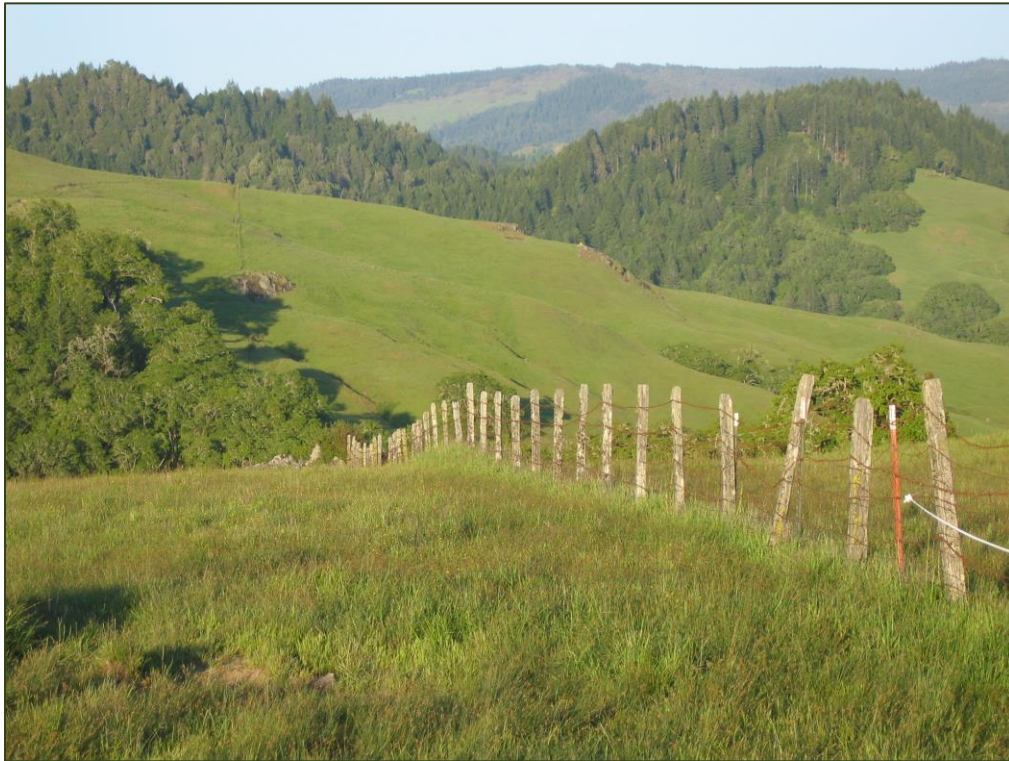


KNEELAND–MAPLE CREEK PLANNING UNIT ACTION PLAN



Iaqua Ranch. Photo: Northcoast Regional Land Trust.

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Helpful Links

KNEELAND FIREWISE:	https://humboldt.gov/2425/Kneeland
KNEELAND FIRE PROTECTION DISTRICT:	http://kneelandfire.org
CAL FIRE HUMBOLDT-DEL NORTE UNIT:	http://www.fire.ca.gov/HUU
HUMBOLDT COUNTY WEB GIS:	https://webgis.co.humboldt.ca.us/HCEGIS2.6_CWPP
HUMBOLDT COUNTY FIRE SAFE COUNCIL (HCFSC):	https://humboldt.gov/FireSafeCouncil
HCFSC REPRESENTATIVE, CYBELLE IMMITT:	cimmit@co.humboldt.ca.us

4.9 KNEELAND–MAPLE CREEK PLANNING UNIT ACTION PLAN

4.9.1 KNEELAND–MAPLE CREEK PLANNING UNIT DESCRIPTION



A larger map of this planning unit can be viewed in Map 4.9.1, *Kneeland–Maple Creek Planning Unit*.

Wildland-urban interface (WUI): The zone where structures and other human developments meet, or intermingle with, undeveloped wildlands.

The Kneeland–Maple Creek Planning Unit encompasses 123,233 acres situated in the geographic center of Humboldt County. The Unit lies east of Eureka and the Headwaters Forest Reserve, west of Six Rivers National Forest, with the City of Blue Lake located to the north, and Highway 36 to the south. Kneeland Road, Greenwood Heights Drive, and Fickle Hill Road are the primary transportation routes through this Unit, although Maple Creek and Butler Valley Roads are important routes as well. The Mad River is the central waterway, entering the Unit from the southeast and flowing north towards Arcata, where it meets the Pacific Ocean. Other water bodies include Maple Creek in the northern Unit area, Lawrence Creek in the southwestern portion, and the North Fork of Yager Creek in the southern region.

All residences in this Unit exist within the *wildland-urban interface* (WUI). Kneeland and Maple Creek comprise the main communities in this unit, however, there are residential properties scattered throughout the entire region. The majority of these rural homesteads and neighborhoods are located near Maple Creek, along Kneeland Road, and densely

clustered along Greenwood Heights Drive. A small but dense neighborhood also exists along Tim Mullen Road, which branches off of Kneeland Road, en route to Bridgeville. Private land is the dominant ownership pattern; the Unit largely contains residential parcels, a few tracts of ranchland, and industrially owned timberlands to the north and south. A few parcels of Bureau of Land Management (BLM) land are distributed throughout the area, and a large section of the eastern portion of the Unit falls within the Six Rivers National Forest.

4.9.2 KNEELAND–MAPLE CREEK ASSETS AND VALUES AT RISK

Assets and values at risk are those things that are important to quality of life that can be threatened with destruction or loss from wildfire. These include a variety of things such as homes, businesses, critical infrastructure, cultural sites, wildlife habitat, natural resources, air quality, recreational facilities and areas, historical structures, and any other important attribute that individual communities rely on for their well-being.

Assets at risk in this planning unit mainly include residential homes and neighborhood areas, as well as infrastructure components such as communication towers, power lines, and access roads. Many residents in these communities possess large farm animals and these, along with their associated structures, such as barns and stables, are considered assets at risk as well. Environmentally



Kneeland Airstrip. Photo: CAL FIRE.

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significant assets at risk within this planning unit include the laqua Buttes, a viewshed with great ecological importance to the community, as well as timber resources located throughout the Unit.

Map 4.9.2, found at the end of this Unit Action Plan, illustrates assets and values at risk to wildfire identified by community members at public workshops. More detailed descriptions of community-identified fire planning features can be found on the Humboldt County Web GIS¹ Portal: https://webgis.co.humboldt.ca.us/HCEGIS2.6_CWPP.

Some of the key community-identified assets at risk within this unit are listed in the table below. This list is not intended to be comprehensive and illustrates participating community members’ concerns.

FIGURE 4.9.1 KNEELAND–MAPLE CREEK: ASSETS AT RISK	
○ CDF Station/Airport/Heliport/rare plant species	○ Kneeland School
○ Greenwood Heights/old Post Office building	○ Maple Creek School/Fire Station
○ Blue Slide Church Camp	○ Maple Creek swimming hole/recreation

4.9.3 KNEELAND–MAPLE CREEK WILDFIRE ENVIRONMENT

A detailed description of the local area and associated wildfire characteristics is provided in the Kneeland Firewise® Wildfire Risk Assessment.

Readers are encouraged to review that plan for more details about the wildfire environment. Visit <http://fire.hardinwebdesign.com/index.php/firewise> for more information about Kneeland Firewise® activities and to download the plan.

The majority (65%) of the Kneeland–Maple Creek Planning Unit is zoned “Very High Fire Hazard Severity,” with 35% of the Unit area, particularly in the southern region of the Unit, zoned “High Fire Hazard Severity,” as determined by the California Department of Forestry and Fire Protection (CAL FIRE).²

How is Fire Hazard Severity determined by CAL FIRE?

- The classification of a zone as moderate, high, or very high fire hazard is based on a combination of how a fire will behave and the probability of flames and embers threatening buildings.
- Zone boundaries and hazard levels are determined based on vegetation. For wildland areas, the current FHSZ model uses burn probability and expected fire behavior based on weather, fuel, and terrain conditions. For urban areas, zone boundaries and hazard levels are based on vegetation density, adjacent wildland FHSZ scores, and distance from wildland areas.
- Each area of the map gets a score for flame length, embers, and the likelihood of the area burning. Scores are then averaged over the zone areas.
- While FHS zones do not predict when or where a wildfire will occur, they do identify areas where wildfire hazards could be more severe and therefore are of greater concern.

¹ Geographic Information Systems (GIS).

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://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps

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Although Kneeland is close to the coastal population centers of Eureka and Arcata, the climate is hotter and drier in the summer. The wildfire environment changes significantly traveling from the northeastern parts of the Unit where Greenwood Heights Drive winds up from the greater Eureka area through the moist redwoods into the higher elevation grasslands and oak woodlands where wildfire hazard severity is higher. Population density also changes across the unit from west to east with many homes clustered along main roads closer to the cities and a more dispersed development pattern throughout the rest of the Planning Unit. Seventy-five percent of the Kneeland Fire District is private timberland and/or parcels greater than 400 acres. Fire service representatives report that nearly one-hundred percent of ignitions are generated from the remaining twenty-five percent of the district, or the areas comprised of homesteads on smaller parcels.

Possible ignition sources in this planning unit are primarily human-related, including arson, poorly maintained campfires or brush piles, smoking, equipment use, vehicles or vehicular accidents, and downed power lines. There has been a recurring problem of stolen or abandoned vehicles being torched in areas along Kneeland Road during the time school graduations happen, which often correlates with the beginning of fire season. Lightning is the primary source of naturally induced wildfire in this planning unit.

*For a closer look at fire hazard severity in this planning unit, see Map 4.9.2, **Kneeland–Maple Creek Community-Identified Protection Resources, Values/Assets, & Risks/Hazards.***

Fire History

Traditionally, fire was an integral part of the ecosystems in this region. Forest management by indigenous tribes often included low-intensity, intentional burns that helped enhance forest ecosystems and prevent the accumulation of high fuel loads. Some of the early agricultural settlers in the late 1800s used intentional burning to clear and maintain grasslands for pasture animals. A heavy *fire suppression* campaign beginning in the 1930s has allowed the accumulation of dense, flammable vegetation in forest understories, 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 fuels. Intense timber harvests during the 20th century further exacerbated damages to forest ecosystem health.

Fire suppression: All the work and activities connected with control and fire-extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

Natural fire regime: A natural fire regime is a classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation.

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 49% of the Kneeland–Maple Creek Planning Unit is condition class 3, meaning the fire regime is significantly altered from the historical range; and approximately 20% of the area is condition class 2, or moderately altered from the historical range.

Despite its high fire hazard rating, recent large fire events have been limited to a few blazes and contained to a small range. Major fires in the last 20 years include only the Kneeland Fire in 2009, which burned 26 acres, and the Iaquia Fire in July 2008, which burned 42 acres.

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FIGURE 4.9.2 KNEELAND–MAPLE CREEK: FIRES OVER 10 ACRES 1908-2017³

Fire Name	Cause	Year	Acres	
			In Unit	Total
L. Sibley	Unknown/Unidentified	1952	1,184	1,184
C. Wilson	Unknown/Unidentified	1960	393	393
L.M. Shaw	Unknown/Unidentified	1952	391	391
Pearson Lbr. Co.	Unknown/Unidentified	1956	350	350
Wilson	Debris	1936	189	189
New River Bluff	Smoking	1931	99	99
Cooper Ranch	Debris	1936	90	90
Iaqua	Lightning	2008	42	42
Kneeland	Lightning	2009	26	26
Rock	Debris	1936	10	48

Note: An interactive map of fire history through 1908 is available through the Web GIS.

Structural Ignitability

Homes in this planning unit exist within the WUI, which increases the risk of wildland fires becoming structural fires, and vice versa. Embers carried on the wind from nearby wildfires—even miles away—could ignite homes within this planning unit. This was made all too clear during recent, catastrophic wildfire events in Northern California that claimed thousands of homes. Many of the homes lost burned from the inside out, as embers were forced inside by strong winds, or sucked in through ventilation systems. For this reason, home hardening should be a top priority for homeowners concerned about their fire resiliency. Roofs and eaves, windows, vents, and siding are all components that can be upgraded to reduce a home’s vulnerability to loss. Resources for homeowners ready to take this leap in fire preparedness include *Appendix L, Living with Wildfire* and *Home Survival in Wildfire-Prone Areas*⁴, published by the University of California Agriculture and Natural Resources. **Based on field observations, there are many homes in this planning unit where steps need to be taken to ensure structure survival when wildfire is nearby.**

Home Ignition Zone: The home and area out to approximately 100 feet, where local conditions affect the potential ignitability of a home during a wildfire.

Structural ignitability: The ease with which a home or other structure ignites.

Wildfire risk is exacerbated by the presence of dense vegetation growing in the *Home Ignition Zone* and flammable items in direct contact with the structure. 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. Although residential properties within this planning unit tend to be located

³ FRAP. (2018). State Fire Perimeters 1908-2017.

⁴ Quarles, S.L., Valachovic, Y., Nakamura, G.M., Nader G.A., & De Lasaux, M.J. (2010). Home Survival in Wildfire-Prone Areas: Building Materials and Design Considerations. University of California, Agriculture and Natural Resources. ANR Publication 8393. Retrieved from <https://anrcatalog.ucanr.edu/pdf/8393.pdf>

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on more gentle terrain, some homes are surrounded by steep slopes that can limit their defensible space and put structures in the line of up-hill spreading wildfires.

Managing fuels for at least 100 feet of defensible space is highly recommended by this CWPP and is mandated by California Public Resources Code 4291⁵. By reducing the intensity and rate of spread of a fire, defensible space provides suppression personnel the option to deploy their resources to defend the home; it also reduces the likelihood that a house fire will spread outwards. Likewise, managing fuels along access roads provides safer escape routes for both residents and suppression personnel.

Overgrown vegetation poses a threat not just to the property on which it is growing – it increases the ability of fire to spread, especially if it is encroaching on adjacent properties. Neighbors are encouraged to express their concerns to property owners whose properties do not currently meet defensible space standards. CAL FIRE can help inspire action by performing defensible space inspections on properties with hazardous fuels.

Map 4.9.2, found at the end of this Planning Unit Action Plan, illustrates risks and hazards identified by community members at public workshops with an underlay map of fire hazard severity zones. More detailed descriptions of community-identified fire planning features can be found on the Humboldt County Web GIS Portal: https://webgis.co.humboldt.ca.us/HCEGIS2.6_CWPP.

Water Sources

Communities in this planning unit are not served by any community service districts, so residents obtain water through other means, such as drawing from nearby creeks and holding tanks. A number of water tanks located throughout the community are available for fire protection water. Community members identified four 2,500-3,000 gallon tanks, a 15,000 gallon tank, a 20,000 gallon tank, and a 30,000 gallon tank that could be made available for use by firefighters.

The communities in this unit have various needs associated with improving the availability of emergency water for wildfire protection. 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 with visible markers, and for community members to ensure that their water sources are properly outfitted for firefighting equipment.

Community-identified locations from which fire protection water could be drawn are listed below. This list is not intended to be comprehensive and illustrates participating community members' knowledge.

FIGURE 4.9.3 KNEELAND–MAPLE CREEK: FIRE PROTECTION WATER DRAFT SITES	
○ A 1/2-acre pond – helicopter accessible	○ A 1/4-acre pond – helicopter accessible
○ Barry Road pond “B” – helicopter accessible	○ Barry Road pond “C” – helicopter accessible
<i>Note: Locations identified at community workshops and will need to be vetted further with local firefighting personnel.</i>	

Map 4.9.2, found at the end of this Unit Action Plan, illustrates these drafting sites as well as other community-identified wildfire protection resources. More detailed descriptions of community-identified fire planning features can be found on Humboldt County Web GIS Portal: https://webgis.co.humboldt.ca.us/HCEGIS2.6_CWPP.

⁵ California Public Resources Code 4291 is provided as *Appendix K* of this CWPP.

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4.9.4 KNEELAND–MAPLE CREEK FIRE PROTECTION CAPABILITIES

Community fire protection within the Unit is provided by the Kneeland Fire Protection District (KFPD), which was established in 1990 and is served by the Kneeland *Volunteer Fire Department* (KVFD). The KVFD serves approximately 38 square miles; the out of district response area consists of buffer zones surrounding Freshwater, Maple Creek, Butler Valley Road, Fickle Hill Road, Bridgeville, and Showers Pass.⁶ The KFPD has formal *mutual aid agreements* with CAL FIRE, Humboldt Bay Fire and Arcata Fire Protection District for giving and receiving additional assistance.

Volunteer fire department: A fire department associated with a local agency (either a city or a special district authorized to provide fire protection) that is comprised almost entirely of volunteer, unpaid, firefighters, whose primary objective is community fire protection.

Mutual aid agreements: A reciprocal aid agreement between two or more agencies that defines what resources each will provide to the other in response to certain predetermined types of emergencies. Mutual aid response is provided upon request.

Goodwill service: Fire protection services provided by a fire district to a location that is outside of the district’s jurisdictional boundaries and for which no compensation is provided neither through direct payment nor through a tax base.

FIGURE 4.9.4 KNEELAND–MAPLE CREEK: FIRE PROTECTION RESOURCES ⁷			
PERSONNEL	SERVES		RESPONSE
	RESIDENTS	AREA (SQ. MI)	
KNEELAND VOLUNTEER FIRE DEPARTMENT (KVFD) – PHONE: (707) 442-3252 WEB: www.kneelandfire.org			
9 Volunteer 3 Auxiliary	712	District: 38 Out of District: 65+	<ul style="list-style-type: none"> ○ Structure and vegetation fires ○ Emergency medical and rescue services
FIRE APPARATUS			
<ul style="list-style-type: none"> ○ (2) Type-1 engine, 600 and 750 gallon ○ Type-2 engine, 800 gallon 		<ul style="list-style-type: none"> ○ Water tender, 2,000 gallon ○ Rescue mini-pumper truck, 250 gallon ○ Chief’s pick-up truck, 100 gallon 	

CAL FIRE is responsible for responding to wildland fires in the Unit. However, due to the remoteness of the area, the KVFD is often the first to respond to wildfires; however, volunteers’ equipment and training experience limits their ability to contain large wildfires. In these instances, volunteer firefighters prioritize the protection of lives and structures while doing what they can to address the fire until assistance from CAL FIRE arrives. The Kneeland Helitack Base is also located within this planning unit. The Base provides wildfire air support to areas as far away as Oregon, Mendocino, and Weaverville and is maintained by CAL FIRE.

The KFPD is in the process of building a new fire station, which will also serve as the Kneeland Community Center. This effort was given a boost by local voters in 2014 when 82% of those casting a vote supported a supplemental property tax, which increased District revenue – revenue that has been used for facility upgrades, maintenance, and equipment replacement. The biggest challenge faced by the department is volunteer recruitment and retention. Volunteers are greatly needed, for firefighting especially, but for administration, fundraising, and maintenance activities as well.

⁶ Humboldt County Fire Safe Council. (2018). Humboldt County Fire Chiefs’ Association Annual Report, 2017. (p. 35). Retrieved from <https://humboldtqov.org/Archive.aspx?AMID=75>

⁷ Humboldt County Fire Safe Council. (2018). Humboldt County Fire Chiefs’ Association Annual Report, 2017.

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The volunteer fire department in Maple Creek was forced to close due to insufficient funding and volunteers. Now the community relies on seasonal wildfire response from CAL FIRE and the *goodwill service* of fire protection resources in neighboring communities, such as the Kneeland and Blue Lake fire protection districts. Responding to the Maple Creek area and other neighborhoods outside of the KFPD boundary puts a strain on the operating budget and impacts the service life of equipment.



(Left to Right) KVFD presenting to Kneeland students, Measure Z funded fire engine, laying the foundation of the Kneeland firehall. Photos: KFPD.

4.9.5 KNEELAND–MAPLE CREEK EVACUATION

When wildfires have the potential to become disasters by threatening life and safety, procedures are initiated to support the safe evacuation of people, domestic animals, and livestock from potentially hazardous areas. During such events, 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 and location of the affected population.** The determination for the location of these sites is normally made by the Humboldt County Emergency Operations Center Incident Commander in cooperation with an Incident Management Team. The Humboldt County Sheriff and Emergency Officials will use the Humboldt Alert mass communication system (<https://humboldt.gov/alerts>) and door-to-door methods to inform residents about the threat and where residents should go to take shelter.

Evacuation routes in the Kneeland–Maple Creek Planning Unit will depend on the location of the community at risk and law enforcement recommendations based on fire behavior, wind patterns, traffic, and ingress of emergency vehicles. Evacuation routes may travel northwest along either Kneeland Road, Greenwood Heights Drive, or Fickle Hill Road towards Arcata, or south along Kneeland Road towards Bridgeville. The main roads are somewhat interconnected, though remote, and all of them are windy and narrow in parts. There are a number of smaller roads connecting residences and neighborhoods to these primary transportation routes. The narrowness of many of these roads could create serious complications for emergency vehicle response trying to gain access during simultaneous home evacuations. Overgrowth of vegetation along roads and driveways and inadequate vehicle turn around spaces could create problems as well. Poor or complete lack of signage at roads and intersections pose potential problems for emergency ingress and egress.

FIGURE 4.9.5 KNEELAND–MAPLE CREEK: POTENTIAL EVACUATION ROUTES

- Northwest along **Kneeland Road, Greenwood Heights Drive.**
- **Fickle Hill Road** towards Arcata, or south along **Kneeland Road** towards Bridgeville.
- **Barry, Paddock, and Tim Mullen Roads** connect several neighborhoods to **Kneeland Road.**
- **Mountain View Road** provides an alternative route south from **Kneeland Road.**
- **Butler Valley Road** is necessary for connecting Maple Creek to main roads leading west, while **Maple Creek Road** provides northern access to Blue Lake, approximately nine miles away. **Powerline Road** could potentially enable eastern access, with assistance and permission from the U.S. Forest Service.

Other ingress and egress impediments may include steep road sections, fallen trees and power lines, wooden bridges susceptible to burning, and one-way-in, one-way-out roads that could inhibit evacuation

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and emergency response vehicles or leave residents stranded should the roads become blocked. The potential for landslides in the area could inhibit access, particularly if wildfires were initiated by a severe earthquake.

If a catastrophic event occurs, residents and visitors may not be able to reach designated evacuation sites. In such cases, people may need to make decisions on their own about seeking shelter where they can survive the passage of the wildfire. Residents should seek shelter as a last resort, when evacuation is not an option. It can be very difficult to determine the right thing to do as the fire approaches, which is why it is so critical to **have a plan** and to **evacuate early**, if possible. Before a wildfire threatens, community members should research options and talk to fire and emergency service representatives about evacuation procedures, expected fire behavior in their neighborhood, and what to do if they get trapped.⁸ If residents are forced to take shelter, the horrific sound, smoke, and heat of a passing wildfire may be physically and emotionally difficult to endure. It may bring some solace and may help combat the natural urge to flee knowing that all possible measures have been taken to increase the odds of survival.

*See Appendix H, **Living with Wildfire** for more information on preparing for safe evacuation, and evacuation planning for pets and livestock. See also Chapter 5.4.6, **Evacuation Preparedness in Part 5, Risk-Assessment Detail** for information about evacuation procedures and challenges in Humboldt County.*

Humboldt Alert: Humboldt County's Mass-Notification System

- ❖ The best way for emergency personnel to alert you of an emergency in your geographic area. You may choose to be contacted by email, text message, landline, or cellphone – or all four.
- ❖ It is geographically targeted. You will only receive alerts relevant to your geographic area, which is based on the address(es) you provide. The system can hold multiple addresses under one account (ex. home, office, child's school).
- ❖ The service is completely free of charge.
- ❖ To sign-up visit: <https://humboldt.gov/alerts> or contact the Humboldt County Office of Emergency Services **(707) 268-2500**

4.9.6 KNEELAND–MAPLE CREEK COMMUNITY PREPAREDNESS

No local fire safe councils (FSC) currently exist in this planning unit. However, Kneeland was recognized as a Firewise® community in 2015 and has successfully maintained this status since then and serves many of the functions of a FSC. The Firewise Communities/USA® Recognition Program teaches people living within the WUI how to adapt to living with wildfire by preparing for a fire before it occurs. This program empowers communities with tools and resources for reducing their wildfire risk and encourages neighbors to work together to take action to minimize losses from wildfire. As part of the certification process, a committee developed the Kneeland Community Assessment and Firewise® Action Plan, described in *section 4.9.7*.

Fire safe council (FSC): Public and private organizations that comprise a council intended to minimize the potential for wildfire damage to communities and homeowners, while also protecting the health of natural resources. Goals are achieved by distributing fire prevention materials, organizing fire safety programs, implementing fuel-reduction projects, and more. Visit www.firesafecouncil.org.

As resources are available, CAL FIRE conducts defensible space inspections within this planning unit as part of their Fire Safety Education Program. These inspections are intended to determine and encourage compliance with Public Resource Code 4291, which requires residents of California to provide and maintain 100 feet of defensible space around all property structures. These inspections can be a valuable source of information about what a property owner can do to improve their defensible space

⁸ CAL FIRE and Idaho Firewise offer advice on what to do if you become trapped:

<http://www.readyforwildfire.org/What-To-Do-If-Trapped> and <http://idahofirewise.org/evacuation/if-you-get-trapped>.

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and increase the odds that their home will survive a wildfire. Inspections usually take place in the spring but special arrangements can be made by contacting CAL FIRE directly.

CAL-FIRE HUU can be reached by calling **(707) 725-4413** or visiting <http://www.fire.ca.gov/HUU>.

Green Diamond Resource Company and Humboldt Redwood Company have substantial landholdings within this planning unit. In recent years, both companies have undertaken efforts to help reduce the risk of wildfire occurrences on their property and associated with their operations. Both companies treat logging slash in a variety of ways to help reduce fire hazards. Their methods include piling and burning, *broadcast burning*, *mastication* and on-site chipping. As market conditions have allowed, Green Diamond has also conducted post-harvesting *biomass recovery* for power generation with the vegetative debris produced by these activities. State law requires firefighting equipment be maintained at logging operations and inside all vehicles; harvesting operations be suspended at specified levels of low relative humidity; and logging crews make daily fire inspections after work is done during the fire season. Green Diamond also maintains fire trucks and heavy equipment for wildland fire emergencies. Green Diamond Forestry staff and logging and maintenance crews are available to respond to fire emergencies on the company’s timberlands and to assist CAL FIRE at their request. Humboldt Redwood Company has similar capabilities to assist CAL FIRE but depends more on contractors and does not maintain its own logging crews.

Broadcast burning: A controlled burn, where the fire is intentionally ignited and allowed to proceed over a designated area within well-defined boundaries for the reduction of fuel hazard, as a resource management treatment, or both.

Biomass utilization/recovery: The harvest, sale, offer, trade, or utilization of woody biomass to produce bioenergy and the full range of bio-based products including lumber, composites, paper and pulp, furniture, housing components, round wood, ethanol and other liquids, chemicals, and energy feedstocks.

To better understand their vulnerability to fire, Humboldt Redwood Company recently completed a fire risk assessment model for their ownership. This model characterizes fire risk across the ownership utilizing inputs including, but not limited to, fuel composition, topography, weather, and ignition risks. This information is used by forest managers to focus the reduction of fuel loading in strategic areas to reduce the potential impacts of wildfire.

Since the last update of the Humboldt County CWPP, the Kneeland–Maple Creek community has increased their fire preparedness by completing a number of projects through the Firewise® program and the Kneeland Volunteer Fire Department. These accomplishments are listed in the following table.

FIGURE 4.9.6 KNEELAND–MAPLE CREEK: FIRE PREVENTION ACCOMPLISHMENTS	
2015-Present	
○	Gained recognition as a Firewise® Community in 2015 by completing the Kneeland Community Wildfire Risk Assessment and Action Plan.
○	Began hosting annual Firewise® Days and developed fire safety handouts.
○	Upgraded and purchased two new fire engines and new turnout gear.
○	Broke ground on the firehouse foundation and ushered firehouse planning to the bid solicitation stage.
○	Began regular communications on Kneeland Next Door “Kneeland Fire Thought You Would Like to Know”.
○	Published a new webpage for Kneeland Firewise® (http://fire.hardinwebdesign.com/index.php/firewise).
○	Continues to explore options for addressing out-of-district service demand. Received Measure Z funding to support such service for the short term.

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FIGURE 4.9.7 KNEELAND–MAPLE CREEK: FIRE PREVENTION ACCOMPLISHMENTS, CONTINUED

2014-2015
<ul style="list-style-type: none">○ Intensive fuels treatment was completed on over 21 acres across eight properties, through the Fire-adapted Landscapes and Safe Homes or “FLASH” program.○ Multiple landowners partnered with USFWS and NRCS to conduct fuels reduction on their properties.
2013
<ul style="list-style-type: none">○ Voters passed Measure L to provide additional funding for the Kneeland Fire Protection District to support sustainable fire and rescue services.

4.9.7 KNEELAND–MAPLE CREEK LOCAL WILDFIRE PREVENTION PLANS

The Kneeland Firewise® Action Plan⁹, completed in 2015 as part of the Firewise® certification process, was developed in collaboration between community members, the Kneeland Volunteer Fire Department, CAL FIRE, and Humboldt County.¹⁰ The Action Plan contains the following short-term priorities:

- Address lack of community participation by:
 - Hosting an annual Firewise® Day each year.
 - Following through with plans to construct Kneeland Firehouse.
 - Enhancing education and outreach.
- Ensure adequate volunteer capacity, water, and equipment for firefighting by:
 - Enhancing recruitment of volunteer firefighters.
 - Evaluating and replacing firefighting equipment, as needed.
 - Establishing a community
- Address the buildup of fuels by:
 - Reaching out to and educating landowners regarding defensible space and safe pile burning.
 - Seeking funding for fuels reduction projects.
 - Evaluating the feasibility of reinstating controlled burns in Kneeland.

In addition to the Kneeland Firewise® Action plan, this Planning Unit Action Plan will help guide the development of additional projects and priorities aimed at increasing wildfire preparedness in this planning unit. This CWPP provides a list of priority action recommendations reflective of the community concerns and ideas collected through the process described below. *See section 4.9.9, Kneeland–Maple Creek Action Plan for a list of priority actions recommended by this CWPP.*

4.9.8 KNEELAND–MAPLE CREEK COMMUNITY IDENTIFIED POTENTIAL PROJECTS

As part of the larger collaborative planning process to create this CWPP, 14 community wildfire preparedness workshops were held throughout the County. *See Chapter 1.2, Collaborative Planning Process and Appendix B, Planning Process Details for more information.* The workshop for this planning unit was held on October 26, 2017 at Kneeland Elementary School with the following goals:

Provide information:

- Fire protection capabilities and needs.
- Prevention of unplanned human-caused wildfires.
- Wildfire and emergency preparedness.
- The role of wildfire in our local environment.
- The Humboldt County Community Wildfire Protection Plan (CWPP).

Seek Information:

- Obtain local knowledge and concerns regarding assets and hazards.
- Provide an opportunity for direct input into priorities for community fire safety.

⁹ Kneeland Firewise Action Plan. (2015). Retrieved from <https://humboldtqov.org/2425/Kneeland>

¹⁰ Visit <http://fire.hardinwebdesign.com/index.php/firewise> to learn more about Kneeland’s Firewise® activities.

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Through the initial 2004-2005 fire-planning process and the 2012 and 2017 CWPP update processes a number of projects were identified for this planning unit through a community workshop mapping exercise. These projects are illustrated on the community-identified projects map found at the end of this Unit Action Plan (*Map 4.9.3*). New or confirmed existing project ideas proposed during the 2017 update process are summarized in *Figure 4.9.7* and *4.9.8* in this section. *For more information on the mapping exercise, see Appendix B.5, Mapping Exercise Instructions.* The community-identified fire hazards, protection resources, and assets and values at risk discussed throughout this Planning Unit Action Plan (*Map 4.9.2*) reflect information generated by these community workshop mapping exercises, as well as information resulting from direct outreach to local fire departments and residents.

The data collected through these planning processes can also be viewed in the GIS layers within the fire-planning GIS Portal. The GIS Portal allows users to search for and view specific community-identified fire-planning features by location or to zoom into a desired area from an aerial view. The GIS Portal also provides descriptions of each planning feature. To access the Portal, go to: https://webgis.co.humboldt.ca.us/HCEGIS2.6_CWPP. For a copy of fire-planning feature descriptions in table format, please contact the Office of Natural Resources Planning by phone **(707) 267-9542**, or email cimmitt@co.humboldt.ca.us.

The following community-identified project ideas have been identified through the planning process described above and will not be found on the maps or in the GIS Portal but are important to note and evaluate for feasibility.

FIGURE 4.9.8 KNEELAND–MAPLE CREEK: PROPOSED PROJECTS

- Improve signage – home addresses and road names.
- Conduct a fuel reduction and slash collection weekend event; inquire with Humboldt Redwood Company about possible funding.
- Translate the fire department’s hand-written maps of the area into a more sophisticated, bound and laminated map book for emergency responders.

The local residents who attended the October 26, 2017 workshop identified the following projects as their top priority projects to be evaluated for feasibility and implemented over the next five years. The rest of the community-identified projects can be found in the CWPP Web GIS Portal described above.

FIGURE 4.9.9 KNEELAND–MAPLE CREEK: COMMUNITY-IDENTIFIED PRIORITY PROJECTS

PROJECT DESCRIPTION	PROJECT NUMBER
<i>Top Priorities</i>	
Increase KVFD/Citizen Auxiliary recruiting	Non-geographic
Complete the firehouse	Non-geographic
Increase Blue Dot participation	Non-geographic
Purchase community chipper	Non-geographic
Increase burn day signage & education	Non-geographic
<i>Geographic Priorities</i>	
Greenwood Heights Drive defensible space and roadside clearance (tunnel vegetation)	KNE047
Tim Mullen Road roadside clearance and defensible space	KNE056, KNE043
Barry Road defensible space	KNE056
Foss Road roadside clearance	KNE056, KNE043
Green Road roadside clearance (tunnel vegetation)	KNE060

4.9.9 KNEELAND–MAPLE CREEK ACTION PLAN

Ideally, everything recommended in this action plan will be implemented. However, feasibility analysis and implementation will be subject to the availability of funds and other resources, and the willingness and ability of community members and plan partners to take action. This action plan can be used to guide the action of community members, organizations, and agencies working and living within each of the 14 planning units within Humboldt County. It is the intention of the HCFSC that one or more local groups be sustained within each planning unit to lead local action. It is understood that some units have more capacity than others. The HCFSC, with individual members from higher-capacity areas and partner agencies, can provide guidance for building capacity where needed.

Any recommended vegetation treatments in this CWPP must be undertaken with the consent and involvement of the property owner and the observance of all applicable local, Tribal, state, and federal laws and regulations. Please work closely with the applicable regulatory and permitting authority as projects are developed, particularly if public funds are being used and/or the project will take place on public lands or in public right-of-ways. For more information about how to ensure regulatory compliance, refer to *Appendix I, Regulations and Compliance*.

The following Action Plan is intended as a resource to guide and inspire action, as well as to cite in grant applications to leverage implementation funds.

Priority Action Recommendations:

The following recommendations are based on a review and evaluation of community-identified fire planning features, local fire planning documents where they exist, and findings from this Humboldt County CWPP risk assessment. Given the results of this analysis, a growing understanding of local capacity, and potential supporting resources, it was determined that the following list of priority actions would best serve as a starting place towards the fire safety of the communities in this planning unit.

- **T**he residents of the Kneeland-Maple Creek Planning Unit are fortunate to live in an area with an active Firewise Communities/USA® Site. One of the highest priorities for this planning unit is to maintain and support the Kneeland Firewise® program to facilitate continued community wildfire preparedness and mitigation:
 - Actively implement and maintain the Firewise® action plan on an annual schedule.
 - Focus activity on home hardening and defensible space.
 - Continue to host an annual Firewise® Day.
 - Consider adding the development of a community chipper program and the development of a strategy to abate hazardous vegetation on vacant lots into action plan updates.
 - Reach out to establish increased participation from residents and Humboldt Redwood Company and Green Diamond Resource Company.
 - Inspire more community involvement and support with continued outreach about what the group does and how to get involved.
- **I**dentify other community organizations, Tribes, or groups of individuals with the interest and capacity to facilitate participation in the Firewise Communities/USA® Recognition Program or other similar wildfire preparedness program, particularly in the Maple Creek area.

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- Conduct a risk assessment with support from the HCFSC, the KFPD, and/or CAL FIRE and draft a Firewise® action plan (the existing Kneeland plan as well as this planning unit action plan can be used as resources).
 - Host a Firewise® Day to share findings and inspire action; Firewise activities could be added to an existing annual community event.
 - If necessary, seek funding to support this effort.
- **E**valuate, further develop, seek funding for, and implement—as appropriate and feasible—the community-identified priority actions listed above as well as all community-identified potential projects stored in the Web GIS Portal. Perform this same process for actions identified in the *Kneeland Firewise Action Plan*, this *Priority Action Recommendations* list, and the *Action Catalogue* below. Pursue activities that align with available resources, community values, and the highest wildfire risks to local assets and values.
 - **P**riority areas within this planning unit for fuels reduction are included in the list below. Activities might include creating defensible space, roadside clearance, chipper programs, and/or landscape treatments, as well as education and assistance for addressing structural ignitability through home hardening and evacuation preparedness. Emphasize outreach to sensitive populations such as the elderly, disabled, and/or low income within these areas:
 - Neighborhood clustered along Greenwood Heights Drive (KNE047), and associated driveways and spur roads including, McGlosket Road, Tree and Splendor Lanes, and Green Road and Prairie Lane (KNE060).
 - Tim Mullen Road/Barry Road/Foss Road neighborhood (including KNE043, KNE056)
 - Residences in the area of Mountain View and Jack Shaw Roads.
 - The community of Maple Creek; residences along and off of primary roads and offshoots.
 - Residences along and off of Kneeland Road, roughly between the intersection with Butler Valley Road and the Kneeland School (KNE071).
 - Purchase community chippers to support wildfire preparedness in these areas.
 - **T**he high fire danger, a dispersed WUI population, the large number of dead-end roads leading to multiple residences, and a general lack of wildfire preparation combine to make **evacuation planning** and education a top priority in this planning unit. This plan recommends that residents stay vigilant and evacuate as early as possible to avoid loss of life.
 - Work with the County Office of Emergency Services (OES), local fire service, and law enforcement to engage community members in evacuation preparedness and the identification of local evacuation routes and sites. (Generally, the Sheriff’s Office is responsible for conducting evacuations, while the fire service focuses on wildfire management.) Work together to review best practices as well as emerging new approaches.
 - Identify local community liaisons to work directly with emergency management officials.
 - Identify and map local evacuation routes and sites.

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- Given the large number of residences located on long, dead end roads, residents, law enforcement, local fire departments, and FSCs should work together to identify alternative paths that may be taken or actions to initiate if primary routes become inaccessible during a wildfire.
- Identify and actively maintain areas to shelter as a last resort if safe evacuation is blocked by wildfire, especially in areas with one-way-in, one-way-out roads.
- See additional evacuation preparedness ideas in the *Action Catalogue* below under “Disaster Preparedness”.
- **F**ocus roadside fuel reduction efforts on priority ingress and egress routes for safe evacuation and emergency response, especially those roads used by the highest number of residents, single access roads, and roads leading to remote, hard to access residences. Priority roads for initial evaluation and outreach efforts include:
 - Tim Mullen Road
 - Foss Road
 - Barry Road
 - Kneeland Road
 - Greenwood Heights Drive
 - Upper Fickle Hill Road
 - Green Road
 - Maple Creek Road
 - Butler Valley Road
 - Powerline Road
- **C**ollaborate with agency and local partners to plan and fund landscape level fuels reduction and management where appropriate and in observance of applicable environmental laws and regulations. Match the site with the best method of treatment including prescribed fire, forest thinning, landscape pruning, mowing, or targeted grazing.
 - Implement vegetation treatment on fire suppression ridges.
 - Bring together landowners to cooperatively implement prescribed burns on private lands throughout this planning unit.
 - Encourage large property owners to participate in the Humboldt County Prescribed Burn Association.
 - Emphasize the restoration of oak woodlands.
 - Explore partnerships with timber companies.
 - Distribute information and provide resources to help residents understand how to use prescribed fire to reduce fuels on their properties.
 - See additional prescribed fire ideas in the *Action Catalogue* below under “Restoration of Beneficial Fire”.
- **W**ork with commercial timberland owners such as Humboldt Redwood Company and Green Diamond Resource Company to identify priority areas for strategic vegetation treatments to increase forest resiliency to wildfire.
 - Design projects to buffer residences from wildfires that originate from the timberlands and to protect timber resources and ecological values from fires that start in adjacent developed areas and along roads.
 - Inform this process with Humboldt Redwood Company’s recently completed fire risk assessment model generated for their ownership.
 - Seek opportunities to collaborate on roadside vegetation management projects where public roads or private roads, leading to residences, transect timberlands.

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- Shaded fuelbreak near northern Humboldt Redwood Company boundary, near Freshwater and Kneeland Road. (PAC002)
- **C**oordinate with CAL FIRE, the KVFD, and the local Firewise® group to develop a strategy to ensure that unmaintained vegetation on parcels that pose a wildfire threat to neighboring homes is abated.
 - Start by reaching out to the property owner(s) with the goal of helping them understand the fire danger and the importance of working across property lines to reduce wildfire hazards. If there are many properties of concern, consider organizing a neighborhood meeting to discuss the issue; invite CAL FIRE, local fire department representatives, and/or fire safe council/Firewise® community representatives.
 - Request assistance from the local fire agency (for vacant properties, if there is a local ordinance) or CAL FIRE (for properties with a structure) and ask for an inspection.
 - As a last resort, send a certified letter that describes the hazard, including photos, and states that if a fire that originates on their property spreads to yours, resulting in damage, legal action will be taken.
 - Contact the HCFSC for more details and examples of how to address this situation.
- **C**ontinue to explore options and make progress on local fire service sustainability efforts such as:
 - Completing construction of the new Kneeland Fire Hall and Community Center.
 - Recruiting and retaining volunteers (firefighters as well as citizen auxiliary volunteers).
 - Update the fire department run books (digitize handwritten maps).
 - Exploring potential options for providing local fire protection to the community of Maple Creek. This may include expanding the Kneeland Fire Protection District boundary to include the community of Maple Creek. This Plan recommends that voter approval of a special tax or assessment accompany any expansion so that the fire service is financially supported.
 - Educate community members about burn day requirements to reduce wildfire ignition risk.
- **I**nform residents of the need to have accessible, mapped, and identifiable water sources for fire suppression, and the importance of sharing that information with the local fire department. This type of activity can be supported by a “Blue Dot” program, which identifies the location of firefighting water sources by marking them with blue reflective dots.
- **I**ncrease the availability of water for fire protection by investing in more community water tanks and ensuring existing water tanks are outfitted with fittings compatible with firefighting equipment.
- **W**ork with the HCFSC to share successful local strategies to help inspire similar action throughout the county.

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Action Catalogue:

This Action Catalogue lists additional wildfire mitigation actions that can be selected in addition to, or to compliment, the priority actions above. Action items are organized under each of the six countywide goal categories outlined in *Part 3, Countywide Action Plan*. Local groups are encouraged to implement these actions within their communities wherever possible and to actively seek opportunities to engage with and benefit from the associated work being done countywide by the Humboldt County Fire Safe Council (HCFSC). To contact the HCFSC, call **(707) 267-9542**, or email cimmitt@co.humboldt.ca.us.

Wildfire Ignition Prevention

- **I**mplement One Less Spark education: www.readyforwildfire.org/One-Less-Spark-Campaign.
- **U**se *Living with Wildfire in Northwestern California* as a primary outreach tool and distribute widely: www.humboldt.gov/livingwithwildfire.
- **I**dentify primary ignition sources in the local community and focus prevention efforts on reducing them.
- **I**ncrease community awareness and access to information about proper methods for safe pile-burning, prescribed fire, and other fuel reduction strategies that could result in an unintended wildfire.
- **I**nform residents about the importance of vigilance and caution during Red Flag conditions when a small ignition has a higher probability of growing into a large fire.

Wildfire Preparedness

- **D**evelop a wide range of opportunities for community education on preparing for wildfire. This effort should involve the production and/or distribution of a variety of informational materials.
 - Use existing materials as much as possible and develop materials tailored to the local community as needed and able.
 - Distribute materials through mailers (including already occurring mailers such as local utility bills); via community hubs such as the post office; at all community events; on community bulletin boards; through the use of social media and networks, local media outlets, and any means used by the local community to share important information (such as Kneeland Next Door).
 - Include compelling stories about past wildfire events.
 - Encourage local volunteer/service organizations or schools to help perform community service activities including delivering literature to homeowners or clearing around and painting fire hydrants.
- **P**rovide residents with information about ways to reduce structural ignitability and maintain adequate defensible space around their homes.
- **C**ollaborate to maintain defensible space for elderly, disabled, and low-income residents who are unable to do or fund the work themselves.
- **F**ocus roadside fuel reduction efforts on priority ingress and egress routes for safe evacuation. See details in the *Priority Action Recommendations* above.
- **W**ork with PG&E and local landowners to reduce fuels along power line easements.

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- **S**upport or create community chipping programs.
- **C**ompile a directory of brushing crews and other resources for landowners seeking to reduce fuels on their property.
- **R**aise awareness of Sudden Oak Death and the fire hazard that afflicted trees pose. Determine whether there are hot spots for Sudden Oak Death infected trees in the area. Conduct fuels reduction projects as needed to prevent spread and mitigate fire hazard. Seek guidance from organizations such as University of California Cooperative Extension.
- **W**ork with commercial timberland owners such as Barnum Timber, Boyle Forests, Green Diamond Resources Company, and Humboldt Redwood Company to identify priority areas for strategic vegetation treatments to increase forest resiliency to wildfire. See details in the *Priority Action Recommendations* above.
- **C**ollaborate with agency and local partners to plan and fund landscape level fuels reduction. See details in the *Priority Action Recommendations* above.

Disaster Preparedness

- **E**vacuation preparedness and the identification of local evacuation routes and sites is a priority for this unit. See details in the *Priority Action Recommendations* above.
- **W**ork with the County Office of Emergency Services (OES) and local fire service to engage community members in evacuation preparedness. See details in the *Priority Action Recommendations* above.
- **I**mprove community communication networks and explore ways to increase redundancy. This might include developing a community phone tree list and/or compiling a list of contacts to call in case of emergency or when help is needed from (or in) other areas. As another form of emergency communication, consider training or identifying a few community members to use HAM radios and secure funds to purchase radios and store them strategically throughout the community.
- **W**ork with a local fire or law enforcement agency to form a Community Emergency Response Team or CERT. Coordinate with the Humboldt CERT Coalition.
- **P**romote the creation of family disaster and evacuation plans.
- **I**nform residents about Humboldt Alert and encourage them to sign up to receive emergency notifications at <https://humboldtqov.org/alerts>.
- **W**ork with residents to ensure adequate road and home address signage for more efficient emergency response. Signs should be large, reflective, and have lettering at least three-inches in height. Less noticeable but more sentimental address signs may remain but it is important to post reflective signs as well.
- **A**ddress road conditions that inhibit effective evacuation and access by emergency responders. Begin by systematically identifying and mitigating such access impediments.
- **I**nform residents about the importance of keeping gates open or accessible during Red Flag conditions. Community members should consider providing a key or access code to the local fire department.

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- Inform residents of the need to have accessible, mapped, and identifiable water sources for fire suppression. See details in the *Priority Action Recommendations* above.
- Increase the availability of water for fire protection. See details in the *Priority Action Recommendations* above.

Fire Protection

- Support the local fire department by becoming a volunteer. Volunteer firefighters and volunteers who are emergency medical service (EMS) trained are essential to a functional local fire service. In addition, volunteers are needed for non-firefighting and EMS duties such as logistical support, traffic control, administration, fundraising, public education, and fire prevention.
- Assist in the development of recruitment and retention strategies for volunteer fire departments.
- Help local fire departments raise funds by making donations directly and/or organizing fundraising events or campaigns.

Restoration of Beneficial Fire

- Provide resources to private landowners interested in implementing prescribed burns on their property, including the contact information for CAL FIRE, UC Cooperative Extension, the Humboldt County Prescribed Burn Association, and the Northern California Prescribed Fire Council.¹¹
- Share information about educational events that provide information about prescribed burning.
- Encourage landowners with larger acreages to work with the Humboldt County Prescribed Burn Association to conduct prescribed burns on their lands.
- Help federal and state land managers garner local support for using prescribed fire or managed wildfire on the public lands they manage.

Integrated Planning

- Integrate the evaluation, development, and implementation of all relevant planning documents. See details in *Priority Action Recommendations* above.
- Continue to maintain participation in the Firewise Communities/USA® Recognition Program. See details in *Priority Action Recommendations* above.
- Share GIS data sets between representatives within the Planning Unit and County staff to maintain the fire planning features included in the County Web GIS Portal (https://webqis.co.humboldt.ca.us/HCEGIS2.6_CWPP). In the absence of GIS data, share geographic information/descriptions about project planning and implementation so that it can be digitized and incorporated into the Web GIS Portal.

¹¹ To learn more about UC Cooperative Extension, the Humboldt County Prescribed Burn Association, and the Northern California Prescribed Fire Council, contact Lenya Quinn-Davidson at lquinndavidson@ucanr.edu or call her at (707) 445-7351. To learn about CAL FIRE prescribed fire programs and support, contact Chris Ramey at chris.ramey@fire.ca.gov or call him at (707) 726-1206.