

WILLOW CREEK

COMMUNITY ASSESSMENT



INTRODUCTION

The Firewise Communities/USA program is designed to provide an effective management approach for preserving wildland living aesthetics. The program can be tailored for adoption by any community and/or neighborhood association that is committed to ensuring its citizens maximum protection from wildland fire. The following community assessment is intended as a resource to be used by the Willow Creek residents for creating a wildfire safety action plan. The plan developed from the information in this assessment should be implemented in a collaborative manner, and updated and modified as needed.

Data collection for this assessment took place in the fall of 2010. Those assisting with the data collection were as follows:

- Tom Smithey, Willow Creek Volunteer Fire Department;
- Joe O'Hara, Willow Creek Fire Safe Council (FSC);
- Paul Abbott, Willow Creek Fire FSC;
- Cybelle Immitt, Humboldt County Community Development Service (CDS) and the Humboldt County FSC;
- Dan Wooden, Lower Trinity Ranger District of Six Rivers National Forest; and
- Mark Rodgers, Cal Fire.

Joe, Paul and Cybelle all completed the "Assessing Wildfire Hazards in the Home Ignition Zone" training provided by the National Fire Protection Association (NFPA) and Firewise.

DEFINITION OF THE HOME IGNITION ZONE

Willow Creek is located in a wildfire environment. Wildfires will happen--exclusion is not a choice. The variables in a fire scenario are when the fire will occur, and where. This assessment addresses the wildfire-related characteristics of Willow Creek. It examines the area's exposure to wildfire as it relates to ignition potential. The assessment does not focus on specific homes, but examines the community as a whole.

A house burns because of its interrelationship with everything in its surrounding home ignition zone---the house and its immediate surroundings. To avoid a home ignition, a homeowner must eliminate the wildfire's potential relationship with his/her house. This can be accomplished by interrupting the natural path a fire takes. Changing a fire's path by clearing a home ignition zone is an easy-to-accomplish task that can result in avoiding home loss. To accomplish this, flammable items such as dead vegetation must be removed from the area immediately around the structure to prevent flames from

contacting it. Also, reducing the volume of live vegetation will affect the intensity of the wildfire as it enters the home ignition zone.

Included in this assessment are observations made while visiting Willow Creek. The assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the home ignition zones of affected residents. Willow Creek residents can reduce their risk of destruction during a wildfire by taking actions within their home ignition zones. This zone principally determines the potential for home ignitions during a wildland fire; it includes a house and its immediate surroundings within 100 to 150 feet.

The result of the assessment is that wildfire behavior will be dominated by the residential characteristics of this area. The good news is that by addressing community vulnerabilities, residents will be able to substantially reduce their exposure to loss. Relatively small investments of time and effort will reap great rewards in wildfire safety.

DESCRIPTION OF THE SEVERE CASE WILDLAND FIRE CHARACTERISTICS THAT COULD THREATEN THE AREA

Fire intensity and spread rate depend on the fuel type and condition (live/dead), the weather conditions prior and during ignition, and the topography. Generally the following relationships hold between the fire behavior and the fuel, weather and topography.

- Fine fuels ignite more easily and spread faster with higher intensities than coarser fuels. For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensities. Fine fuels take a shorter time to burn out than coarser fuels.
- The weather conditions affect the moisture content of the dead and live vegetative fuels. Dead fine fuel moisture content is highly dependent on the relative humidity and the degree of sun exposure. The lower the relative humidity and the greater the sun exposure, the lower will be the fuel moisture content. Lower fuel moistures produce higher spread rates and fire intensities.
- Wind speed significantly influences the rate of fire spread and fire intensity. The higher the wind speed, the greater the spread rate and intensity.
- Topography influences fire behavior principally by the steepness of the slope. However, the configuration of the terrain such as narrow draws, saddles and so forth can influence fire spread and intensity. In general, the steeper the slope, the higher the uphill fire spread and intensity.

The area surrounding the Town of Willow Creek is characterized by high levels of wildland fuels, hot dry summers, hazardous topographic conditions such as steep river canons, and a history of severe wildland fires. The relatively high year-round population and significant summertime recreation population creates a high ignition risk and contributes to a high potential for destructive wildfires. Some specific wildfire ignition risks include multiple lightning strikes, unattended campfires, structure fires spreading into the wildlands, vehicles lighting roadside fuels, arson, and power lines. The

combination of fire environment conditions surrounding the community and highly valued resource and economic assets, result in a high level of wildfire risk for Willow Creek.

The 1999 Megram and Onion fires burned thousands of acres within the wildlands to the North and East of the town and the 2008 Ziegler, Ironside, Cedar, and Half fires threatened the community from the East and South, also burning thousands of acres in the wildlands. The Friday Fire in the summer, 2003 is one that many locals relate to as an example of a nearly disastrous wildfire; started by a vehicle along a back road. It created crisis for residents living in the Friday Ridge area of Willow Creek and threatened imminent loss of life and property, in spite of a rapid response by fire fighting agencies. This is an example of being saved by a change in wind direction. The onset was sudden, requiring instant decision making by residents, not allowing time for a resident to ponder what to do, as one can when the fire approaches more slowly from a greater distance.

Other accounts shared by local residents about experiencing some of the larger wildfires describe being put on evacuation alert and the town being inundated with smoke and ash. Smaller fires have also been ignited closer to homes and, although never resulting in major damage, are considered near misses. One account describes a fire in Bigfoot Estates that was started when a golf cart in a garage caught fire and ignited the garage and surrounding vegetation. One resident expressed that the fire could easily have destroyed all of Bigfoot Estates with probable loss of life, but a change of wind direction “saved the day”.

Because of the flammability of vegetation building up near town streets, back roads, and Highways 299 and 96, roads have been a source of vehicle caused fires in and around Willow Creek; a trend that will likely continue if action is not taken. For example, on Patterson Road, a passing vehicle ignited grass along the road and fire raced uphill through brush and oaks. A helicopter working a nearby wildfire happened to be passing by with a water basket. The pilot saw the flames and quickly dropped water on the fire. Without the quick action of that pilot, there could have easily been much more extensive wildfire damage and possibly loss of life.

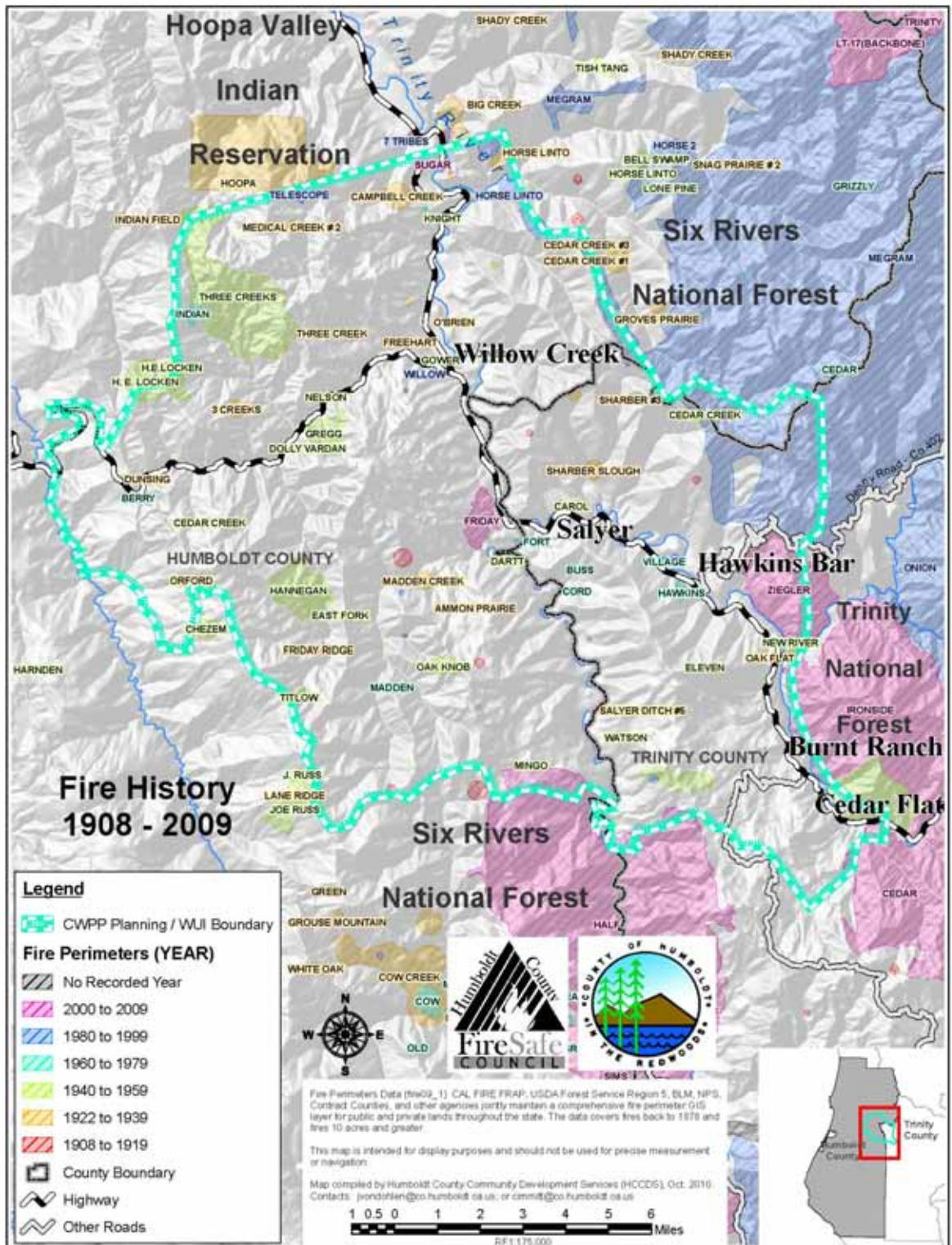
Based on the fire history described above, it is likely that, sometime in the not-to-distant future, Willow Creek will be threatened by nearby wildfires as well as by fires originating from within the community. The community’s vulnerability to damage from wildfire is high because of the presence of many risk factors. Steep slopes that are known to spread fire rapidly are present in many neighborhoods. Summer weather is consistently hot and dry and high winds blowing up and down the river valley are a common occurrence.

Multiple fire starts caused by lightning strikes is a real possibility for the area which will put a strain on available fire suppression resources. A likely fire season scenario for many of Willow Creek’s neighborhoods is that fires, whatever their cause could take hold in the abundant fuels and, fed by high winds, race up steep slopes and threaten homes. Even if a wildfire is located in Forest Service lands, outside the community, homes will be

vulnerable to fire brands carried by the wind or burning debris rolling downhill and igniting vegetation on adjoining private lands.

The next page contains a fire history map that illustrates the abundance of wildfire events in and near the community of Willow Creek. The aqua and white boundary shown on this map is the planning area and Wildland Urban Interface selected for the Willow Creek Greater Area Community Wildfire Protection Plan.

Fire history in and around the community of Willow Creek:



SITE DESCRIPTION

The following text was partially compiled from information found on the websites of the Willow Creek Chamber of Commerce and the Willow Creek Community Services District as well as from the Willow Creek Community Action Plan.

The town of Willow Creek is nestled along the banks of the Trinity River and is the gateway to the vast Klamath-Trinity recreation area, which includes the Trinity Alps Wilderness and the Marble Mountain Wilderness. Located on the eastern edge of Humboldt County along Highway 299 the community is about 35 miles from the Pacific coast. Situated at the confluence of Willow Creek and the Trinity River, Willow Creek was at one time called China Flat. Willow Creek is the largest of the small communities scattered along the Trinity River with a population of nearly 2,000 and is surrounded by Six Rivers National Forest lands.

The community history of Willow Creek began with Native American bands from the Hupa tribe inhabiting the area. White settlement began with a mining town which later transitioned into a tourist destination sought primarily for outdoor recreation activities. From 1947 until 1978 timber harvesting provided local residents with income and jobs. Even after years of logging and human settlement, the area retains its wild and remote character.

With the downturn in the timber economy, outdoor recreation and specialty agriculture have once again become the focus for the local economy. The U.S. Forest Service supports the shift from timber to tourism by maintaining several river access points for swimming and boating. Small produce and specialty farms, orchards, and vineyards produce tomatoes, corn, peaches, pears, cherries, apples and grapes. Local vineyards and boutique wineries are the fastest growing new business.

Willow Creek is listed on the Federal Register as a Community at risk. The majority of the community is rated by Cal Fire as having a “very high” fire hazard severity. The fire hazard severity ratings for some less vegetated areas in the lower, less steep regions of the river valley are “high” and “moderate”.

The characteristic terrain around Willow Creek is mountainous, with steep V-shaped valleys formed by the tributaries of the Trinity River. Vegetation types include mixed evergreen conifer forest, Klamath montane mixed conifer forest, and White Oak forest. Many south slope areas are shrub dominated. In general the upland areas are dominated by conifers and the river valley and riparian corridors are dominated by grass and hardwood trees such as oak, alder and willow.

Local fire protection is provided by the Willow Creek Volunteer Fire Department, the operational wing of the Willow Creek Fire Protection District. The Willow Creek Volunteer Fire Department responds to both structural and wildland fires. The fire fighting staff is cross trained and outfitted for both types of fire response. Mutual Aid agreements are in place with neighboring jurisdictions and the department responds to calls both inside and outside of its district boundary.

The Willow Creek Fire Safe Council (FSC) works to reduce the risk of damage to community assets from wildfire. The group has secured grant funds to support various fire prevention programs. The members of the FSC strive to raise awareness about the threats and benefits of wildfire and coordinate projects to thin the buildup of flammable vegetation along community roads and high risk areas to reduce the wildfire hazard.

The Forest Service fire staff stationed in both Willow Creek and Salyer for the Lower Trinity Ranger District of the Six Rivers National Forest is primarily trained and responsible for wildland fires on federal lands but also responds to structure fires and medical emergencies. The ability of Forest Service staff to assist may vary, depending on the time of year and availability of resources. Wildfires do not respect jurisdictional boundaries; therefore they are generally managed through a coordinated multi-jurisdictional effort often including local, state, and federal resources.

On the next page is an air photo with the outline of the Firewise Community boundary. This boundary is the same as that of the Willow Creek Fire Protection District.

Willow Creek Firewise Area Map



ASSESSMENT PROCESS

The assessment team met on the morning of September 17, 2010 in Willow Creek at the Six Rivers National Forest Service, Lower Trinity Ranger District office. The group had representation from the Willow Creek Fire Safe Council, The Willow Creek Volunteer Fire Department, Cal Fire, the U.S. Forest Service, and the County of Humboldt. The community assessment template and draft background information were reviewed and maps and air photos were used to plan a tour of the community. The assessment team then piled into vehicles and drove around the community documenting observations of hazardous conditions as well as good examples of firewise practices.



Photo: Willow Creek FSC

Community Assessment Team

IMPORTANT CONSIDERATIONS

The Firewise Communities/USA program seeks to create a sustainable balance that will allow communities to live safely while maintaining environmental harmony in a WUI setting. Homeowners already balance their decisions about fire protection measures against their desire for certain flammable components on their properties. It is important for them to understand the implications of the choices they are making. These choices directly relate to the ignitability of their home ignition zones during a wildfire.



Photo: Willow Creek FSC

The community of Willow Creek is surrounded by steep forested slopes, much of which is National Forest lands. These slopes are a natural environment for wildfires and will burn at times. Such wildfires are a threat to community values if fire safety measures are not taken communitywide and within individual home ignition zones.



Photo: Willow Creek FSC

Many neighborhoods in Willow Creek are made up of homes with overlapping home ignition zones. These overlapping ignition zones make homes more vulnerable to radiant heat and fire brands. In these neighborhoods, homes can ignite each other. It should be a priority in these areas for adjacent home owners to maintain contiguous fire resistant home ignition zones.



Photo: Willow Creek Chamber of Commerce website

Highway 299 and Highway 96 both run through the community and, based on historic fire starts, these corridors pose a serious fire risk to nearby neighborhoods. Measures must be taken to reduce fuels along the corridors and harden neighboring home ignition zones.

OBSERVATIONS AND RECOMMENDATIONS

As the community assessment team examined Willow Creek neighborhoods and surrounding areas, the following observations were made and mitigation actions are recommended. Each recommendation that is followed up on will contribute to lessening the burden on firefighting resources. Federal and state resources can spend less time protecting individual homes and focus on managing wildfires. The local fire department can focus on extinguishing structure fires and spend less time preventing the fire from spreading to neighboring home ignition zones and/or to the wildland.

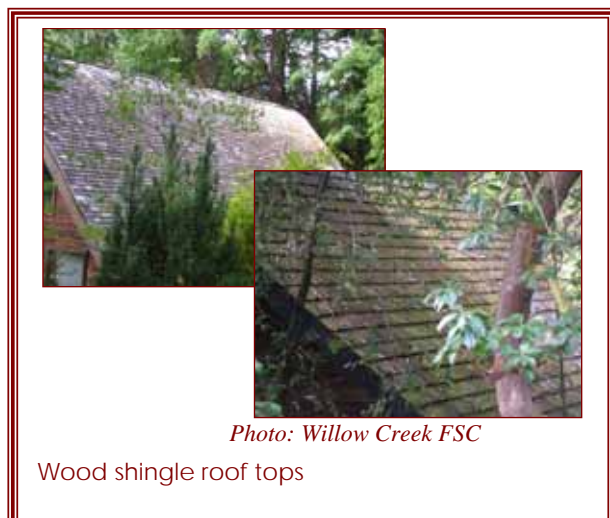
Leaf/Needle Build-up on Roofs and in Gutters:

A very common issue encountered during the assessment was the accumulation of leaves, needles, and, in some cases, even small dead branches on rooftops and in gutters. This debris is very flammable tinder that can be ignited by fire brands blown from wildfires; even a wildfire miles away. Fires started on the roof or in the gutters can spread to the rest of the home.

Residents can eliminate this hazard with relative ease and it should be one of the first actions taken to reduce the risk of losing the home to wildfire. Cleaning needles and leaves off of the roof and out of the gutters is one of the small things a resident can do that will make a big difference. It's something that could be done in a weekend on one's own or with a work party of friends. Willow Creek has been put on evacuation notice in the past and it's likely to happen again; knowing ones gutters are clean is one of the things that will help residents rest easier if they have to leave their homes to survive unattended during a wildfire.

Flammable Roofing and Siding:

The assessment team noticed that many homes in Willow Creek have flammable wood roofs. Flammable roofs are a chief cause of home loss during urban wildfires because flying embers coming from wildfires miles



away can ignite them. When there are overlapping home ignition zones flammable wood roofs jeopardize neighboring homes because direct ignitions can occur between houses. Burning wood roofs are also a major source of fire brands. Addressing this issue is a lot harder than cleaning one's gutters and replacing a roof might have to be a long term goal. Awareness of the hazards associated with having a highly flammable roof needs to be elevated in the community and advice provided about how to finance roof replacements. Installing a fire resistant roof is one of the most important investments residents can make to improve the survivability of their home during a wildfire.

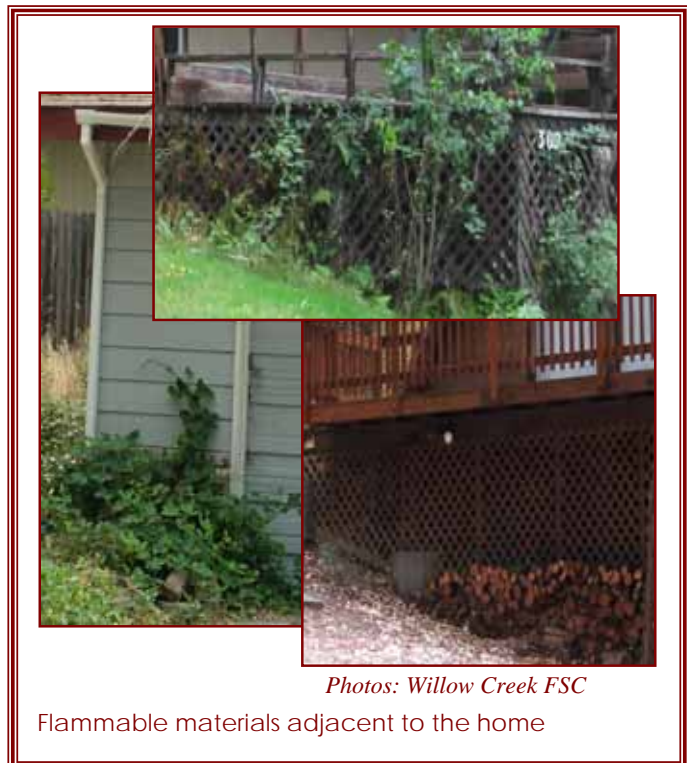
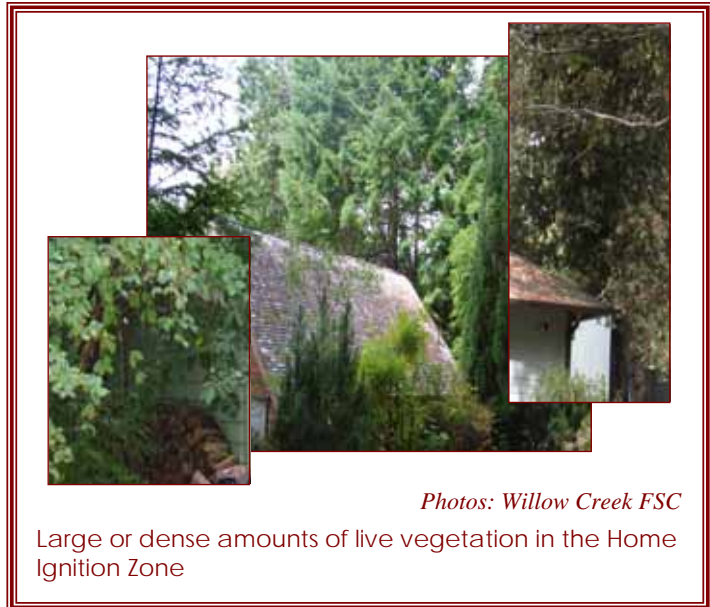
Flammable siding is also a problem with some older homes. Replacing this siding with an ignition resistant material will greatly reduce the ignition potential of the structure. Making plans for such renovations is something that residents should consider a high priority. Of course, all new home construction should be done with fire resistant materials.

Large or Dense Amounts of Live Vegetation in the Home Ignition Zone:

Many homes in Willow Creek have dense vegetation growing in the home ignition zone. This was particularly noted where neighborhoods abut the surrounding forest lands. Residents should remove the ladder fuels and prevent fire from moving up into the crowns of trees or onto the house and its attachments. It is not necessary to eliminate all vegetation from within the home ignition zone. The important thing is to break up the continuity and density of the vegetation.

Flammable Items in Direct Contact with the Structure:

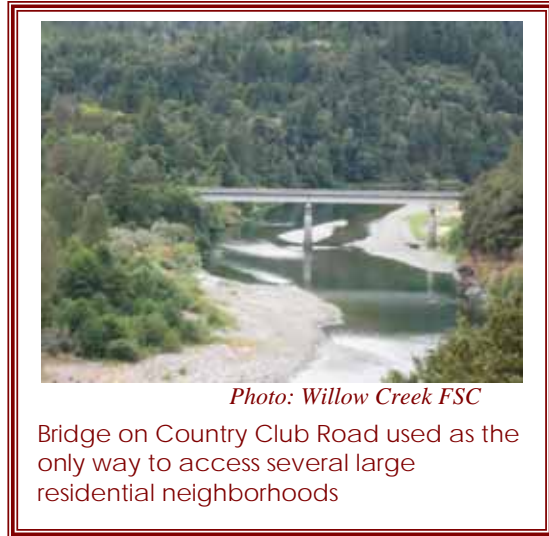
The assessment team observed many homes with wood piles, fences, gates, and wood lattice in contact with the structure. Dead leaves under the deck or along the foundation of the structure were also observed in some cases.



These items are generally more susceptible to combustion from embers or radiant heat and, if lighted, could lead the fire to the rest of the home. Residents should remove these materials and regularly rake and or sweep away debris, leaves and needles from the area right around the home.

One Way in and One Way Out:

Several large residential neighborhoods in Willow Creek are located across the Trinity River with only one way in and one way out. The bridge on Country Club Road is the only way for residents of the Bigfoot Subdivision, Seely McIntosh, Patterson Road, and Oak Lane neighborhoods to get across the river to Highways 299 and 96. These neighborhoods are flanked on the North, East, and South by the steep dense forests of the Six Rivers National Forest.



On a smaller scale, there are numerous homes located where there is only one road in and out. Some of them are marked as dead-end roads but many are not. These dead-end roads pose an evacuation risk for residents who could get trapped by fire; especially a fire originating on the roadside.

Special effort should be focused on evacuation planning with the residents of these neighborhoods and roads. Educational materials should be made available informing residents about emergency techniques for how to survive should they find themselves trapped in their home during a wildfire. These neighborhoods should also be a priority for eliminating hazards in the home ignition zone.

Homeless Camping:

Directed by local residents, the assessment team located an area of concern due to homeless camps. This area is in the brush and under the bridge near Creekside Park and down slope from businesses and residences in downtown Willow Creek. The property is owned by Cal Trans. Much evidence was observed of camping activity including burned out campfires. The risk of a campfire getting out of control and spreading through the dry brush up into the community of Willow Creek is a real concern.

Information was also provided about two additional areas of concern: the old mill site and the Brizard property. Both of these areas are known for attracting unlawful camping and are privately owned. The old mill site consists of 42 acres of land that is not easily observed from public areas. A large waste dump spills down the brushy tree covered bank towards the river, creating an environmental hazard including increased wildfire risk. The Brizard property is located upstream from Creekside Park along the banks of Willow Creek. The property is 22 acres in size and the popular camping location is on a

grassy plane adjacent to brushy berry bushes and dense forest. The risk of campfires spreading into the forest is a concern in both of these areas.

The privately owned areas are particularly challenging to address because they are not easily observed and the property owners can not always be on site to monitor camping activity. However, community members and the Community Services District will continue to work closely with the Humboldt County Sheriff's office to discourage camping and the building of fires in these three areas and anywhere else the problem might present itself. Cal Trans must also be a cooperative agency in the effort to correct the camping problem on their property.



Photo: Willow Creek FSC

Illegal camping has been a problem near Creekside Park

SUCCESSFUL FIREWISE MODIFICATIONS

When adequately prepared, a house can likely withstand a wildfire without the intervention of the fire service. Further, a house and its surrounding community can be both Firewise and compatible with the area's ecosystem. The Firewise Communities/USA program is designed to enable communities to achieve a high level of protection against WUI fire loss even as a sustainable ecosystem balance is maintained.

A homeowner/community must focus attention on the home ignition zone and eliminate the fire's potential relationship with the house. This can be accomplished by disconnecting the house from high and/or low-intensity fire that could occur around it. The following photographs were taken in Willow Creek and are examples of good Firewise practices.



Photo: Willow Creek FSC

Fire resistant roofing material and siding



Photo: Willow Creek FSC

Well irrigated landscaping and gravel path



Photo: Willow Creek FSC

Stone walkway and driveway



Photo: Willow Creek FSC

Elimination of ladder fuels in home ignition zone



Photo: Willow Creek FSC

Debris piles waiting to be burned – evidence of hazardous vegetation management



Photo: Willow Creek FSC

Well positioned reflective address signs



Is your home at risk from wildfire?
Do you want to reduce flammable vegetation on your residential property?

The Willow Creek Fire Safe Council is offering a cost-share program to qualifying Humboldt County landowners for fuelsite brushing around homes. Owners of parcels at least 1/2 acre in size may be eligible to receive from \$100 to \$650 per acre, up to a maximum of \$2,000 per landowner.

Work must be completed by September 2011. Funds are limited.

This project is funded by a USDA grant awarded to Humboldt County through the California Fire Safe Council Grants Clearinghouse and is supported by the Mid Klamath Watershed Council.



For more information about this Program please call:
Paul Abbott at (530) 425-2218 or Joe O'Hara at (530) 425-1418

Photo: Willow Creek FSC

Funds have been received from the USDA Forest Service and through the County of Humboldt to share the cost of reducing hazardous vegetation (wildfire fuels) with property owners. The program is called Fire-adapted Landscapes and Safe Homes (FLASH). Each participant receives a site visit and a thorough home risk assessment and is provided with measures to mitigate hazards in the home ignition zone. Many Willow Creek property owners are taking advantage of this program.



Photo: Willow Creek FSC

Firewise landscaping with brick barrier, well irrigated vegetation and gravel



Photo: Willow Creek FSC

Fire resistant roofing and siding, and a well irrigated lawn





Photos: Willow Creek FSC

Community brush clearing – before and after shots



Photo: Willow Creek FSC

Willow Creek has an active neighborhood chipper program



Photos: Willow Creek FSC

Sheriff's Work Alternative Program or SWAP crews have been used to clear brush near downtown Willow Creek businesses and along Patterson Road

NEXT STEPS

After reviewing the contents of this assessment and its recommendations, the Willow Creek Firewise Board/FSC in cooperation with the Willow Creek Volunteer Fire Department will determine whether or not it wishes to continue seeking Firewise Communities/USA recognition. The Firewise Communities/USA representative will contact the Firewise Board representative by November 4, 2010 to receive its decision.

If the site assessment and recommendations are accepted and recognition will be sought, the Willow Creek Firewise Board/FSC will create agreed-upon, area-specific solutions to the Firewise recommendations and create an action plan with guidance from members of the Willow Creek Volunteer Fire Department and Willow Creek Community Services District.

Assuming the assessment area seeks to achieve National Firewise Communities/USA recognition status, it will integrate the following standards into its plan of action:

- Sponsor a local Firewise board, task force, committee, commission or department that maintains the Firewise Community program and status.
- Enlist a WUI specialist to complete an assessment and create a plan from which it identifies agreed-upon, achievable local solutions.
- Invest a minimum of \$2.00 annually per capita in its Firewise Communities/USA program. (Work done by municipal employees or volunteers, using municipal or other equipment, can be included, as can state/federal grants dedicated to that purpose.)
- Observe a Firewise Communities/USA Day each spring that is dedicated to a local Firewise project.
- Submit an annual report to Firewise Communities/USA. This report documents continuing participation in the program.

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