase collaborative planning for disaster preparedness.
- Conduct maintenance on existing **water sources**, broaden community awareness about water usage and source locations, work on developing additional water sources, and encourage residents to adapt their water sources to the needs of fire protection equipment. Search for grant funding to aid these efforts.
- Work on ways of improving **ingress and egress**, such as opening access to emergency response vehicles on connective private roads, and creating fire engine turn-around spaces.
- Increase community awareness and access to information about **controlled burns** as well as proper and safe **pile-burning** methods and fuel reduction strategies.
- Augment **collaboration** between fire protection and forestry organizations as well as community members to develop more cohesive wildland fire-management strategies.
- Assess and evaluate the effectiveness of strategies within the **Burned Area Emergency Response** (BAER) program.

Firewise Action Plan

The Firewise Action Plan, which resulted from the community Firewise assessment, contains a list of short-term actions with measurable objectives that can be done within the home ignition zone, within high risk community areas, and the community at large. These actions are consistent

with implementation of the Orleans/Somes Bar CWPP. The following summarize the projects proposed in the Firewise Action Plan:

- **Post road or driveway signs** on at least ten currently unmarked locations.
- Mechanical **fuel reduction** on 50 acres of private property, and controlled burning for fuels reduction on 10 acres of private property.
- Complete wildfire hazard reduction with **FLASH** funding for five property owners.
- Host an **annual Firewise event**.
- Construct a **Fire Information Sign** and Firewise Certification display.
- Encourage **Blue Dot Program** (firefighting water source identification program) participation from five landowners.
- Update the **Emergency Response booklet**.
- Host two additional **outreach events** where Firewise materials will be available.

IV.3.9. East Klamath Action Plan

The following items are the initial priorities for community action for the East Klamath Planning Unit as recommended by this Humboldt County CWPP (not listed in order of priority). In an ideal world, everything recommended here would be implemented. However, it must be understood that implementation will be subject to the availability of funds and other resources and the willingness/ability of community members and Plan Partners to take action. This Action Plan can be cited in grant applications to leverage needed implementation funds and used to guide and inspire action.

- Maintain and support the OSB FSC to facilitate community wildfire preparedness and mitigation.
- Ensure that the OSB FSC continues to be represented on the Humboldt County FSC.
- Maintain and support the OVFD to provide community emergency services.
- OSB FSC and OVFD work with community members to further refine and integrate the lists of potential projects identified through the various fire planning processes discussed above and collaborate to prioritize and implement them (See the list included in the section above as well as projects illustrated on the Web GIS Portal).
- Apply to renew participation in the Firewise Communities/USA recognition program annually. This will include an annual update of the Firewise action plan, which can be used as a short-term OSB CWPP implementation tool. Actively implementing and maintaining the Firewise action plan on an annual basis will take small bites out of the OSB CWPP which has a five to ten year planning horizon.
- Share GIS data sets between local representatives and County staff to maintain the projects included in the County Web GIS Portal.
- OSB FSC and OVFD work with the Humboldt County Office of Emergency to engage community members in evacuation preparedness. Efforts should be made to ensure that local gates are open or accessible during Red Flag conditions.