

**Chester Public Utility District
And Fire Department
Firewise Community Assessment
Plumas County, CA**



April 2018



FIREWISE USA™
RESIDENTS REDUCING WILDFIRE RISKS

Table of Contents

Introduction3

Definition of the Home Ignition Zone.....3

Description of (size and nature of) the severe case wildland fire characteristics that could threaten the area4

Assessment Process.....8

Important Considerations.....8

Observations and Recommendations9

Positive Community Attributes.....9

Roads10

Gates10

Bridges10

Access to structures10

Driveways10

Items creating increased risk to community safety and areas identified as a concern for improvement11

Structures & Defensible Space11

Propane tanks and Kerosene tanks.....12

Water Systems13

Vegetation beyond the home ignition zone.....13

General Recommendations:13

Next Steps16

Introduction

The Firewise USA™ program teaches people how to adapt to living with wildfire and encourages neighbors to work together and take action now to prevent damage and losses. Participation in the program can be attained by any community and/or neighborhood committed to reducing risks from wildland fire. The following risk assessment will help identify threats and hazards and guide the priorities and actions for Chester, CA. The risk assessment will be the board/committee's primary tool in determining the risk reduction priorities within your site's boundaries. Assessments need to be **updated every five years**.

Those that participated in the data gathering were, Joe Waterman, **Fire Chief, Chester Fire Department**, Sherry Johnston, **Chester homeowner and Firewise Committee member**, Sean Delacour, **Battalion Chief, Cal Fire**, Sue McCourt, **Plumas County Office of Emergency Services** and Karen Lichti, **PIO, Chester Fire Department**.

Definition of the Home Ignition Zone

Chester, CA is located in a wildfire environment. The variables in a fire scenario are when the fire will occur, and where. This assessment addresses the wildfire-related characteristics of the above community. 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 (HIZ) ---the house and its immediate surroundings. To avoid a home ignition, a homeowner must prepare their home to withstand ember attacks and minimize the likelihood of flames or surface fire touching the home or any attachments. This can be accomplished using hardscaping and landscaping techniques that create breaks in the vegetation in the HIZ, helping to influence and decrease fire behavior. Maintenance activities such as removing dead vegetation from the area immediately around the structure, reducing the amount of vegetation on the ground, and pruning trees are simple and easy steps that will affect the intensity of the wildfire within the HIZ.

Included in this assessment are observations made while visiting the Community of Chester. 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. Chester residents can reduce their risk of destruction during a wildfire by taking actions within their home ignition zones, which includes the home and everything around it, up to 200 feet from the foundation.

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 (size and nature 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.

Embers or firebrands are produced from burning needles, leaves, bark, twigs and cones, when natural vegetation burns. Embers tend to be carried aloft by the superheated air of the fire and can then be carried long distances in advance of the actual flame front by even light winds. It is not uncommon to find glowing embers a mile ahead of the main fire.

If the conditions are right, thousands of embers can be produced in a relatively short time by even a modest wildland blaze. These tend to fly like incendiary snowflakes, eventually settling to the surface and even “drifting” to form small clumps. If they land on a combustible material, they can cause a new ignition even though the main fire is still a long distance away. This is the way that “spot fires” are ignited. This is also the primary threat to residences.

Fire modeling accomplished as part of the 2004 *Plumas County Hazardous Fuel Assessment and Strategy* indicated that fire behavior in the community and adjacent timber would be conducive to moderate fire behavior with passive crown fires.

CHESTER, CALIFORNIA

Firewise USA™ Recognition Program Community Wildfire Risk Assessment

The predominate winds in the area are from the southwest. There are forested areas to the southwest of the community that are overgrown including untreated county lands. There is an old firebreak located on private property on the **west** side of the community, which is overgrown and not distinguishable anymore. To the **east** of Chester is a meadow that is privately owned. At the edge of the meadow there is a large pocket of old willows that have grown the size of trees with a large dead component in them. These willows are dense with no spacing in between. Fires have occurred in this area in the past. This area is a concern for severe fire behavior. When a wind event occurs, the fire could move into the residential area. Past human caused fires have occurred in the area in the past. The wind carried embers and flames towards the homes. Torching trees can increase fire intensity and become excellent generators of embers for spotting. Another area of concern on the **east** side of town is the untreated vegetation near the airport runway. If a fire were to start here, it could produce a large amount of embers that would be deposited into a large number of homes in town. The community can anticipate an “ember attack” during a wildland fire event in the untreated and over grown stands adjacent to the community. The “Chips Fire” of 2012 burned over 75,000 acres to the southwest of Chester. Smoke, ash and airborne embers were deposited within the community.

Viable scenario for a severe wildland fire event: a fire from another source or a structure fire spreading into the untreated fuels on the southern and western sides of town on a windy day. Subsequent spot fires, torching trees or burning structures in the interiors of sub divisions could produce additional quantities of embers, contributing to further ignition potential of vegetation or structures without defensible space making suppression difficult.

Site Description

The community of Chester is situated in a northeastern part of a valley located on the northwest side of Lake Almanor. Chester lies within a forested environment surrounded by a predominately pine/fir forest with brushy or grass understory. Areas within the community also have forest-like attributes including some native brush and scattered remnant trees. The topography of the area is nearly level to gently sloping to the North towards Juniper Lake. Chester sits at the elevation 4534’ and is approximately 7.5 square miles in size. The climate is typical of mountainous areas of Northern California. Normal summer days are warm with considerable cooling at night. The average high temperature for July and August is 85°F. Typical winds during the summer months are generally from the southwest consistently in the 10 – 15 mph. range. Afternoon cumulus build-ups can occur during the summer, sometimes bringing thundershowers and dry lightning. In general summer precipitation is negligible. During late summer and fall, daytime temperatures are warm and nights become cold and clear. Winter storms generally arrive by November with the majority of precipitation falling as snow.

Chester has a population of 2144 (2010 census data) and 1800+ dwelling units. More than a third of these dwellings are seasonal dwellings. The commercial areas supply the

CHESTER, CALIFORNIA

Firewise USA™ Recognition Program Community Wildfire Risk Assessment

needs for the entire basin, fuel, groceries, hospital, banks, and shops. Chester is home to the Collins Pines Sawmill and an airport. There are many campgrounds around Chester. Hunters and other outdoor enthusiasts recreate in the adjoining forests. The land ownership around Chester is mostly private. There are a few areas that are County owned, Lassen National Forest land and some private timberlands within the California State Responsibility Area (SRA). Chester is mostly a “Local Responsibility Area” (LRA) for fire protection as designated by CAL FIRE. There are a few areas that are SRA within the district boundaries. Chester Public Utility District provides fire and emergency medical response to all emergencies in Chester.

Many dwellings and other buildings within the community are old wood frame buildings, many of which pre-date modern codes. The large number of dwellings in such a small, confined area tends to magnify the probability of human caused or accidental fires. Additionally, many lots are seen as lacking adequate defensible space. There is also a significant likelihood of a fire starting from outside the community and spreading

towards it. For these reasons, all buildings are at risk for damage or destruction from wildfire intrusion. A large, wind driven fire could be expected to generate many firebrands, which could ignite numerous spot fires within the community, potentially damaging or destroying many buildings and/or infrastructure.

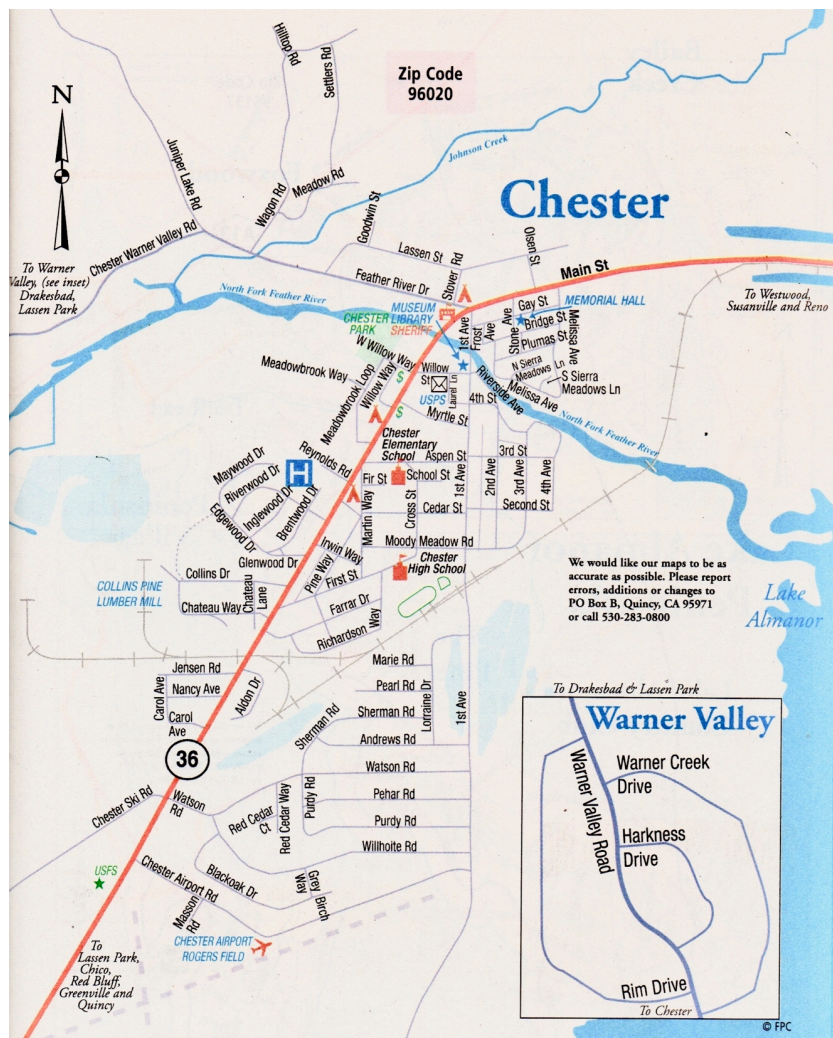
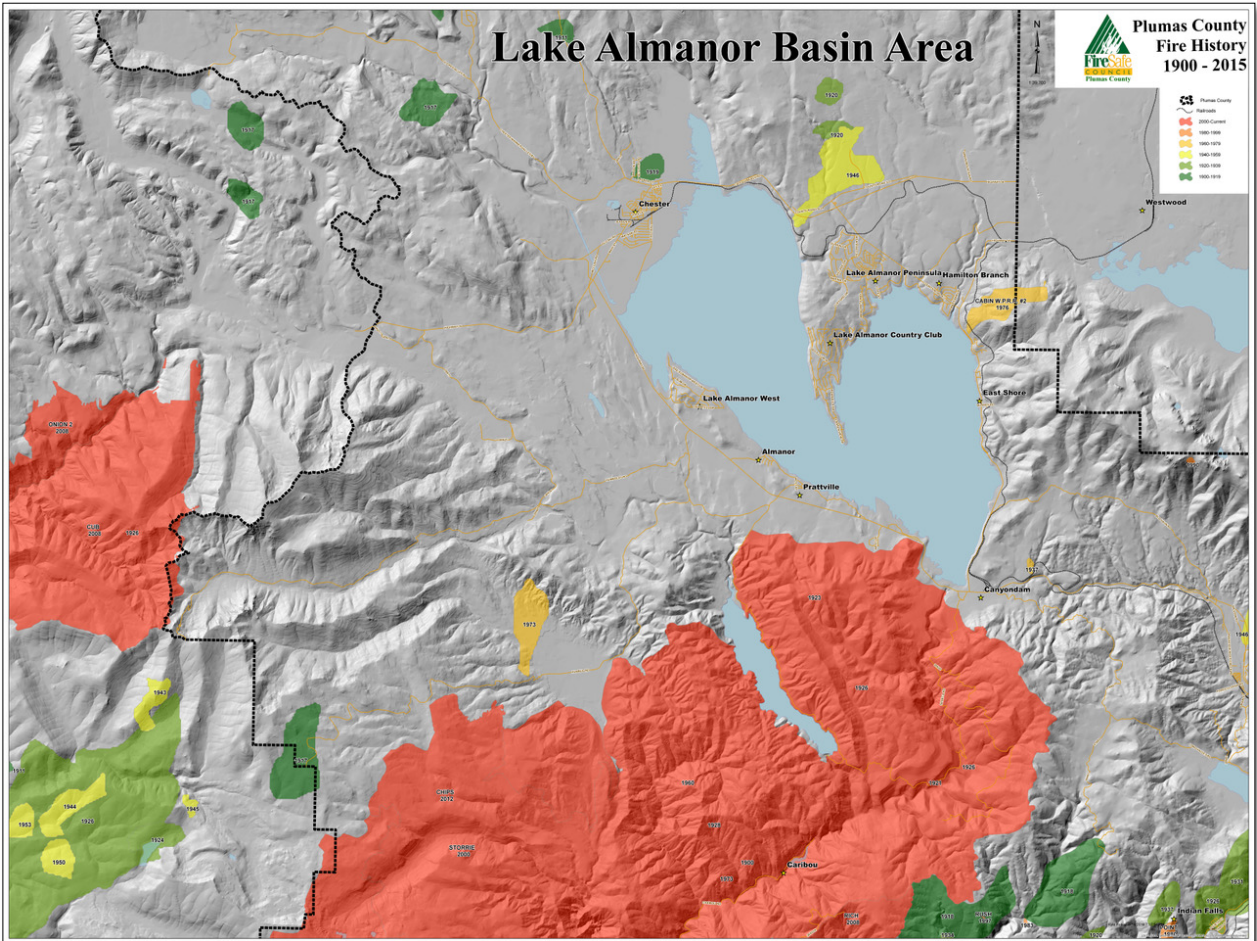


Figure 1: Chester Community Map

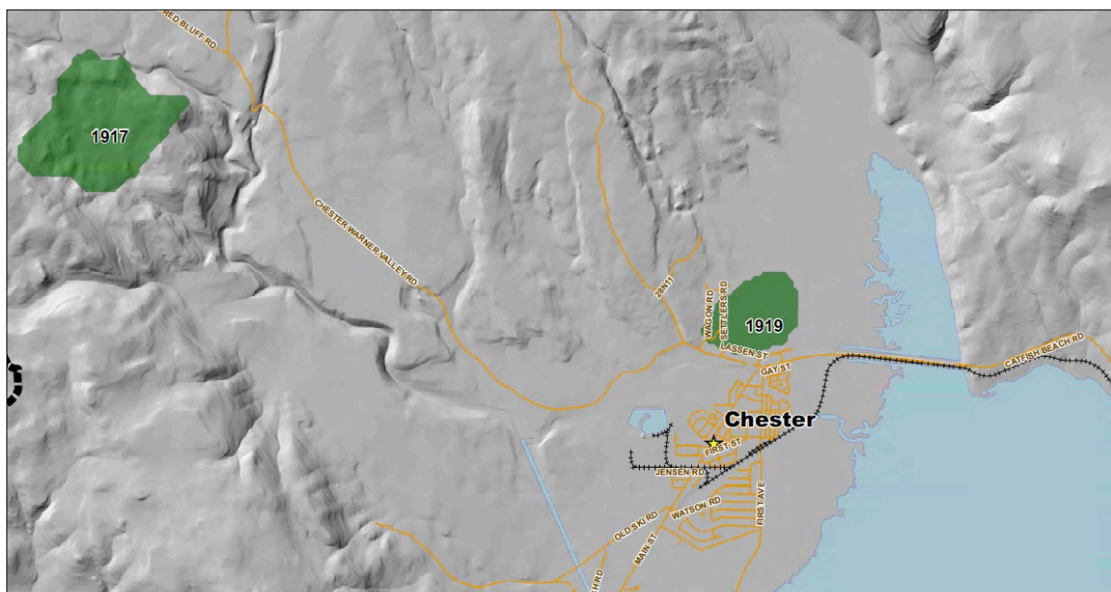
CHESTER, CALIFORNIA

Firewise USA™ Recognition Program Community Wildfire Risk Assessment

Figure 2: Fire History Map of fires 100 acres or more for the Lake Almanor Basin



Chester area enlarged



CHESTER, CALIFORNIA

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Assessment Process

A team approach was taken in preparing this assessment of fire hazards and risks in Chester. Relevant background data was initially collected and discussed by the group identified in the introduction to this document. That group then conducted a visual review of the community from a roadside perspective. Observations were noted of both favorable and unfavorable conditions, and are found in subsequent sections. The combined information led to the development of recommendations for mitigation actions through a collaborative process where draft materials were circulated, reviewed and revised based on inputs from the group. The community assessment took place April 23, 2018.

Figure 3: Group reviews large landowners around Chester Community during Firewise Assessment



Important Considerations

The Firewise USA™ program acknowledges that there are many reasons and values that lead a person to live in the WUI and that there may be a desire for certain flammable components to exist on their property. It is important for residents 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.

CHESTER, CALIFORNIA

Firewise USA™ Recognition Program Community Wildfire Risk Assessment

The three most important considerations to provide a safer community would be:

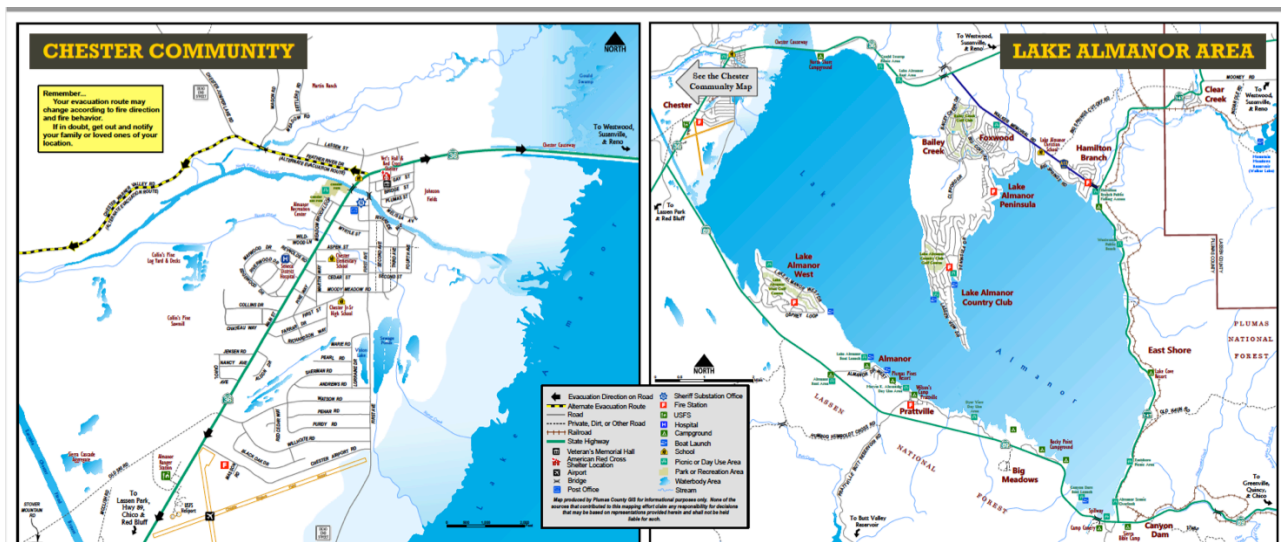
1. All residents should have their “lean, clean and green zone” from 0-30 feet from their structure.
2. The area from 30’ to 100’ should be maintained as the “reduced fuel zone”.
3. Seek treatment and maintenance of all vacant parcels to achieve a fire resilient condition that would prevent continued tree torching and ember production within the community during a wildfire.

Observations and Recommendations

Positive Community Attributes

- a. Overall construction is fire resistant with mostly Class A or Class B roofs.
- b. The community has fire hydrants with good pressure.
- c. There are a number of excellent examples within the community of a Firewise home and property.
- d. Some residents have reflective address signs.
- e. In the past there were efforts to reduce the hazardous fuels on the private lands around Chester.
- f. There have been efforts to reduce hazardous fuel conditions within the community through defensible space maintenance.
- g. Chester has its own fire department that is staffed 24/7. There is also a manned Forest Service station adjacent to town.
- h. Chester has a wildfire evacuation map.

Figure 4: Chester Wildfire Evacuation Map with primary and secondary evacuation routes identified



Roads

All roads in the community are paved and are county maintained roads.

- a. All roads are signed with reflective signs.
- b. State Highway 36 is the main paved road out of Chester.
- c. Roads have plenty of clearance; the few cul-de-sacs are a bit tight for the larger fire engines to turn around. It is possible but it has to be done with a 3-point turn.
- d. There are several streets that lead to housing areas that are one way in and that is the way out.

Recommendations:

- Ensure all streets are signed with reflective signs at both ends of the street. Make sure they are clear of tree limbs and brush. Make sure they can be seen from both sides.
- The land on either side of Chester Airport Rd is a high priority for a hazardous fuel reduction project. This land is owned by Plumas County. The area has an abundance of ladder fuels and trees that are very close together. If a fire occurs in the area, the road will be impassable. This is a main road that the fire department uses.

Gates

There are no gates that will cause a problem for the fire department in the community.

Bridges

The three bridges in Chester are weight rated for the fire engines and are wide enough for them to cross.

Access to structures

It is important that emergency services personnel have access to residences. Fire engines need to be able to get into the driveway and access all sides of the home in order to provide structure protection. Some homes have items blocking access to their side and back yards.

Recommendations:

- Items blocking access to the structure should be removed and/or relocated.
- Maintain vegetation clearances and remove lower limbs of trees on access routes to structure and around it.

Driveways

Some driveways are too narrow or overgrown to get emergency equipment through to the structure. There are many properties that do not have reflective address numbers on them that could be easily seen by emergency responders.

Recommendations:

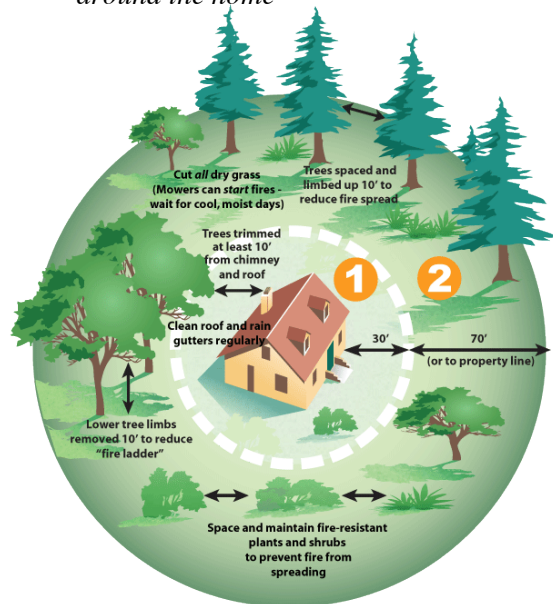
- Driveways should be kept clear of brush, human generated fuels (“stuff”) that can burn and trees. Clear the brush and “stuff“ and limb up trees.
- Reflective address signs would be a help to emergency responders. Signs are available for purchase through Lake Almanor Fire Department. Reflective road signs for private roads are available to purchase through the Plumas County Road Department. This may need to be a campaign in the near future. One to be considered is “If they can’t find you, they can’t help you.”

Items creating increased risk to community safety and areas identified as a concern for improvement

Structures & Defensible Space

- While Defensible Space in the “Lean, Clean, Green Zone” (0-30) ft was present on many residences, there still exists a need for fine-tuning. There are some homes with grass and forest litter accumulations right up to the structures.
- Some homes lacked adequate treatment in what is referred to as the “Reduced Fuel Zone” (30-100 feet). Clearance of 100 feet around all structures would reduce the acres of untreated fuels, provide additional protection to all homes and improve the survivability of structures within the community.
- Some homes had firewood stored immediately adjacent to the structure, on porches or under decks, or in close proximity to structures.
- Some homes had roofs and gutters with forest litter and needle accumulations.
- There were homes where the highly flammable ornamental vegetation immediately adjacent to structures, decks or along driveways, increase risk of structure ignitions or create additional hazards for emergency responders.
- Some of the decks were skirted by decorative lattice, with vegetation or pine needles right up to it.
- Many homes have wooden fences surrounding the home and attached directly to the residence, which can create a wick for fire spread from the wildland, to the fence, to the structure.

Figure 5: Defensible Space Zones around the home



- h. Some residents had collections of human generated fuels “human treasures” and/or flammable materials stored on their lots, adjacent to their homes and/or under decks. These materials can increase probability of structure ignition and/or create hazards to firefighters attempting to take actions in structure protection.
- i. Many areas have next generation small trees growing in need of thinning; these are easy to remove while they are still small.

Recommendations:

- The community could benefit from a fire behavior education program about firewood stacked and misc. human generated fuels (recycling, plywood, cardboard boxes, bark piles etc.) that could be easily ignited next to the home.
- A number of informational pamphlets on defensible space are available to address these issues identified above. There are also many websites that can be searched for defensible space suggestions and requirements. By understanding fire behavior, residents would have a better understanding of why defensible space is essential and why California has laws (Public Resources Code 4291) requiring clearance to 100 feet.
- Chimney and vent screens – 2016 California Building Code 2113.9.2 requires chimney or stovepipe openings to be equipped with a metal screen having openings between 3/8” and 1/2”. All vents should have screening for fire protection.
- Members of the Chester Fire Department and the Chester Firewise Committee are available to discuss opportunities to make your home and property safer in the event of a wildfire. One such opportunity is the free Home Ignition Safety Check.
- Homes with wooden fences attached to the structure should have clearance maintained around the fence. Consider a metal gate or some sort of break between the wooden fence and the structure.
- Homes with lattice around the deck should be cleared of dead materials and screened to keep out debris from under the deck/house that could ignite.

Propane tanks and Kerosene tanks

Some homes lacked 10’ of clearance around propane tanks.

Recommendations:

- Propane tank regulators: While not wildfire issues per se, regulators located next to the tank under trees have potential to be damaged from falling snow or ice loads. This could cause propane leaks that can cause explosions or structure fires in the winter.
- Kerosene tanks are normally right next to the house. Make sure ALL vegetation or other flammable items are at least 10’ away.
- Remove all flammable objects, grass and bushes at least 10’ away from the propane tank. Keep the area clean to mineral soil or have it set on a concrete or brick pad.

Water Systems

The water system is owned and maintained by the Chester Public Utilities District. With a hydrant system throughout the community.

Recommendations:

- Help the fire department ensure that they are visible year round and dug out during winter storms. Do not park in front of the hydrant.
- The water district should ensure the area around pump houses are kept clear of vegetation for 30 feet. Consider taking down a few of the trees by the water tanks. This is to ensure water supply to the hydrants during a fire.

Vegetation beyond the home ignition zone

- a. Vegetation on undeveloped property within the community is not part of California Public Resources Code 4291 for 100' of defensible space, but it is a concern. These properties are susceptible to ember ignitions with the threat of multiple spot fires occurring within the community in the event of a wildfire. These areas should be treated to reduce ladder fuels to reduce the spread of fire.
- b. The community of Chester is surrounded by lands owned by PG&E, Collins Pine, Sierra Pacific, the Sierra Land Trust and Plumas County. Some of these properties have been treated, some have not.

Figure 6: This undeveloped property would benefit from thinning and removing ladder fuels to reduce the spread of wildfire



Recommendations:

Work with all the landowners to discuss the fire-spread potential and work together to develop a treatment plan.

General Recommendations:

- a. Efforts should be made to educate homeowners and vacant lot owners about the benefits of defensible space and reduced fuel spacing and limbing on vacant lots.
- b. Educate on the elimination of “ladder fuels” – fuels bridging the gap between the surface and lower tree limbs.
- c. Remove additional lower branches as needed.

- d. General tree thinning will reduce fuel volume and maintain forest health.
- e. Continue thinning or removal of old dead and new brush growth.
- f. Thin or remove new seedlings or saplings.
- g. Remove accumulating surface litter or debris
- h. Keep debris piles 100' from structures.
- i. Educate residents and visitors on fire safety of “fire pits and bowls” for recreational use ensuring clearance, proper siting and screens to contain any embers.
- j. Property owners should pay close attention to the trees on their property to manage for bug kill. Information relating to identification and treatment options can be found at CAL FIRE website: www.readyforwildfire.org. These trees pose a threat to other trees in the area by spreading bugs. They may also pose a threat to your home, power lines or road access if not taken care of. The Almanor Ranger Station across from the airport can put you in touch with a forester.
- k. Keep reminding full time and seasonal residents to keep firewood at least 30' from structures during fire season.

Additional Considerations:

Emergency Preparedness: Families should have a plan in the event of a wildfire or any other emergency. Have your family plan and be Ready, Set, Go! Know your evacuation route out of your area, sign up your cell phone with the Plumas County Sheriffs Office Emergency Alert System “Code Red” for cell phone notifications. Homes and businesses in Plumas County that have landlines are will automatically receive Code Red alerts. Have a plan for your animals in case you need to evacuate them for an extended period.

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 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 Chester and are examples of good wildfire risk reduction practices.

Figure 7: This home has good clean, green vegetation next to the house.



CHESTER, CALIFORNIA

Firewise USA™ Recognition Program Community Wildfire Risk Assessment

Figure 8: Trees are limbed high and green vegetation will reduce the spread of fire to and from the structure



Figure 9: This home has trees limbed up and a clear area around the structure. Under the deck is maintained free of dead materials.



Figure 10: This home has a metal gate attached to the structure that creates a break between the wooden fence and the structure.

Note: Fuels on adjacent lot have been treated. Trees are limbed and ladder fuels are removed to make this an example of a fire safe lot within the community.



Figure 11: This home has no ladder fuels and is kept very green with a circular driveway for emergency equipment access



Next Steps

After reviewing the contents of this assessment and its recommendations, the board/committee for the Chester Firewise Committee in cooperation with the Chester Fire Department will determine whether or not it wishes to continue seeking Firewise USA™ recognition. The Firewise USA™ representative will contact the board/committee representative to receive its decision.

If the site assessment and recommendations are accepted and recognition will be sought, the Chester Firewise Committee will create agreed-upon, area-specific solutions to the wildfire risk reduction recommendations and create an action plan in cooperation with the Chester Fire Department.

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

- Form a board/committee that's comprised of residents and other applicable wildfire stakeholders. This group will collaborate on developing the site's risk reduction priorities, develop a multi-year action plan based on the risk assessment and oversee the completion of the annual renewal requirements needed to retain an "in good standing" status.
 - Action plans are a prioritized list of risk reduction projects/investments for the participating site, along with suggested homeowner actions and education activities that participants will strive to complete annually, or over a period of multiple years. Action plans are developed by the board/committee and need updating at least every three years.
- At a minimum, each site is required to invest the equivalent of **\$24.14 per dwelling unit*** in wildfire risk reduction actions annually (the rate is based on the 2017 annual National Hourly Volunteer Rate; which is updated every year in April when the new amount is published). Qualifying expenditures include contractor costs, rental equipment, volunteer activities, grants, etc. Residents completing select home modifications, along with any qualifying work performed at their home and in the adjacent home ignition zones can contribute related hours and/or costs towards meeting the sites collective investment amount.
- Each participating site is required to have a **minimum of one wildfire risk reduction educational outreach event**, or related activity annually.
- Every year participating sites must **submit an annual renewal** to maintain their "In Good Standing" status. The annual renewal application can be accessed through the Firewise USA™ online management portal (<http://portal.firewise.org/>).

Chester residents are reminded to be conscious of keeping high-intensity fire more than 100 feet from their homes. It is important for them to avoid fire contact with their structures, including firebrands or embers. Science tells us that the home itself and 0-5 feet from the furthest attached exterior point of the home are most vulnerable to ember

CHESTER, CALIFORNIA

Firewise USA™ Recognition Program Community Wildfire Risk Assessment

attacks. Residents should focus on making this a non-combustible area by removing any flammable vegetation or materials from wall exteriors; cleaning debris from roofs and gutters; and addressing home construction issues. Remember that, while wildfire cannot be eliminated from a property, it can be reduced in intensity.

Homeowners are reminded that street signs, addresses, road widths and fire hydrants do not keep a house from igniting. Proper attention to their home ignition zones does. They should identify the things that will ignite their homes and address those.

Weather is, of course, of great concern during wildfire season. At such time as fire weather is severe, homeowners should remember not to leave flammable items outside. This includes rattan doormats, flammable patio furniture, firewood stacked next to the house, or other flammables.