# 4. UNIT FIRE PLAN RECOMMENDATIONS

**With the exception of the most urbanized areas of Redding and Anderson, and irrigated agricultural lands, the entire Unit is susceptible to devastating vegetation fires. Every community within the Unit is at risk from vegetation fires. Local fire history indicates that a running grass fire can be as destructive to communities as brush or timber fires.**

The following recommendations are listed by priority based on stakeholder and fire agency input. Individual Watershed Groups, Fire Safe Councils, Communities, and Community Groups have set localized priorities for fire-safe improvements in their affected areas. Those priority lists are located in the individual fire plans that are listed in the projects section.

**The fire risk in the Unit is two-fold. One is the fire ignition and the other is the fuel condition**. **In order to reduce total cost and losses from wildfire we must reduce the fire ignitions and reduce the fuel loading.**

To reduce the number of fire ignitions a concerted effort must occur to reduce the number of human caused fires through education and enforcement. For instance a 50% reduction of equipment use caused fires would result in nearly 100 fewer fires each year.

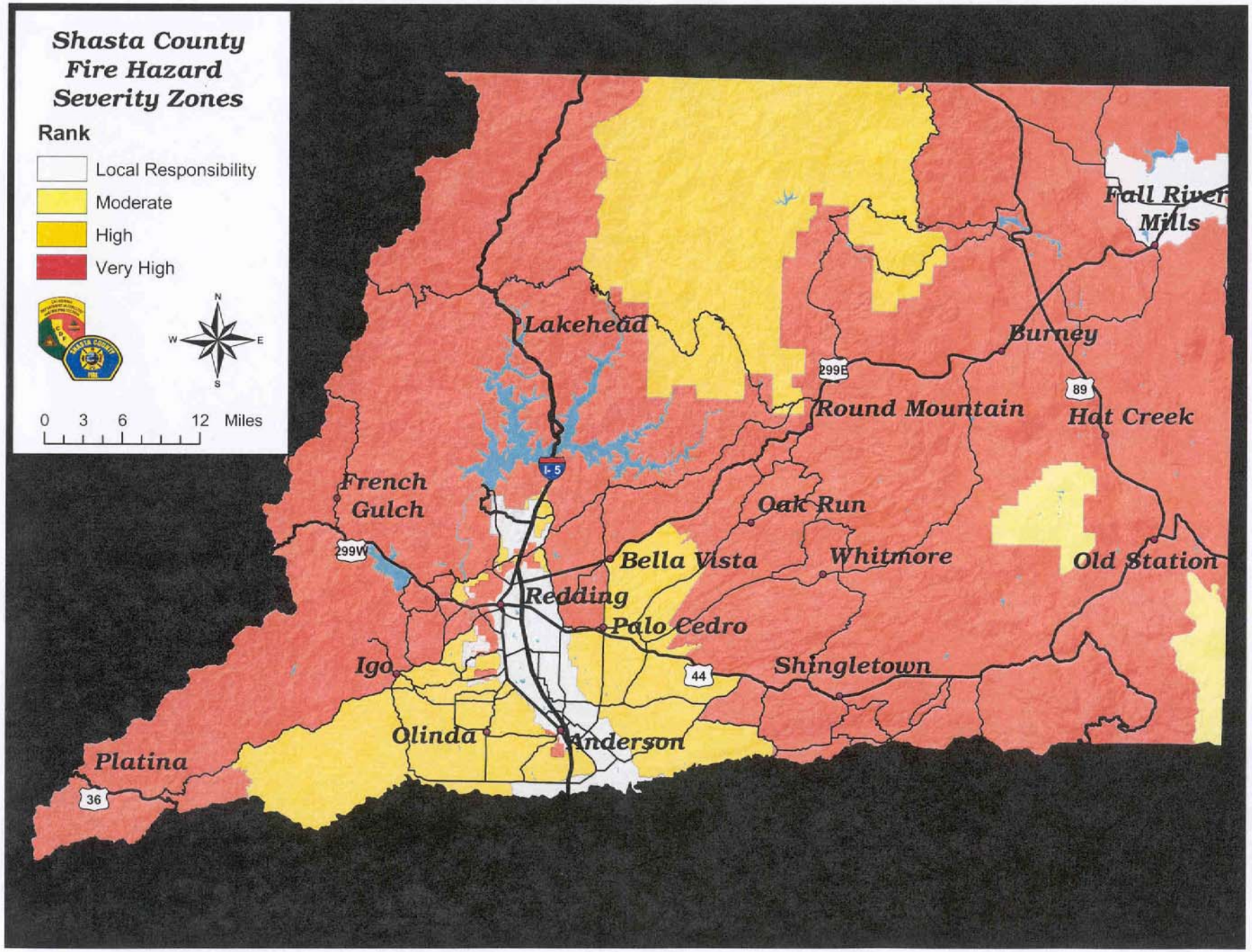
Targeted fuel modification is required to protect individual assets, allow safe ingress and egress, help slow incipient fire spread, provide fire safe zones, and to help slow large fire progress.

## Structure Protection

The protection of life and property, most often structures, is the primary concern of firefighters and stakeholders. What was true in the 1871 Peshtigo Fire is true today. **The primary method to protect the structure asset is for residents to provide a defensible space around their property!**

The California Public Resource Code 4291 and Government Code 51182, amended by Governor Schwarzenegger signed into law on September 23, 2004, Senate Bill 1369 and became effective January

1, 2005, which increase the minimum clearance (defensible space) requirement from 30’ to 100’. It also provides that state law or local ordinance rules or regulations to specify requirements of greater than 100' around buildings because of extra hazardous conditions or where a firebreak of only 100 feet around such building or structure is not sufficient to provide reasonable fire safety.
http://www.fire.ca.gov/php/about_content/downloads/Defens_space_flyer2.pdf


Shasta County
Fire Hazard
Severity Zones
Rank
Local Responsibility
Moderate
High
Very High
N
W
E
S
0 3 6 12 Miles
Lakehead
Burney
Fall River Mills
299E
89
Round Mountain
Hot Creek
I-5
French Gulch
Oak Run
299W
Bella Vista
Whitmore
Old Station
Redding
Palo Cedro
Igo
Shingletown
44
Olinda
Anderson
Platina
36

**Development and construction standards must be considered. Future standards should consider increased building setback from property lines as well as building placement on ridge tops, canyons, or any other location where fire intensity is increased by topography. The type of construction and construction material also affect a structure's defensibility and should be considered. County General Plans should consider the fire hazard potential when developing or modifying land use zones.**

An additional problem for defensible space around structures is the land adjoining developed parcels. Greenbelts are often created when subdivisions are developed in the wildland areas. These greenbelts are often in drainages below ridge-top development and are most often too steep for building placement.

Most often extremely flammable fuel conditions exist in these greenbelts and the fuels abut the developed property lines. Structures built with a 30-foot setback from the property line do not have adequate clearance from the fuel in the greenbelt.

**Fuel maintenance standards should be considered for the greenbelts in future and existing developments.**

Ridge top home with inadequate setback or clearance. This structure received direct flame contact from the spreading vegetation fire.

## Ingress and Egress

Public and private roads often provide inadequate clearance for safe passage during fires. Narrow one-lane roads have historically hampered fire department access while residents exit because there is inadequate room for vehicles to pass.

Resident fatalities in wildland fires in California have historically occurred on narrow roadways located in thick vegetation. Fire equipment access to structures is hampered because of inadequate clearance along roads and driveways.

Clearance here is adequate for passage of a single passenger vehicle. **However when this vegetation burns it will not provide safe passage.**

Current driveway standards require a 16-foot roadway with a 12-foot driving surface. A 16-foot wide driveway, in similar fuels as in this photograph, would still not provide safe passage.

**Driveway and roadway clearance standards or recommendations should be developed based on fuel type and topography in order to provide safe ingress and egress. Fuel clearance along roadways and driveways must also be maintained.**

Limited Driveway Clearance

Excellent Driveway Clearance

Throughout the Unit many Emergency Fire Escape Roads have been built in order to provide a second access for use in the event of a wildland fire. Unfortunately these roads were not built to any particular standard nor were there any requirements to maintain the roads after construction. Most of these roads have become overgrown with brush or blocked by fences and are impassable. Their condition is such that if a person tried to use the road to escape an encroaching fire could trap them. **A method must be developed to provide maintenance for these roads and second access issues must be resolved for future development in order to protect resident's lives.**

## Fuel Breaks

Shaded fuel breaks provide an area where fire spread will slow and allow firefighter access. When a rapidly moving fire burns into a shaded fuel break, the fire will often change from a fast running "crown fire" in brush or timber to a slower ground fire.

### Roadside Fuel Breaks

Roadside Fuel breaks provide multiple purposes:

1. Thirty percent of the Unit's fires start along roadways. If the fuel along these roadways has been modified the incipient fire will spread with less intensity. Therefore the fire may be smaller when fire crews arrive. A typical fuel treatment would be to thin brush and timber and mow or treat grass located at the road edge or within the road easement.

2. Fuel break width should be contingent upon the fuel type, fuel height and topography. Road width provides additional fuel break width.
   Constructing fuel breaks along roadways is often easier and less expensive because of easy access to the fuel.

2. Roadside fuel breaks provide a safer ingress and egress.

### Community Fuel Breaks

Fuel breaks built around the outside perimeter of a community provide protection from impinging wildland fires and slow fire spread from fires starting in and around residences. Greenbelt fuel breaks should also be considered to help alleviate the problems listed in the Structure Protection section.

### Strategically Placed Fuel Breaks

Shaded fuel breaks can be strategically placed along ridge-tops to help confine a wildland fire to one side of a ridge. Fuel breaks can also be placed to separate one fuel type from another such as separating brush fields from timberlands.

**Fuel break maintenance must be a consideration with each fuel break project. Finding reliable funding for fuel break maintenance should be as important as the construction.**

## Wildfire Protection Zones

While wildfire protection zones may be created by the development of fuel breaks, they can also be created by an area wide fuel modification. The removal of ladder fuels and the opening of the crown closure within an entire neighborhood may create a wildfire protection zone. This would include not only the minimum clearance around structures, but also a continuous clearance through any greenbelt areas or undeveloped lots within the neighborhood. Consideration should be given to the creation of wildfire protection zones in communities or neighborhoods where a fire could inhibit or stop a safe evacuation. Any creation of such a wildfire protection zone would also need to have a plan and funding in place for future maintenance.

## Post Fire Rehabilitation

The Unit fire history data indicates 509 large and damaging fires burned over 1,130,682 acres since 1910. Many large fires and most fires less than 300 acres are not represented.
Fire is acknowledged to be an active part of the wildland ecosystem. However the fuel condition within the Unit is such that many fires burn with devastating results, removing most of the live vegetation. Within a short time after a fire, a continuous uniform fuel returns to the burn area not a mosaic of various aged fuels. Unless modified this uniform fuel returns to its pre-fire hazardous condition. When another fire occurs the results are often repeated.
The fuel bed is currently too dense to achieve the desired low intensity fire that occurred before European settlement. This creates a burn - re-growth - burn cycle. This cycle does not allow the woodland or forested areas to become re-established. It's stated that fire suppression is the cause for the current fuel conditions. While fire suppression may be a factor the major factor appears to be a lack of fuel rehabilitation after fuel modification by fire or other means.
**The burn – re-growth – burn cycle needs to be broken.**

**Funding should be acquired to provide post fire rehabilitation.** This could include the removal of dead fuels that present a fire hazard and the replanting of native species, both for erosion control and the re-vegetation of the land. After initial rehabilitation, periodic fuel maintenance should occur to keep the fuel hazard from re-occurring. The use of prescribed fire should be considered in any rehabilitation plan.

**Though post fire rehabilitation is listed after other recommendations; any new fires should be considered to become a high priority candidate for fire safe project funding.**

## Mine Damaged Areas

A considerable effort and investment was made to rehabilitate lands damaged by historic copper mining in Shasta County. The prime reasoning for this effort was to control erosion. There has been no known effort to follow up on the rehabilitation effort since 1967.
The erosion control aspect of this project has been successful. Unfortunately these lands are now choked with fuels and are highly susceptible to devastating fires. Fires within this area could destroy the last 80 years of rehabilitation.
A large vegetation fire could cause at least two major problems:

Erosion within the area could return to pre-rehabilitation rates, which at that time were considered to be sufficient to cause a major reduction of water storage capacity in Shasta Lake and Keswick Reservoir.

A great amount of hydroelectric transmission infrastructure exists along the Sacramento River in these areas. Fires could not only temporarily shut down electricity transmission but could also cause major damage to the system itself including power substations as well as the powerlines.

Fuel modification should be implemented to protect the hydroelectric infrastructure and strategically place fuel breaks should be considered for erosion prone areas.

## Data Collection

The GIS data used in this Fire Plan and the individual Strategic Fuels Management Plans is not as accurate as it should be. In some cases it is highly inaccurate. Some data is completely lacking and needs to be collected

Along with individual Fire Safe projects, data collection and accuracy needs to be improved. Specific items that need to be collected include:

1. Aerial imagery for the Unit needs to be collected. This data can be used to accurately gather and verify most of the required data elements needed for the Fire Plan
2. Reassess the detailed fuels data in order to correct the inaccurate data in the brush and grass zones of the Unit.
3. Parcel data needs to be completed for Shasta County. This data will assist the collection of the Assets at Risk and give a more accurate representation of structure locations at risk in the Wildland Urban Interface.
4. The Assets at Risk within the Unit need to be verified and quantified.
5. Individual timber harvest projects, including biomass and thinning operations are a major impact on the fuels within the Unit. Most of this data is available from the Timber Harvest Plans required for the projects. These Timber Harvest Plans need to include GIS data in order to truly determine changes in the Units Fuels.
6. The Soil data for the Unit needs to be made available in a GIS format.

## Education Outreach

The success of the Fire Plan is dependant on the acceptance of the public. All Fire Agencies have promoted fire safety and some education component in their fire prevention programs. This public safety message is additionally being spread by various organizations such as Fire Safe Councils, Resource Management Districts, Watershed Groups, and other community organizations.

This Plan recognizes these efforts and supports continued and additional education and public outreach efforts.