California Department of Forestry & Fire Protection

Butte Unit

2010 Fire Plan

George Morris

Unit Chief

The Current Situation 3
Introduction 4
Stakeholders 6
Fire Safe Planning Canvas 7
History 7
Definition 7
Treatments 7
Maintenance 8
Topography 8
Fuel Types 9
Weather 9
Wildland Urban Interface 10
Building Code 10
Fire Plan Components 11
Severe Fire Weather 11
Assets at Risk (AAR) 11
Mapping and Ranking AARs 12
Fuel Load 13
Ignition Workload Analysis (IWA) 14
MITIGATION MEASURES BY FOCUS AREAS: 18
Information, Education and Planning 18
Reducing Structural Ignitability 19
Enhancing Suppression Capabilities and Public Safety 21
Hazardous Fuel Reduction 22
Battalion One Planning Area 25
Specific Fire Behavior Factors and Wildland Urban Interface Situation 25
Fuels: 25
Topography: 25
Weather: (refer to pg 9) 26
Wildland Urban Interface Situation: 26
Battalion Two Planning Area 27
Specific Fire Behavior Factors and Wildland Urban Interface Situation 27
Fuels: 27
Topography: 28
Weather: (refer to pg 9) 28
Wildland Urban Interface Situation: 28
Battalion Three Planning Area 29
Specific Fire Behavior Factors and Wildland Urban Interface Situation 29
Fuels: 29
Topography: 29
Weather: (refer to pg 9) 29
Wildland Urban Interface Situation: 30
Battalion Four Planning Area 31
Specific Fire Behavior Factors and Wildland Urban Interface Situation 31
Fuels: 31

Topography: 31
Weather: (refer to pg 9) 31
Wildland Urban Interface Situation: 31
Battalion Five Planning Area 32
Specific Fire Behavior Factors and Wildland Urban Interface Situation 32
Fuels: 32
Topography: 32
Weather: (refer to pg 9) 32
Wildland Urban Interface Situation: 32
Battalion Six Planning Area 34
Specific Fire Behavior Factors and Wildland Urban Interface Situation 34
Fuels: 34
Topography: 34
Weather: (refer to pg 9) 34
Wildland Urban Interface Situation: 34
Battalion Seven Planning Area 36
Specific Fire Behavior Factors and Wildland Urban Interface Situation 36
Fuels: 36
Topography: 36
Weather: (refer to pg 9) 36
Wildland Urban Interface Situation: 36
SUPPORT BUREAUS 38
Magalia Reforestation Center – Forester II Rich Eliot 38
Emergency Command Center – Battalion Chief David Hawks 39
Vegetation Management Program (VMP) – Battalion Chief Jeff Harter 40
Fire Prevention Bureau – Battalion Chief Todd Price 41
Project Status Battalion One Appendix 44
Project Status Battalion Two Appendix 45
Project Status Battalion Three Appendix 46
Project Status Battalion Four Appendix 47
Project Status Battalion Five Appendix 48
Project Status Battalion Six Appendix 49
Project Status Battalion Seven Appendix 50
Ignition Workload Appendix 51
Ignition Types 10 Year Average (CAIRS REPORTING) Appendix 52
Level of Service Appendix 53
Fuel Hazard Ranking / Fire Weather Map Appendix 54
Butte County 30 Year Fire History Appendix 55
Butte County Wildland Urban Interface Appendix 56

The Current Situation

In 2008 Butte County experienced its most destructive wildfire season in recorded history. Fires burning in the Butte Unit and adjacent counties would burn over 139,000 acres and destroy over 200 homes and 178 outbuildings. The cost to suppress these fires would exceed $120 million dollars. These fires would not be specific to a fuel or geographic model.

Conversely in 2009 Butte County was able to contain all wildland fires to a minimal level of destruction. Adjacent counties were not as fortunate;

- The *Yuba Fire* would cost over 12 million dollars to contain.
- The *Forty-nine Fire* would destroy 65 homes and 5 commercial buildings in less than 6 hours.
- The *SHU Lightning Complex* exceeded costs of 31 million dollars, consuming over 17,000 acres.

The recessed California economy greatly affected grant funded fuels reduction projects in 2008 with a spending freeze on all Prop 40 projects within the county. While a number of the projects have begun work again, the interruption will definitely affect the production.

The 4291 Public Resource Code is a regulation implemented by the California State Board of Forestry and Fire Protection to require persons in the State Responsibility Area to maintain around and adjacent to a building or structure additional fire protection or a firebreak by removing all brush, flammable vegetation, or combustible growth 100' or more if necessary to inhibit fire spread. Butte County Fire/CAL FIRE continues to utilize a volunteer in prevention (VIP) work force consisting of off duty CAL FIRE seasonal firefighters to perform pre-fire season LE 100 inspections. An executive order issued by the Governor will once again allocate an early season hire of inspectors to help enforce this ordinance. The program is being designed to continue into the fire season with an emphasis on enforcement. Strategic areas for LE 100 inspections that are adjacent to fuels reduction projects will be the priority for the 2010 season. Along with the inspection, information was distributed to the residents that included Butte County Fire Safe Council brochures and assistance programs such as the Free Chipper Program.

As of the formulation of this document, California is still expecting drought like conditions. While many storm systems have impacted the State allowing for most alpine areas to report above normal snowpack and moisture content, the full extent of the impact on the drought will not be known until after the spring months. A known result is the winter storms and freezing temperatures have resulted in freeze-killed brush and additional branch wood and needle/leaf litter from trees in some areas of northern California. In addition to the affects of the winter storms, areas from the 2008 fires also have an excessive accumulation of dead trees and slash piles. A warmer spring could cause valley grasses to grow and cure sooner then normal resulting in a more fire receptive fuel bed.

How the State budget will affect CAL FIRE staffing levels is always an area of concern. It is CAL FIRE's continuing mission to contain all initial attack fires to 10 acres or less.

Introduction

In 2003, the Healthy Forests Restoration Act (HFRA) created new incentives for communities to engage in comprehensive pre-fire planning as it relates to the wildland affecting their communities. The HFRA legislation provides meaningful statutory incentives to the U. S. Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects.

By maintaining a current Community Wildfire Protection Plan (CWPP), communities can help influence issues such as wildfire response, hazard mitigation, community preparedness, structure protection – or all of the above. A CWPP was adopted by the Butte County Board of Supervisors on 01/10/2006 and then re-adopted on 02/10/2009. The Butte County Fire Safe Council took ownership of the CWPP on 11/05/2008 and is expected to publish an updated CWPP in 2010.

The Butte Unit Fire Plan will be a part of the CWPP incorporating the needed elements of the California Department of Forestry and Fire Protection's *Fire Plan* for each unit within its essential make up.

The Fire Plan uses Geographic Information Systems (GIS) data to allow for comprehensive analysis of the fire hazard area. These factors include fire frequency (ignition workload), assets at risk, hazardous fuels (fuel rank) and historic fire weather (severe fire weather). The factors are evaluated and combined to create a score for success. The goal of the Fire Plan is to reduce destruction and associated costs from wildfire by protecting assets at risk through focused pre-fire management prescriptions.

The Fire Plan proponent continues, creating a framework as identified in the California Fire Plan. The Fire Plan framework components are a compilation of the following:

- Wildfire Protection Zones – To create wildfire protection zones that reduce risks to citizens and firefighters.
- Initial Attack Success – Assess the initial attack fire suppression successes of wildland fires on lands of similar vegetation type. This is measured in terms of a percentage of fires that are successfully controlled before unacceptable costs and losses occur. The analyses can be used to determine the department and unit level of service.
- Assets Protected – The plan utilizes a methodology for defining assets protected and their degree of risk from wildfire. The assets at risk addressed in the plan are life safety (citizen and responder), watersheds and water quality, timber, wildlife and wildlife habitat (including rare and endangered species), rural communities, unique areas (scenic, cultural and historic), recreation, range, property in the form of structures, and air quality. Stakeholders for each of the assets at risk are identified; their input helps to guide the pre-fire decision making process of CAL FIRE and other fire service managers as well as that of local fire safe councils.
- Fire Management Prescriptions – Fire management prescriptions focus on alternative means of protecting assets at risk. Projects include but are not limited to land use planning and associated regulation, educational programs and public information, department infrastructure including fire stations and water systems,

fuels management and forest health. Pre-fire management prescriptions will also identify those who will benefit from such work and consequently those who should share in the project cost.

- Fiscal Framework – the State Board of Forestry and CAL FIRE are developing a fiscal framework for assessing and monitoring annual or long term changes in California's wildland fire protection systems. This plan will incorporate pre-fire workload analyses (PWA), in an attempt to provide relevant data to guide in the development of the fiscal framework and public policy.

Applications of the Butte County Fire Plan include;

- Allow stakeholders, agency personnel, the private sector and public, to come together in a common forum with the focus of reducing the threat and impact of wildfire on the community.
- Identify communities at risk and wildfire hazard areas for local, state and federal officials and the public.
- To inform local officials about the risk of wildfire to communities. Identify improved building and development standards and work with local land use planners and policy makers to implement these standards through the County general plan.
- Identify, prioritize and implement community fuel reduction projects.
- Educate property owners about the risk of wildfire and how they can help protect their home and property.

The Butte Fire Plan will evaluate 10 years of previous data. Utilizing this data local Battalion Chiefs will better be able to direct the initiation of prescriptions that fit the specific needs of the communities. Once identified, those projects will enter the CWPP review committee process to gain prioritization for implementation.

The goal of this document is to provide a foundation from which communities can assume a cooperative part in the effort to improve fire and life safety. Through cooperative efforts of responsible fire agencies, fire safe councils, and County land use planners, work has begun to identify and improve fire safe regulations including pre-development standards, fire safe and evacuation planning, fuel hazard reduction and defensible space standards.

Stakeholders

Stakeholders are defined as any person, agency or organization with a particular interest in fire safety and the protection of assets from wildfires. When the Butte Unit Fire Plan doubled as the CWPP, the Unit made considerable efforts to involve stakeholders and their interest in the planning of the CWPP. It is the goal of the Unit to continually update the Fire Plan to assist stakeholders as they implement the Butte County Fire Safe Council CWPP.

The Butte County Fire Safe Council has been instrumental in bringing a conglomeration of stakeholders to the 'table'. There are local fire safe council's within Butte County that represent the specific fire safe needs of their community. These councils communicate specific fire safe concerns to the Butte County Fire Safe Council and CAL FIRE, from which revisions can be accordingly made to the CWPP. The Unit is able to respond and adapt activities to address the many concerns from the different stakeholders involved within the fire safe councils. Through the council's diversity, agencies have been able to develop pre-fire management projects that otherwise may not have been developed. More information is available at the Butte County Fire Safe Councils web site www.firesafecouncil.org.

Stakeholders include but are not limited to; Butte County Fire Safe Council; Yankee Hill – Concow Fire Safe Council; Paradise Fire Safe Council; Berry Creek Fire Safe Council; Cohasset Community Association; Butte County Resource Conservation District; Lake Madrone Water District; Buzztail Service District; Big Chico Creek Watershed Alliance; Sierra Pacific Industries; Pacific, Gas, and Electric; Town of Paradise Fire Department; Butte County Board of Supervisors; Butte County Fire/ CAL FIRE; Bureau of Land Management; Department of Agriculture.

Fire Safe Planning Canvas

History

California is one of the most ecologically diverse regions in the world. This ecological life cycle has been maintained in large part with 'wildland fires.' As this concept pertains to a forest it must be understood that "a forest is a living biological community that requires disturbances such as fire, for renewal."

California ecology has experienced human manipulation in some capacity since our arrival. Native Americans used fire for several 1000 years, next the introductions of large numbers of livestock eliminated most of the surface fuels which resulted in a wide spread modification of fire patterns. The early 1900's to near present sought to exclude fires from the ecosystem which only maximized fuel loads by allowing for an uninterrupted accumulation of fuel.

The Butte Unit Fire Plan is not being created to eliminate fires but to reduce the devastation and destruction caused by wildland fires to life and property. The Butte Unit Fire Plan is trying to institute measures that are combating events that took centuries to create, so overnight solutions will not be offered nor should they be expected.

Definition

Modifying the National Park Service (2004) definition, The Butte Unit Fire Plan will define *fuel management* as "the planned manipulation of the amount, composition, and structure of the biomass within wildland ecosystems for the purpose of reducing potential for extreme fire behavior and the destructive effects those fires cause." The Butte Unit Fire Plan seeks to set out an outline, as defined in the National Fire Plan, which coordinates fuel management programs with common priorities to better serve the region. Note that with any fuel management program the objectives will only be effective in reducing property losses if they are used in combination with a combustion resistant home construction that is surrounded by a defensible space.

Treatments

Currently there are two types of fuel treatment options utilized within Butte County; fire treatments and mechanical treatments. Fire treatments are coordinated through Butte Unit's Vegetation Management Program Coordinator (VMP). Mechanical treatments involve a 'hands on' approach to achieve effective fuel management. Treatment options include brush thinning using hand tools, masticators, chipping operations, livestock, and herbicides.

A majority of our efforts are in locations where 'human caused fires' normally occur. To reduce this high ignition potential most of our projects center on roadway shaded fuel breaks and home defensive clearance programs. These efforts have already been proven successful in fuel management (www.buttefiresafe.org). These current programs are the restoration phase in a two step process. Once the restoration phase has been achieved the maintenance phase needs to be implemented.

Maintenance

Establishing a maintenance program is not a new dilemma. The Ponderosa Way 650 mile fuel break was completed in the 1930's to prevent a fire from the foothills extending into the forest. This project is now only exampled by some of the roads still in existence that were used to support the project.

Currently there is a desire to re-establish and ecosystem to its previous existence (pre 1800's). For this to occur we must accept that the western United States has a number of vegetation types that are fire dependent. The VMP's ability to administer prescribed burns is dependent upon, air quality restrictions, wildlife, weather, and fire suppression crew availability. Fear of fire escape and air quality concerns are probably the most influential factors inhibiting large scale VMP burns. These restrictions give our VMP program a severely limited window of burning opportunity. Note that the smoke production of a VMP burn would be minimal when compared to the smoke production of a wildfire in the same area.

There is a lack of research on maintenance methods State wide and future site specific research is warranted. Butte County Fire Safe Council's maintenance Committee has begun to address maintenance in shaded fuel break projects by providing landowners education resources and workshops so that they can proactively maintain vegetation on their property.

Topography

Topography is the lay of the land and includes drainages (canyons, draws, chimneys, etc.) slope, aspect, and fire barriers such as lakes, rock outcroppings and roads. Topography, particularly drainages and steeper slopes add to the difficulty in suppressing fires. Reasons include access problems, adverse working conditions and intense fire behavior as fire reaches preheated fuel beds within the drainages.

Butte County encompasses just over one million acres of land and is divided in half by two topographical features. First are the foothills and mountainous region in the northern Sierra Nevada and southern Cascade Mountains in the northeast. This area is scattered with homes and communities intermixed amongst woodland fuels creating a serious wildland urban interface problem. Second the Sacramento Valley section in the southwest which is predominately farmland.

Butte County's foothills and mountains are carved up by several river drainages, the largest being the Feather River watershed which culminates in Lake Oroville. The Feather River watersheds include the West Branch of the North Fork east of Paradise, the North Fork separating Yankee Hill from Berry Creek, the Middle Fork separating Berry Creek and Feather Falls, and the south fork separating Feather Falls from Forbestown and the La Porte Road communities. The northern part of Butte County is bisected by Butte Creek west of Paradise and Big Chico Creek watersheds which separate the Forest Ranch and Cohasset ridges.

The topography in these drainages differs significantly from the deep and very steep, heavily timbered drainages of the Feather River Watershed to the moderately steep wide and generally brush filled Butte Creek and Chico Creek drainages. The drainages are generally oriented toward south and west aspects which lead to prolonged sun exposure and diminished fuel moisture in the wildland fuels.

Fuel Types

Butte County is comprised of three general fuel types; grass, brush and timber. There are a number of factors such as fuel type and size, loading (tons/acre), arrangement (vertical & horizontal), chemical composition, and dead and live fuel moisture that contribute to the flammability characteristics of vegetation. The CAL FIRE Resource Assessment Program has developed a hazard ranking for wildland fuels as part of the California Fire Plan that utilizes the fuel characteristics listed above coupled with slope conditions to determine a fuel hazard rank.

The valley and lower foothills up to roughly 1000' elevation comprise the grass fuel type. This fuel type is comprised of fine dead grasses and leaf liter which is the main carrier of fire. Fires in this fuel type react dramatically to changes in weather; particularly low relative humidity and high wind. Grassland fires can be very difficult to control when under strong wind conditions, and often spread over a large area quickly threatening life and property.

The mid foothill and lower mountain areas generally between 1000' and 2500' elevation are dominated by brush. Fire in this fuel type can burn readily especially later in the summer as live fuel moistures drop to critical levels. Brush fuel unlike grass fuel does not react readily to changes in relative humidity. Brush fires can be difficult to control under normal summer burning conditions when their fuel moistures reach critical levels, and become very difficult to control on steep topography and/or when subject to strong winds.

The mountainous areas above the 2000' to 2500' elevation make up the timber fuel type. Timber fires burn readily especially if they occur in overstocked stands, stands with a lot of down dead material, and/or later in the summer as live fuel moistures drop. Timber fires can be difficult to control under normal summer burning conditions, but become very difficult to control on steep topography and or when subject to strong winds.

Weather

Butte County has a Mediterranean climate with cool, wet winters and hot dry summers. Precipitation is normally in the form of rain, ranging from approximately 20 to 80 inches per year. With snow in the higher elevations, the average annual high temperature for January is 55 degrees and for July is 96 degrees.

The predominate summer weather pattern includes high to very high temperatures, low humidity and light to moderate south winds associated with a high pressure weather gradients. Occasionally during the summer, dry weather fronts will approach northern California bringing increased wind speeds from the south on approach, then changing direction to north winds after passing the area.

Each year, especially in the Autumn months, north wind events bring high temperatures, very low humidity and strong winds. These north wind events usually produce *red flag warning* conditions and provide the highest potential for extreme fire behavior. With the fuels already at their driest moisture content, north winds can create a severe fire weather situation.

Wildland Urban Interface

The Wildland Urban Interface (WUI) defines the community development into the foothills and mountainous areas of California. The WUI describes those communities that are mixed in with grass, brush and timbered covered lands (wildland). These are areas where wildland fire once burned only vegetation but now burns homes as well. The WUI for Butte County consists of communities at risk as well as the area around the communities that pose a fire threat.

There are two types of WUI environments. The first is the true urban interface where development abruptly meets wildland. For Butte County the town of Paradise and the community of Paradise Pines are examples of high density housing meeting wildland.

The second WUI environment is referred to as the wildland urban intermix. Wildland urban intermix communities are rural, low density communities where homes are intermixed in wildland areas. For Butte County the communities of; Cohasset, Forest Ranch, Concow, Yankee Hill, Berry Creek and Forbestown are some of these examples. Wildland urban intermix communities are difficult to defend because they are sprawling communities over a large geographical area with wild fuels throughout. This profile makes access, structure protection, and fire control difficult as fire can freely run through the community.

Human impact on wildland areas has made it much more difficult to protect life and property during a wildland fire. This home construction has created a new fuel load within the wildland and shifted fire fighting tactics to life safety and structure protection.

Building Code

In January of 2008, new building codes were instituted for State Responsibility Area the reflected the technologies, new terms and new direction for construction. These codes are being instituted to maintain high levels of fire and life safety.

The California Building Commission has adopted these codes that included provisions for ignition resistant construction standards in the WUI. Updated 2008 fire hazard severity zones that will be used by building officials to determine appropriate construction material for new or remodeled buildings in the WUI. The California Building Code that references the building standards can be found in section 703A.1 to 705A.

Fire Plan Components

The Butte Unit Fire Plan components require fire behavior analysis of the affected area. These components represent the affected areas *severe fire weather, assets as risk, fuel type* and *level of service.* These components will be defined and explained in this section. Utilizing GIS technology we can create a map of the affected area to help determine project locations and perimeters.

Severe Fire Weather

Severe fire weather is defined using the Fire Weather Index (FWI) developed by the USDA Forest Service Riverside Lab. The FWI combines air temperature, relative humidity, and wind speed into a combined score. This score is then indexed to indicate potential changes in fire behavior due to the FWI. Severe fire weather occurs when the fire weather observation (FWO) exceeds a predetermined threshold. The FWO threshold is derived from a FWI of 95 degrees Fahrenheit, relative humidity < 20%, and eye level wind speed > 7mph. Frequency of Severe Fire Weather is defined as the percent of time during a budgeted fire season a weather station records a severe fire weather reading. Butte County is within the low ranking as determined by the FWI scale model. The area does experience a number of north wind events that activate a red flag warning. During these expected red flag events the Unit takes extra precautions with increased staffing including the staging of engine, hand crew and dozer strike teams.

Assets at Risk (AAR)

The primary purpose of the Butte Unit Fire Plan is to protect the wide range of assets found on the California wildland within Butte County. Summarizing the definitions provided by the California Fire Plan the following assets are evaluated, with ranking priority 1-5 in the following manner. The analysis addressed two basic questions: What are the aggregate values of the assets at risk to wildfire? What are the losses, both economic and non-economic, in a fire?

Assets susceptible to fire damage are identified in the table below. Each AAR has a unique set of stakeholders and involves different public issues

Asset at Risk	Public Issue Category	Location and ranking methodology
Hydroelectric power	Public welfare	1) Watershed area up to 20 miles upstream from run of the river power plants, ranked based on plant capacity; 2) cells adjacent to reservoir based plants (low rank); and 3) cells containing canals and flumes (high rank)
Fire-flood watersheds	Public safety Public welfare	Watershed with a history of problems or proper conditions for future problems (south coastal plain, field/stakeholder input), ranked based on affected downstream population
Soil erosion	Environment	Ranking of post-fire erosion potential based on weighted combination of fuel characteristics, soil k-factor, slope, and peak rainfall.

Water storage	Public welfare	Watershed area up to 20 miles upstream from water storage facility, ranked based on water value and dead storage capacity of facility.
Water supply	Public health	1) Watershed area up to 20 miles from water supply facility (high rank); 2) grid cells containing domestic water diversions, ranked based on number of connections; and 3) cells containing ditches that contribute to the water supply system (high rank)
Scenic	Public welfare	Four mile view shed around Scenic Highways and 1/4 mile view shed around wild and scenic rivers, ranked based on potential impacts to vegetation types (tree versus non-tree types)
Timber	Public welfare	Timberlands ranked based on value/susceptibility to damage
Range	Public welfare	Rangelands ranked on potential replacement feed cost by region/owner/vegetation type
Air quality	Public health Environment Public welfare	Potential damages to health, materials, vegetation, and visibility; ranking based on vegetation type and air basin
Historic buildings	Public welfare	Historic buildings ranked based on fire susceptibility
Recreation	Public welfare	Unique recreation areas or areas with potential damage to facilities, ranked based on fire susceptibility
Structures	Public safety Public welfare	Ranking based on housing density and exposure (potential for structure loss in a large fire event)
Non-game wildlife	Environment Public welfare	Public and NGO land holdings specifically for protection of non-game wildlife habitat, ranked based on fire susceptibility.
Game wildlife	Public welfare Environment	Omitted due to lack of methodology/available data
Infrastructure	Public safety Public welfare	Infrastructure for delivery of emergency and other critical services (e.g. repeater sites, transmission lines, transport corridors)
Ecosystem health	Environment	Ranking based on condition class, potential for ecological damage from a severe fire event due to deviation from historical fire return interval

Mapping and Ranking AARs

For the purpose of ranking potential impacts for a given AAR, a common statewide geographic unit is required. To link the analysis to a common map source used by CAL FIRE Units, the 7 ½ minute (1:24,000 scale) quad boundaries were selected as a base. Since they cover large areas (about 35,000 acres), quads are divided into 81 grid cells, each about 450 acres. The size of these units was deemed appropriate for focusing in on high value/ high risk areas.

For a given AAR, grid cells must be ranked as high, medium, or low based on potential impacts from a large fire event, if one were to occur, rankings are developed based on the potential physical fire effects as well as the human valuation of those effects. For example, for the air quality AAR the physical effects of a large fire in timberlands are higher than grasslands due to production of a larger volume of smoke. The valuation of this effect will differ based on the additional factors of how many

people are potentially affected within specific air basins. For example, a timberland fire affecting the Northeast Plateau air basin will have a lower ranking than one that affects the Sacramento Valley air basin.

The potential physical effects of a large fire also include a susceptibility component for assets such as structures, historic buildings, or recreation that involve specific sites within a quad 81st. For example, the ranking procedure for structures involves a valuation component based on the number of housing units within a grid cell as well as a susceptibility component, or exposure. The exposure measure includes site-specific factors near housing such as vegetation clearance, roof type, and accessibility.

Fuel Load

The fuel assessment layer exemplifies the local fire hazard situation. The fuels assessment is a very useful tool in assisting pre-fire planners and fire safe councils target critical areas for prescriptions. This assessment evaluates current flammability of a particular fuel type, given location on the slope, affects from weather conditions, surface and ladder fuels, and crown density. Fuel in context of wildfire, refers to all combustible material available to burn within a given area of land. Grass, brush and timber are the most common fuels found in the Sierra Nevada ecosystem. These fuels have specific burning characteristics based on several inherent factors. These factors include moisture content, volume, live to dead vegetation ratio, size, arrangement and plant's genetic make up. All of these contribute to a fire's spread, its intensity, and ultimately its threat to assets.

The planning belt for Butte flows in a consistent elevation ladder from barren (farmlands) to grass into brush and finally into timber. This identification is important because it relates directly to the fire hazard these fuels identify with in their burning characteristics. Local conditions (micro-climates) also affect fuel type and density. North facing slopes tend to get slightly more rainfall and less sun favoring the development of hardwood and succulent species. Southern exposures are dominated by brush and conifer species which have adapted to drier, poor soil conditions.

Grass burns rapidly with a short period of intensity with maximum heat output. Brush, on the other hand, has a long sustained high heat output making fire suppression more difficult. Timber, while more difficult to initiate large fires, once established creates a defensive firefighting posture due to the intensity of the burning characteristics.

Fuel load as explained previously falls into three general categories as it affects wildland fire proliferation within the Butte Unit. Overall there are 256 fuel models however for planning purposes most fuel modeling is based on one of the 13 types defined by the National Wildfire Coordinating Group Fuel Model. The Planning Belt for Butte consists of seven categories as they extend from the valley floor into Plumas County. These models are compared to the past fire history for the area to create a final vegetation layer.

The final phase of determining fuel hazard rating involves combining crown fuel characteristics and surface fuel characteristics. Where applicable, the ladder and crown fuel indices convey the relative abundance of these types of fuels. The indices take values ranging from 0 to 2, with 0 indicating "absent", 1 representing "present but spatially limited", and 2 indicating "widespread". These indices indicate the probability that

torching and crown fire will occur if the stand were subjected to a wildfire under adverse environmental conditions.

The total hazard rating includes not only hazard posed by surface fire, but also hazard by involvement of canopy fuels. The hazard ranking includes this component by adjusting the surface hazard rank according to the value of the ladder and crown fuel indices. Specifically, the surface hazard rank increases a maximum of one class in all situations where the sum of the ladder and crown fuel indices is greater then or equal to two.

The potential fire behavior drives the hazard ranking. A rank is attributed to each Q81st (450 acre parcel) within Butte Unit's State Responsibility Area. The ranking method portrays hazard ratings as moderate, high or very high. This map provides another tool for determining pre-fire prescriptions. Various prescription types will better correlate to specific types of fuel models. Additionally, structures are not equated into the fuel ranking model. Structural ignition defense is best achieved with PC 4291 compliance. Suppression agencies do not expect these measures to stop a large scale wildfire. However a non-compliant PC 4291 structure that is ignited during a wildfire will significantly increase the wildfire spread. Combining this knowledge is paramount in developing a community defense plan against wildfire. Fires in grass burn rapidly, but can be stopped by a roadway or plowed fire breaks. Fires in brush often burn with an intensity that prevents fire crews from safely applying water to the flame front. Timber fires can ignite new fires (spot fires) miles ahead of the main blaze. Only wide scale pre-fire management programs can reduce the potential of wildfire catastrophe.

Ignition Workload Analysis (IWA)

The legislature has charged the Board of Forestry and CAL FIRE with delivering a fire protection system that provides an equal level of protection for lands of similar type (PRC 4230). To accomplish this, CAL FIRE utilizes an assessment process which evaluates the level of service currently afforded a particular wildland area with the level of fire protection being provided for the same area. The rating is expressed as the percentage of fires that are successfully extinguished during initial attack. Success is defined as those fires that are controlled during the initial attack phase by limited resources before unacceptable damage and cost are incurred.

CAL FIRE's ignition workload analysis (IWA) rating is a relative system which attempts to measure the impact of fire on various assets at risk. IWA is an approximation method which has been proposed to allow the unit to proceed with a damage-plus-cost analysis assessment of fire protection performance. The IWA rating also provides a way to integrate the contribution of various program components (fire protection, fire prevention, planning, fuels management and fire suppression) toward the goal of keeping damage and cost within acceptable limits.

In this system, a 'fire' may be considered a failure based upon the level of resource commitment and the fire's size. Unfortunately, this type of analysis oversimplifies the myriad of factors that truly determine initial attack (IA) success. Example, IA failures that are a result of excessive resource draw-down and/or adverse fire weather, that create fire behavior beyond what IA resources are normally able to handle.

The IWA rating is a ratio of successful initial attack fire suppression efforts to the total number of fire starts. This rating utilizes GIS to graphically display the success and failures of the fire protection system by overlaying 10 year wildfire history onto a map and deriving the average annual number of fires by size, severity of burning conditions and assets lost. The LOS rating can be readily used to describe the degree of success of fire protection services to "civilian stakeholders."

The result is an initial attack success rate measured as a percentage of fires by vegetative type and area. Success is defined as those fires that are controlled before unacceptable damage and cost are incurred and where initial attack resources are sufficient to control wildfires.

Fires are grouped into "success" and "failure" categories based on various factors. The assessment groups fires by general vegetation planning belts. Within the planning belt fires are further classified based on final fire size and weather conditions at the time of ignition. As we implement various prescriptions, we can break these data sets out as a whole or compartmentalize them and begin to correlate the data to better determine the effectiveness of the prescriptions.

When the IWA is overlaid onto a fire history map, we can see where projects have been successful. What the LOS does not record are successes in overall reduction of a 'fires' potential or structure saves within larger fires.

This assessment program only records fires that meet certain parameters. Those parameters are grass fires over 300 acres, brush fires over 50 acres, timber fires over 10 acres or wildland fires which destroyed 3 or more structures or caused damages over $300,000 dollars.

Structural Ignitability and Home Defense

One of the key components in the CWPP is the protection of structures during the event of a wildfire. As explained earlier, this critical asset is one of the most difficult and costly to defend during a wildfire.

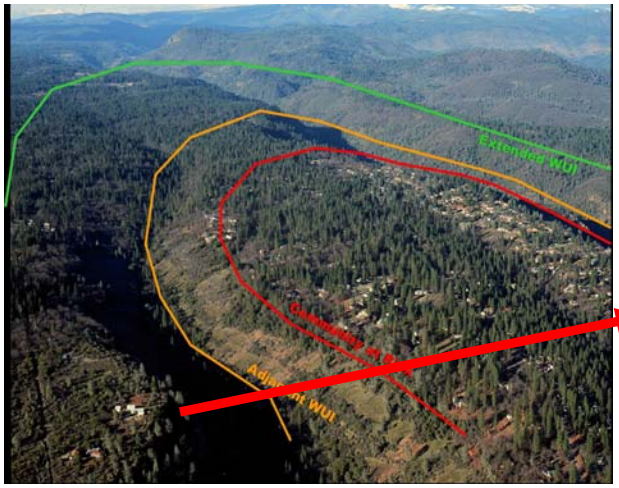
Compliance with PRC 4291 regulations gives the best opportunity for structural survivability during a large wildfire. However, it is not enough to have defensible space without giving careful thought and effort toward improving the homes resistance to structural ignitability.

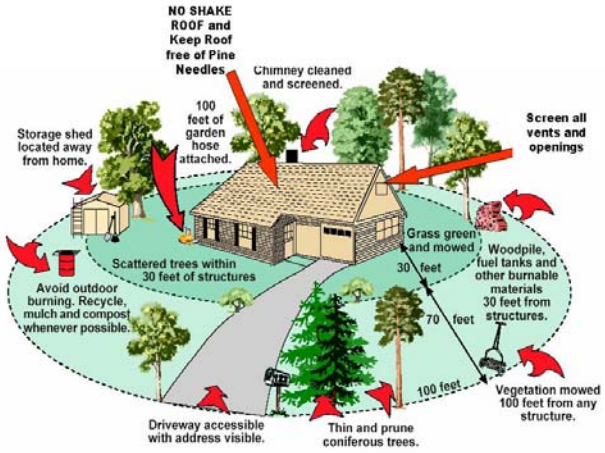
Structural ignitability is a term that describes a structure's susceptibility to catch fire during a wildland fire. Aiding a fire in this capacity would be any item allowing a fire ember to readily start a new fire. Many structures can be lost well in advance of the main fire. During firestorms, fires are often fanned by strong winds creating a blizzard of embers which blow through the air. These embers can land in a receptive fuel bed. This fuel bed can include naturally occurring materials, such as needles and leaves that accumulate on, under and near a home, material stored on or near the home such as yard furniture or woodpiles, and some types of building materials. Building materials that lend themselves readily to "structural ignitability" include the obvious shake roof and the not so obvious deck material and interior support members in the attic or sub-floor space. When reducing a structure's ignitability the mitigation measures are best accomplished by the individual homeowner.

Mitigation measures will be separated into four categories: 1. Information, Education and Planning; 2. Reducing Structure Ignitability; 3. Enhancing Suppression Capabilities and Public Safety; and 4.Hazardous Fuel Reduction Planning and Implementation. Most projects are conceptualized at the ground roots level. In this instance that would include a local fire safe council, community organization or individual. Before the project is forwarded to the Butte County Community Wildfire Protection Plan Project Review Committee, an initial review should go through the local fire suppression supervisor for the geographic area in question. For areas in the State Responsibility Area and County Responsibility Area the Butte County Fire/CAL FIRE Battalion Chief will assume this role. For areas within City Jurisdictions the Fire Chief or designee will assume responsibility. The Battalion Chief will receive a completed form from the project initiator that will address some key concerns of implementation for each project. Key components in this phase of implementation are to keep projects consistent with the fire plan area goals, ensure projects are relevant and move the best projects forward to compete with other submitted projects.

Staying with the concept of Structural Ignitability, the following page shows an illustration displaying the importance of maintaining PRC 4291 clearance as it relates to location in relevance to the community at risk and a homes place in the wildland urban interface (WUI).

Detailed Illustration of the Home Ignition Zone





<u>HOME IGNITION ZONE</u>

- ✓ **Fire resistant building construction**
- ✓ **Defensible space around the home 100 feet.**

In this illustration, the identified home falls within the Extended WUI. The location at the top of a ridge would only increase the danger of succumbing to a wildland fire. A structure such as this would benefit greatly by adhering to PC 4291 compliance.

This section will continue with a detailed look at the risk condition within the four identified focus areas. Offered will be mitigation measures that the homeowner can institute as well as measures being affected by local fire safe councils, private industry and local fire protection agencies. Mitigation measures prioritize to assist the homeowner in the following order. This order is the succession order most expected to be followed by an individual resident.

1. *Home Ignition Zone – the home and landscaping out 100 feet.'*
2. *Community at Risk Zone*
3. *Adjacent Wildland Urban Interface*
4. *Extended Wildland Urban Interface*

The goal of this section is to:
Identify situations and factors which place citizens, their property and communities at risk from wildfire, and suggest appropriate mitigation measure(s) to reduce that risk.

The objectives of this section are to:

- Identify mitigation measures that focus on public safety, firefighter safety, reduce structure ignitability, and reduce damage to assets and natural resources.
- Identify areas where collaborative efforts of local, state, federal agencies and private landowners can mitigate risks of structure ignitability, reduce hazardous fuels, and wildfire threats to communities and watersheds.
- Support efforts of Butte County, the County Fire Chief, County Fire Chiefs Association, Butte County and community Fire Safe Councils, Butte County Natural Resource Conservation Service (NRCS), California Department of Forestry & Fire Protection (CAL FIRE), United States Forest Service (USFS), Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), and other agencies and organizations to collaboratively implement mitigation measures and obtain funding assistance.

MITIGATION MEASURES BY FOCUS AREAS:

Focus areas are broken down into elements, which contribute to the risk of homes and communities being lost to wildfire. A statement of the situation or issue will be presented, followed with a mitigation recommendation(s).

Information, Education and Planning

Risk:

Any information that is presented and is otherwise false or inaccurate poses a great threat to successful implementation of emergency circumvention. There are a number of Fire Safe Councils that are made up of volunteers or staff that receive funding sources through grants and other endowments. Should those resources not be available, the fuels reduction projects and educational program displays that are currently being produced could be severely impacted.

Mitigation:

Continue to expand and circulate the information currently being offered to the community. Ensure that the local fire chiefs and contributing agencies are in agreement with the message being presented. Expand the safety messages to include developers, realtors, contractors, home builders, and building inspectors and others on methods and building construction to improve the chance for structural survivability. Programs should address: home site location, safe access, signage, importance of available water, adequate fire protection and the critical role vegetation plays in wildland fire including landscape implementation.

These programs need to have evacuation planning prior to emergency incidents to improve orderly evacuation of civilians and the ingress and emergency crews. Community evacuation plans will be developed and maintained through a

coordinated effort involving law enforcement, fire, EMS, County OES and the American Red Cross with the assistance of area fire safe councils. Many of the County's communities have evacuation plans with identified evacuation routes and public assembly areas. Communities without plans should be identified by County OES as part of the County's Disaster Mitigation planning. Evacuation plans need to be tested with simulated emergency drills to improve effectiveness

CWPP Updates – Completion of the Community Wildfire Protection Plan is the first step in planning and implementing mitigation activities that will protect homes and communities from wildland fire. The CWPP serves for the unincorporated communities within the County of Butte, and the incorporated communities of Biggs, Chico, Gridley, Oroville and Paradise The plan will be updated annually with specific consideration give to the areas designated as CAR and the elements of the fire risk mitigation strategies by area of focus.

Reducing Structural Ignitability

Risk:

Homes that 1; do not maintain a defensible space reducing flammable material around their homes to keep direct flames and heat away from the side of their buildings, and 2; construct buildings that do not adhere to State Fire Marshal approved products and construction methods, stand a greater chance of losing their home in a wildfire.

Mitigation:

The State Fire Marshal has adopted new building codes for California's Wildland Urban Interface. http://osfm.fie.ca.gov

On September 20, 2005, the California Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending the California Code of Regulations (CCR), Title 24, Part 2, known as the 2007 California Building Code (CBC).

"701A.3.2 New Buildings Located in Any Fire Hazard Severity Zone. New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas, any Local Agency Very-High Fire Hazard Severity Zone, or any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter. New buildings located in any Fire Hazard Severity Zone shall comply with one of the following:

1. State Responsibility Areas.

New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas, for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.

2. Local Agency Very-High Fire Hazard Severity Zone.

New buildings located in any Local Agency Very High Fire Hazard Severity Zone for which an application for a building permit is submitted on or after July 1, 2008, shall comply with all sections of this chapter.

3. Wildland-Urban Interface Fire Area designated by the enforcing agency.

New buildings located in any Wildland-Urban Interface Fire Area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.

OBJECTIVE

The broad objective of the Wildland-Urban Interface Fire Area Building Standards is to establish minimum standards for materials and material assemblies and provide a reasonable level of exterior wildfire exposure protection for buildings in Wildland-Urban Interface Fire Areas. The use of ignition resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire (wildfire exposure) will prove to be the most prudent effort California has made to try and mitigate the losses resulting from our repeating cycle of interface fire disasters. The California Department of Forestry and Fire Protection (CAL FIRE) and the Office of the State Fire Marshal (OSFM) revised the mandatory effective date for those areas where local government has responsibility for wildland fire protection (LRA) to July 1, 2008, to enable local government agencies more time to review and accept the fire hazard severity zone maps that wer presented to them.

Risk:

While **over fifty percent of** new construction and remodels are generally covered by these provisions, previous construction not meeting these new standards could increase risk of intrusion from flames and embers. These risks include but are not limited to *roofing, attic ventilation, exterior walls, decking and ancillary buildings and structures.*

Mitigation:

2001 California Building Code, Chapter 7, Section 704A – Materials, Systems and Methods of Construction, provides category explanations for the risks and detailed subheadings for each risk. Within this section, fire resistant ratings, wood thickness, vent opening allowances and other construction and building code requirements are covered to resist flame ember and flame intrusion where a wildfire burning in vegetative fuels may readily transmit fire to buildings and threaten to destroy life, overwhelm fire suppression capabilities, or result in large property losses.

Enhancing Suppression Capabilities and Public Safety

Risks:

Butte County presents a unique challenge for fire protection with a blend of urban and rural fire and rescue needs. These needs are not only spread by geographic boundaries, but political and jurisdictional as well. Changes in modern society such as terrorism, hazardous materials, and urban search and rescue to name a few, along with expanding rural populations present increasing challenges for emergency providers**.**

Mitigation:

Support the implementation of Butte County Fire Department's Master Plan, developed by the County Fire Chiefs Association. This plan includes maintaining the existing fire and rescue capabilities and re-establishing fire protection elements that have been recently cut such as the staffing of local hand crews and fire lookouts. Continue to work with adjoining fire departments to share critical and scarce resources across jurisdictional boundaries.

Risks:

Emergency response that is hindered by unidentifiable roads and addresses, poorly maintained drives and private roads, inaccessible residences due to bridge construction, locked gates and slopes restricting vehicle access and the inability to access copious amounts of water for fire suppression.

Mitigation:

New construction standards have provisions in place to require all new construction developments to be PRC 4291 compliant. City and county inspectors must have the resources to perform inspections and be able to carry out code enforcement. For existing structures, measures should be explored that will offer *incentives* to bring existing residences and communities up to state and local standards for emergency access. Identify, map and sign existing water sources using GIS. Enhance and improve water storage, access, and development for firefighting on public and private lands.

Risks:

Emergency evacuations for communities within the wildland urban interface currently have one way in and out of their community.

Mitigation:

Agencies working with County OES will identify communities with inadequate escape routes. This process shall be included in the County General Plan Process. Communities, industrial landowners, along with local, state, and federal agencies should work collaboratively to identify and pursue funding to improve emergency

evacuation routes for communities with one way in and out. Develop MOU between private landowners and public pertaining to road maintenance and liability during evacuation. Support efforts to improve local and state road systems for emergency access.

Hazardous Fuel Reduction

Risks:

Homes and properties that do not comply with (PRC 4291) fuels reduction standards stand a greater risk to propagate the spread of a wildland fire and reduce fire suppression capabilities. This risk is increased when homeowners use non-native plants or arrange the landscaping in a fashion that increases wildland fire spread. Vacant lots with excessive fuel loads near structures create hazards when there is no legal basis to enforce clearance.

Mitigation:

Educational efforts are being made to educate residents on the risks due to inadequate defensible space and the need to comply with state and local laws requiring the removal of vegetation for defensible space around their residence. Continue with Fire Prevention programs that send inspectors to target communities to enforce PRC 4291 compliance. "Defensible Space Landscaping in the Wildland Urban Interface" completed by the University of California Forest products lab is an excellent source for fire performance ratings for various plants. (http://ucce.ucdavis.edu/fileslibrary/616/4017.pdf) Look to modify county and city codes to require vacant lots to conform to a fire safe standard requiring property owners of vacant properties to clear a minimum of 30' along property lines, and in areas where neighboring properties have a structure the clearance should be in 4291 compliance.

Risk

Post Forest Practice activity (slash) fuel treatment – Forest practice activities including pre-commercial thinning and harvesting creates "activity fuels," slash which under the forest practice act must be treated to carrying standards based upon the circumstances. Reference the California Forest Practice Rules Article 7, Hazard Reduction, Section 937.2 treatment of Slash to Reduce Fire Hazard

Non-Compliance with post treatment fuel conditions can create additional risks to catastrophic fire losses.

Vegetation Treatments: Essentially states that tree removal targets under story trees, with a maximum tree sized to be removed of less then 30" inside bark stump diameter, post harvest canopy closure of 40-60% varying by forest type, with stocking meeting the commercial thinning requirement, under story and surface fuels to be removed to achieve a distance of 8' height to the base of the live crown,

and surface fuels to be treated within 120 days from start of operations to achieve a maximum 4 foot flame length.

Mitigation

Educate non-industrial and industrial forest landowners about the added fire hazard created by remaining activity fuels. Work with non-industrial and industrial forest landowners to treat activities fuels within the designated Wildland Urban Interface area beyond the requirements of the forest practice act. Explore incentives, such as tax credits, for landowner, who treat activity fuels within the WUI to a 2-4' flame length. Work with the Board of Forestry to establish forest practice standards for the treatment of activity fuels, particularly those generated during pre-commercial thinning, within the WUI similar to the "vegetation treatment" standards within the CAL FIRE "Notice of Emergency Timber Operation Fuel Hazard Reduction."

Risk

Many proposed subdivisions in Butte County have hazardous fuel conditions that place the development and surrounding homes and communities at risk. Moreover, with the addition of structures and people in areas will bring an increased risk of fire starts.

Mitigation

Modify county codes to require hazardous fuel treatment on proposed developments prior to recordation of final map. To expedite fuel reduction countywide, manage fuels in an economy of scale, and insure completion. It may be prudent to require hazardous fuel reduction prior to recordation of the final subdivision map. Require a maintenance plan to maintain the investment, desired fuel condition, and provide for community safety, in upcoming developments. Require a hazardous fuel reduction maintenance plan that can assign either the Homeowners Association or Communities Service District the responsibility to provide for future fiscal and enforcement responsibilities to maintain fuels in a fire resistant condition. Hazardous fuel reduction and subsequent maintenance should create a fire resilient condition, a condition which would not contribute to initiating or sustaining a crown fire, and potential surface fuel flame lengths would be 3' or less.

Risk

Fuel treatment within communities at risk has begun to develop hazardous fuel reduction projects on much untreated land between structures and in common areas throughout the county. This is an area that includes private and public lands that fall within the WUI, to include the Communities at Risk, Adjacent Area and the Extended Area of Risk. Maintenance is a key component to the successful implementation of any project.

Mitigation

Encourage property owners, homeowner associations, community services districts, communities, and agencies to work collaboratively to reduce the risk of fire. Implement fuel treatment measures within and around communities as stated in this document. County efforts should continue to be made in the pursuit of funding for community hazardous fuel reduction activities. Explore incentives for existing large landowners to meet hazardous fuel reduction standards on their properties. Through collaborative efforts, all public lands within communities at risk should be assessed for treatment. Public lands should be treated to a standard which will create a fire-resilient stand, which would not contribute to initiating or sustaining a crown fire, and potential surface fuel flame lengths would be 4’ or less. Complete Butte Counties Strategy for Fuel Reduction including private, local, state and federal hazardous fuel reduction projects. Explore incentives for existing landowners to meet HFR standards on their properties. Continue to pursue projects that establish fuels reduction measures within the WUI focusing on CAR as the projects extend into the WUI.

Educate homeowners and other agencies involved in fuel reduction about the dynamic plant communities and the need to complete periodic fuel reduction maintenance in order to prevent re-growth. Require that fuel reduction project within developments, communities at risk, and the adjacent and extended WUI area identify and plan for the needs for future maintenance, including frequency, type and anticipated cost. Work with governing boards, agencies and lawmakers to develop, approve and regulate alternative methods for fuel reduction maintenance. Explore incentives for existing landowners to maintain hazardous fuel reduction standards on their properties.

Battalion One Planning Area

Including the Town of Paradise, Magalia and the Upper Ridge Communities
Butte County Fire Department/CAL FIRE Battalion Chief; Chris Haile
Town of Paradise Fire Chief; Chris Jensen
Town of Paradise Fire Safe Council Coordinator; Jim Broshears
The Upper Ridge Coordinating Council; Darrel Wilson

Specific Fire Behavior Factors and Wildland Urban Interface Situation

The following synopsis is intended to specify the fire behavior factors (fuels, topography and weather) and Wildland Urban Interface (WUI) problems specific to the Paradise Ridge Fire Planning Area.

Fuels:

There is a wide range of vegetation types found within Paradise Ridge planning area. The vegetation types range from grass, chaparral brush mix, oak woodland and timber.

Vegetation found within the towns of Magalia, Stirling City and Upper Paradise is predominantly Timber and associated brush. The timber type within most of Paradise is Ponderosa Pine/ California Black Oak mix, with an under story chaparral brush component consisting primarily of Manzanita, Deer Brush, Ceanothus sp., Scotch Broom, and Poison Oak. Some areas of undeveloped lots or greenbelt areas have very dense brush which can affect fire behavior.

Upper elevations of Paradise, Magalia and Stirling City have a mixed conifer trees in the over story include Douglas-fir, Ponderosa Pine, Sugar Pine, White Fir and Incense Cedar. Hardwood trees in the under story include California Black Oak, Tanoak, Canyon Live Oak, Big Leaf Maple and California Laurel. There is also an under story chaparral brush component consisting primarily of Manzanita, Deerbrush, Ceanothus sp., Scotch Broom and Poison Oak.

All these vegetation types provide fire control problems because of overstocked and overgrown conditions due to years of successful fire suppression. The potential for a large, fuel driven fire is very real when fuel moisture conditions are conducive to burning. Fire control will be very difficult due to high fire intensities leading to fire behavior problems such as long range spotting, high rates of spread and long flame lengths. Direct attack will be impossible under these burning conditions for safety reasons. An indirect attack with a defensive approach is the most likely scenario for fire control.

Topography:

The most prominent topographic features in the Paradise Ridge planning area are the numerous steep canyons dispersed throughout the area. The two largest of these canyons, and most influential on fire behavior, are Butte Creek Canyon and West Branch Feather River Canyon. Butte Creek Canyon borders Paradise and Magalia to the west,

while West Branch Feather River Canyon borders both towns and Stirling City to the east. Less prominent canyons, but still very influential on fire behavior, are located along the south border of Paradise. The smaller canyons run north-south into town limits, but decrease in size substantially by the time they enter Paradise. These canyons include Nance, Hamlin, Berry, Clear Creek and Dry Creek.

Gently sloping, broad ridges make up most of the Paradise, Magalia and Stirling City residential areas. There are some smaller canyons entering both Paradise and Magalia. The canyons entering Magalia are Little Butte Creek and Middle Butte Creek. These canyons are relatively small where they enter Magalia. However, a well established fire starting in either canyon would provide a substantial resistance to control. There are also numerous tributaries to all of the canyons entering Paradise and Magalia. These tributaries may also produce minor canyons which can influence fire behavior substantially.

Weather: (refer to pg 9)

Lightning is cyclic in this area and is generally a minor occurrence. However, there have been lightning storms in the past that have started numerous, damaging fires. A recent example of this occurred in August of 1999 when 47 fires started by lightning burned over 33,000 acres in Butte County.

Historically, extreme weather conditions have not been the primary factor in large fires within the Paradise and Magalia area. However, there is a huge potential for weather to be a strong influence on fire behavior and should not be discounted.

Wildland Urban Interface Situation:

The Paradise Ridge Fire Planning Area is comprised of two large communities, Paradise and Paradise Pines (Magalia). The Town of Paradise and community of Paradise Pines are more characteristic of an urban interface environment where wildland abruptly adjoins high density housing. Both communities are relatively large and densely populated, comprised substantially of an elderly population. Other areas within the Paradise Ridge Fire Planning Area can be characterized as intermix areas, where houses are scattered amongst the wildland, such as those south of the Town of Paradise and north and east of the community of Paradise Pines.

Emergency access into and out of both communities is a real concern, due to limited, narrow roads and the expectation of large numbers of citizens trying to evacuate simultaneously. This is especially true in Magalia where the population density is very high and there is only one arterial road, the Skyway, leading in to and out of the community. This is further complicated by a stretch of the roadway that crosses Magalia Reservoir.

Battalion Two Planning Area

Including the Chico foothills, Lower Butte Creek Canyon, and the Communities of Cohasset, Forest Ranch, Butte Meadows/Jonesville, and the Hwy 32 corridor from the Chico city limits to the Tehama County line.

CAL FIRE / Butte County Fire Dept. Battalion Chief Dan Summerville
Cohasset Community Association – Bert Coffman & Jim Brobeck
Forest Ranch Preservation Alliance
Forest Ranch Fire Safe Council
Butte Meadows/Jonesville Homeowners Association
Sierra Pacific Industries

Specific Fire Behavior Factors and Wildland Urban Interface Situation

The following synopsis is intended to specify the fire behavior factors (fuels, topography and weather) and Wildland Urban Interface (WUI) problems specific to the Cohasset Forest Ranch Ridge Fire Planning Area.

Fuels:

There is a wide range of vegetation types found within the Battalion 2 Planning area. The vegetation types range from grass, chaparral brush mix, oak –woodland, and timber.

Vegetation found within the communities of Cohasset and Forest Ranch is predominantly timber and associated brush. The timber type is primarily Ponderosa Pine/California Black Oak mix, with an under story chaparral brush component consisting primarily of Manzanita, Deerbrush, Ceanothus sp., Scotch Broom, and Poison Oak. Some areas of undeveloped lots or greenbelt areas have very dense brush which can affect fire behavior.

The community of Butte Meadows/Jonesville has a mixed conifer timber type. Species of conifer trees in the over story include Douglas-fir, Ponderosa Pine, Sugar Pine, White Fir and Incense Cedar. Hardwood trees in the under story include California Black Oak, Tanoak, Canyon Live Oak, Big leaf Maple and California Laurel. There is also an under story chaparral brush component consisting primarily of Manzanita, Deerbrush, Ceanothus sp., Scotch Broom, and Poison Oak.

Vegetation found in the Chico Foothills and Lower Butte Creek Canyon and canyons adjacent to communities such as Little Chico Creek and Big Chico Creek Canyons range from grass and brush to Oak Woodland. Some of the trees in this area include Gray Pine, Blue Oak, California Black Oak and California Laurel. Brush species include Toyon, Western Redbud, Poison Oak and Ceanothus Sp..

All these vegetation types provide fire control problems because of overstocked and overgrown conditions due to years of successful fire suppression. The potential for a large, fuel driven fire is very real when fuel moisture conditions are conducive to burning. Fire control will be very difficult due to high fire intensities leading to fire behavior problems such as long range spotting, high rates of spread and long flame

lengths. Direct attack will be impossible under these burning conditions for safety reasons. An indirect attack with a defensive approach is the most likely scenario for fire control.

Topography:

Steep canyons and drainages are the dominant topographic feature in the Cohasset Forest Ranch Ridge Fire Planning Area. Typically these canyons/drainages have limited or no access for fire apparatus and have few options for control line placement which can allow fires to become well established and very resistive to control efforts.

Weather: (refer to pg 9)

Lightning is cyclic throughout the county and is generally a minor occurrence, yet still cause for concern as lightning storms in the past have started numerous, damaging fires. A recent example of this occurred in August of 1999 when 47 fires started by lightning burned over 33,000 acres across Butte County, the majority of which burned in Battalion 2.

Wildland Urban Interface Situation:

With the exception of the core area of the communities of Forest Ranch and Cohasset which are similar to a urban interface environment, the communities in the Cohasset Forest Ranch Ridge Fire Planning Area can be characterized as intermix areas. Residences are scattered amongst the wildlands, which makes the 100' clearance around structures vital, as these residences are not as densely located compared to a more urban interface environment. Protecting these structures are more challenging to protect due to a lack of resources. The Cohasset area also is faced with a 'one way in/ one way out' evacuation concern.

Steep inaccessible terrain combined with the previously mentioned light, flashy fuels at lower elevations and heavy fuel loading at higher elevations dominate the Fire Planning Area. Fires that start in this area immediately threaten high value/high risk exposures and are often complicated by the challenges of wildland urban interface firefighting.

Battalion Three Planning Area

Including the communities of Butte Valley, Butte Community College, Durham, Richvale, Nelson, Dayton, Concow and Yankee Hill.

CAL FIRE Butte County Fire Department Battalion Chief Scott Lindgren
Yankee Hill / Concow Fire Safe Council – Brenda Rightmyer

Specific Fire Behavior Factors and Wildland Urban Interface Situation

The following synopsis is intended to specify the fire behavior factors (fuels, topography and weather) and Wildland Urban Interface (WUI) problems specific to the Fire Planning Area.

Fuels:

The local responsibility area (LRA) which is west of Highway 99 is primarily agricultural with orchards, rice and field crops. There is a diminishing amount of grass and valley oak, especially near the Sacramento River and the major creeks and sloughs. One exception to this is the Llano Seco Ranch where various government and private agencies are restoring parts of the ranch to native habitat.

The State Responsibility Area (SRA) which is east of Highway 99 is primarily oak woodland and grass with some brush. As the terrain continues up Hwy 70 along the north fork of the Feather River Canyon the fuel type goes from grass oak woodland to brush then into mixed conifers and black oak.

At 800', annual grasses and oak woodland with blue and valley oak cover the lower foothills. Brush appears at the 1000' elevation and is especially thick in the drainages ranging from manzanita, chaparral, toyon and white thorn. Between 2000' and 2500' mixed conifer, second growth ponderosa pine and black oak appear.

Topography:

The elevations range from 800' to 4300'. The Feather River drainages and their tributaries lend towards steep slopes and chimneys. This also contributes to strong and erratic wind patterns. Forest conditions are highly variable in the area.

Weather: (refer to pg 9)

The steep drainages that exist from the Butte Valley into the Plumas National Forest contribute to strong and erratic wind patterns. In 2008 there was a lightning event that caused 15 to 21 fires (many of which burned together), this was the second significant lightning event in ten years (1999).

Wildland Urban Interface Situation:

This plan area consists of about 80,000 acres of which the U.S. Government, PG&E, Sierra Pacific Industries and other timber companies and local landowners control the larger tracts of land. There are extensive hydroelectric power facilities and transmission lines, Union Pacific rail line and a State scenic route up HWY 70. The Thermalito Irrigation District owns Concow lake and much of the land surrounding it. The greatest concentration of population is on developed parcels along Hwy 70, Concow Lake and the Big Bend area.

The Yankee Hill – Concow Fire Planning Area has a history of large wildfires; The Camp Fire which was part of the Butte Lightning Complex (2008) would burn or damage over 100 homes and account for a large portion of the 59,000 acres consumed during the siege; the Poe fire (09-06-01) burned 8,333 acres and destroyed 50 homes, the 70 fire (10-24-01) burned 1,711 acres, the Concow fire (09-19-00) burned 1,845 acres, with one fatality, several injuries to fire fighters and destroying 16 homes, and a lightning event in 1999 that burned tens of thousands of acres on the east side of Highway 70 north of Pulga.

Many areas have high concentrations of population with narrow access routes and inadequate defensible space. Another significant problem is the lack of water supply for fire protection with no pressurized community fire hydrants and very few large storage tanks.

Battalion Four Planning Area

CAL FIRE Battalion Chief Greg McFadden
City of Chico – James Beery

Specific Fire Behavior Factors and Wildland Urban Interface Situation

The following synopsis is intended to specify the fire behavior factors (fuels, topography and weather) and Wildland Urban Interface (WUI) problems specific to the Fire Planning Area.

Fuels:

The Valley (north) contains a large agricultural component. The Chico Foothills consists mainly of light to medium fuels such as annual grasses and chaparral brush mix. Mixed with the topography and recent development these fuels create a fire suppression concern due to their ability to increase in size quickly.

Topography:

The Valley (north) is predominately flat. The Chico Foothills rise at approximately a 15% slope into communities within other Fire Planning Belts with high scores in fuel rank, ladder scores and heavier brush.

Weather: (refer to pg 9)

The Valley (north) and Chico Foothills do not exhibit any substantial differences to the Unit wide weather pattern.

Wildland Urban Interface Situation:

The Chico Foothills and Valley (north) encompass the northwestern corner of Butte County and includes the greater un-incorporated area surrounding the City of Chico. BCFD staffs four fire stations that make up “Battalion Four” which has *Automatic aid agreements* with City of Chico, Tehama County and Glen County.

Battalion Four responsibilities encompass an area of approximately 170 square miles and contain a population of about 50,000. Critical infrastructure includes, Union Pacific Railroad main line, an underground petroleum pipeline, Highway 99 and Highway 32 as well as the Sacramento River.

The Chico Foothills have seen a substantial increase in home development. This development creates an increased populace and a lack of public awareness of burning regulations.

Prescription emphasis is placed on public education and enforcement.

Battalion Five Planning Area

Includes the areas of Berry Creek, Brush Creek, Mountain House, Feather Falls, Forbestown, Clipper Mills and several Indian Rancherias. There are also significant land holdings of Sierra Pacific Industries and State and Federal lands.

CAL FIRE Battalion Chief Mike Shorrock
Berry Creek Fire Safe Council – Dennis Nay

Specific Fire Behavior Factors and Wildland Urban Interface Situation

The following synopsis is intended to specify the fire behavior factors (fuels, topography and weather) and Wildland Urban Interface (WUI) problems specific to the Fire Planning Area.

Fuels:

This planning area consists of a wide range of vegetation types. The vegetation types include, grass, chaparral brush mix, manzanita, oak – woodland and timber. The fuel rank is predominately high to very high with ladder scores present with mixed to extensively mixed classification.

This planning area is the gateway to the Plumas National Forest and extensive SPI land holdings.

Topography:

Prominent topographical features in the planning area are the numerous steep canyons dispersed throughout the area. The two main canyons form the Middle Fork and South Fork of Lake Oroville. The area contours for numerous tributaries including Oregon Gulch, Cedar Ravine, Jack Hill Ravine and Forbestown Ravine to name a few. The remote nature of the area makes access difficult along these areas.

Weather: (refer to pg 9)

There is no historic data to promote a consistent cause and effect as to weather and fire in this planning area. However the adjacent Plumas Forest does generate weather patterns that produce thunderstorms and dry lightning throughout the fire season.

Wildland Urban Interface Situation:

The Berry Creek Ridge/ Lumpkin-Forbestown Ridge planning area are spread over three ridges.

The Berry Creek community is perhaps the most compact but still qualifies as a wildland urban *intermix.* Access and the remote location create a timely response concern in the event of a fast moving fire. The highest concentrated density of homes, are within the Lake Madrone development and off of Bald Rock Road. The community also houses the summer retreat Camp Okizu.

Feather Falls within the Lumpkin Ridge is also a wildland urban intermix. Access/egress is via Lumpkin Road. There is extensive traffic by logging trucks and

summer travel. recreational travel increases seasonally. Many residents are located on remote roads that are ill maintained and address identification is often limited.

Forbestown Ridge includes the community of Forbestown. Forbestown is on the edge of Butte and Yuba County and there is an auto aid agreement with Foothill Fire Protection District. Steeper mountainous roads create a delay in response times.

The communities have an active fire safe council that is involved in evacuation planning, fuel hazard reduction and outreach and education.

During extreme fire weather danger increased funding is provided to staff the Sunset Hill Lookout aiding in early wildland fire detection.

.

Battalion Six Planning Area

CAL FIRE Butte County Fire Department Battalion Chief Russ Fowler
City of Oroville Fire Chief, Charles Hurley
El Medio Fire District Chief Rusty Olhausen

Specific Fire Behavior Factors and Wildland Urban Interface Situation

The following synopsis is intended to specify the fire behavior factors (fuels, topography and weather) and Wildland Urban Interface (WUI) problems specific to the Table Mountain – East Oroville Fire Planning area.

Fuels:

The southern portion of the fire planning area is predominately grass land. As the area extends north and east the fuel type's change with the increased slope in topography. Fuel types increase in size and type to include grass oak woodland and manzanita, chaparral, toyon and white thorn.

Topography:

The southern area is predominately flat. As the area extends into the adjoining planning area so does the slope (up to 25%) leading into the other planning areas. The steepest slopes can be found leading up the Cherokee Ravine and the Oregon Gulch drainage. As the topography extends east the slope is not as severe but the area is scattered with multi directional drainages and access is problematic due to sporadic road placement.

Weather: (refer to pg 9)

Table Mountain – East Oroville does not exhibit any substantial differences to the Unit wide weather pattern.

Wildland Urban Interface Situation:

Table Mountain – East Oroville is predominately managed within Battalion 6 with some jurisdictional areas overlapping with Battalion 5 in the Bangor area. This area includes Cherokee, Bangor, Oregon City, Thermalito, Kelly Ridge, WP Addition, Wyandotte, Copely acres, Palermo and Honcut. The City of Oroville lies within the planning area boundaries. There is extensive State Parkland and Department of Water Resources owned land throughout the area. There are two Indian Rancherias within the planning area, both with gaming casinos and tribal communities (Mooretown and Berry Creek). The main influencing factor for vegetation fire is light flashy fuels mixed in with numerous structures. A secondary factor is that many of the housing areas are relatively poor and the lots are overgrown with vegetation and other flammable items.

The City of Oroville and the El Medio Fire Protection District both have unique fire safety planning areas within their jurisdictions. The City of Oroville has large areas of wildland urban interface. The City has a weed abatement program to help alleviate the risk of wildfire to some of these occupancies. The El Medio Fire District has large areas

of light flashy fuels, which have a yearly tendency to become ignited and spread rapidly into surrounding homes and businesses. The District attempts to mitigate this by conducting fuel hazard reduction burns in typically fire prone areas. However, this measure only treats a small portion of a relatively large area of the District.

Critical infrastructure within this planning area includes the Department of Water Resources State Water Project (Oroville Dam/ Hyatt powerhouse, Diversion Dam/ power plant, Thermalito Powerhouse), Pacific Gas and Electric Companies high-voltage transmission infrastructure (major power grid), Union Pacific railroad's all-weather transcontinental route, and South Feather Water and Power's hydro-generating and water distribution infrastructure.

Prescription emphasis is in education and enforcement (hazard reduction). The battalion, in cooperation with the Butte Fire Safe Council, is an active participant in "Fire in the Foothills" – a fire safe community outreach program to reach fire prone residents in the Eastern foothills of Oroville.

Battalion Seven Planning Area

Including the Cities of Biggs and Gridley
CAL FIRE/ Butte County Fire Department Battalion Chief Mike Brown
Fire Inspector Specialist Skip Sannar
Gray Lodge Wildlife Area (Department of Fish and Game)
Oroville Wildlife Area

Specific Fire Behavior Factors and Wildland Urban Interface Situation

The following synopsis is intended to specify the fire behavior factors (fuels, topography and weather) and Wildland Urban Interface (WUI) problems specific to the Valley (south) Fire Planning Area.

Fuels:

The east side of the Valley (south) is a transition zone at the edge of the Sacramento Valley and is bisected by State Responsibility Area and Local Responsibility Area line. This "front" is characterized by grass fuels on the flat valley edge and oak woodland or rolling Blue Oak Savannah in the foothills. The west side is the Upper Butte Sink of Butte Creek, an important flyway, fishery and wildlife habitat characterized by seasonal marshes, riparian habitat and a heavy loading of fine fuels. The two cities are surrounded by intensely farmed land.

Bisecting north and south of the Planning Area is the Feather River. The river bottom is a ten-thousand acre hardwood forest with its own unique fire regime.

Topography:

The Valley (South) is predominately flat. The river bottom contributes the only unique feature to the area.

Weather: (refer to pg 9)

The Valley (south) does not exhibit any substantial differences to the Unit wide weather pattern.

Wildland Urban Interface Situation:

The Valley (South) encompasses the southwestern corner of Butte County and includes the cities of Biggs and Gridley, the Mooretown Rancheria and the unincorporated communities of Palermo and Honcut. Automatic aid agreement is maintained with the City of Oroville, El Medio Fire Protection District and with Sutter County Fire Department. CAL FIRE also provides wildland fire protection to the growing Mooretown Rancheria in the State Responsibility Area through our statewide agreement with the Bureau of Indian Affairs.

The Gray Lodge Wildlife area is an off map critical infrastructure area within the unit. The area continues to benefit from an aggressive Vegetation Management Program.

Prescription emphasis is placed on education and enforcement. Firefighters seek to establish strong ties to the community though the maintenance of pre-fire plans, smoke

detector installation, third grade education programs and other community education events.

The greatest risk of fire loss to the Valley (south) is in concentrated areas affecting agricultural processing plants, storage areas and crop acreage. Also in the opportunity of fire starts from the River bottom spreading to adjacent Fire Sheds.

SUPPORT BUREAUS

OTHER PROGRAMS THAT NEED FUNDING WITHIN THE BUTTE UNIT

Magalia Reforestation Center – Forester I Dave Derby

Purpose Statement

The Magalia Camp, formerly the Butte Fire Center, has been slated for closure. This decommission process will conclude in February, 2011. The facility will continue to act as a regional training facility for CAL FIRE's northern region.

During the period when CAL FIRE/CCC hand crews were operating from the Butte Fire Center they averaged 65,000 emergency response hours per year responding to fires, rescues, floods, vehicle accidents, and other public service needs. BFC also served as a designated incident base for large fires supplying feeding, sleeping areas, command post functions, staging and communications.

The void created by not having a Conservation Camp within Butte greatly impacts the CAL FIRE Butte Units firefighting and emergency response capabilities. There is a substantial loss to public service in the form of fuel reduction and community service work within Butte County.

The goal is to create a Conservation Camp within Butte staffed with firefighting hand crews capable of all-risk, fire, flood, or rescue, emergency response and reimbursable public service fuel reduction and community service work.

Emergency Command Center – Battalion Chief David Hawks

Purpose Statement

The Butte Unit Emergency Command Center (BTU ECC) provides command and control services, as well as "pre arrival" emergency medical services, for all of the unincorporated areas of Butte County, in addition to the Cities of Oroville, Biggs, Gridley, the El Medio Fire Protection District, and the Mooretown Indian Rancheria. The BTU ECC is also the CAL FIRE Fire Command and Control center for State Responsibility Area (SRA) lands within Butte County.

Furthermore, the BTU ECC is the OES Fire Operational Area Mutual Aid Coordination center for Butte County. As the Operational Area Coordinator, the BTU ECC has responsibility to coordinate all fire mutual aid requests for all jurisdictions within Butte County. This responsibility also gives the BTU ECC the authority to directly obtain resources from all neighboring counties including Yuba, Sutter, Plumas, Glenn, Colusa, Tehama, and Lassen.

In 1995, the BTU ECC processed 12,024 incidents. In 2009, 15,507 incidents were processed, an increase of over **29**% in 12 years. The BTU ECC is currently staffed with five Fire Captains, seven Communications Operators, and one Battalion Chief. This staffing has remained fairly constant since 2005, and allows for three person staffing during shift hours, and generally two person staffing "wide awake" during the night shift, and the ECC Duty Captain available close by.

Objectives

- Continue to provide quality command and control services, as well as excellent customer service, to all of our customers.
- Pursue staffing increases to support increases in daily incidents, as well as increasing job complexity, and to provide for relief dispatchers.
- Pursue cooperative agreements with other departments and agencies to enhance efficiency of resource command and control, within Butte County.
- Pursue available technology to more efficiently conduct command and control operations.
- Cooperate fully and effectively with allied agencies.

Mission

The mission of the Oroville Emergency Command Center is to provide a consistent, accurate, timely, and coordinated command and control system. "We will provide support, direction, and communications with our ultimate goal being the best service possible to all who depend on our team."

Vegetation Management Program (VMP) – Battalion Chief Jeff Harter

Many of the VMP projects undertaken in the Unit have been within state wildlife areas. Due to the existing land use patterns within the Unit and the increasing population densities in Butte County, it is anticipated that the emphasis of the Vegetation Management Program will continue to focus projects in rural areas. Future projects will expand on state wildlife areas with high assets at risk in wildlife enhancement.

Active VMP projects include the following:

Sierra Pacific Industries (SPI): Goal of 1050 acres to be treated in the Butte and Tehama County area north of the community of Cohasset along the timber road known as the H Line. This project will treat under story growth of manzanita and pine needle accumulation along a 16 mile shaded fuel break maintained by SPI. Total cost of project is $49,189.44 with 73.16 percent paid by CAL FIRE.

Gray Lodge Wildlife Refuge VMP: Goal of 6000 acres to be treated. Located 6 miles west of Gridley, in Butte County, this project enhances the wildlife habitat managed by the California Department of Fish and Game. Reduction of over grown cat tails and other plant species are burned to create feed and open space for annual migrating waterfowl that visit the refuge each year. The population of waterfowl in the refuge has significantly increased since the burning has been conducted. Total cost of project is $32,749.41 with 54 percent paid by CAL FIRE.

The VMP program is expanding the burning to the Dry Creek, Howard Sough, Llano Seco Units along Butte Creek on California Fish and Game Lands. Over 2,000 acres of waterfowl and animal habitat will be treated. Other areas we are working with California Fish and Game are Oroville Wildlife Area, Table Mountain and Darby Unit. Each of these areas is unique by vegetation type and topography.

Fire Prevention Bureau – Battalion Chief Todd Price

(EDUCATION, ENFORCEMENT & PLANNING)

Purpose Statement

The Butte Unit Fire Prevention Bureau is responsible for public education, public information, fire hazard abatement, life safety and fire investigations. Each of these programs are important facets of a well balanced fire prevention program. Additionally, the Fire Prevention Bureau works closely with the Fire Protection Planning Bureau to ensure that common fire prevention interests are met.

Over the past few years a number of fires have been caused by using machinery like lawn movers to cut standing dead erases. While doing this kind of weed abatement, fires start in a number of ways. These include mower blades striking rocks, mover exhaust igniting grass, mechanical failures to pulleys and improper fueling techniques.

To combat what appear to be preventable fires caused by mowers, the Department has developed brochures for public distribution, which provide detailed information about the hazards of mowing dry grass, and how to take preventative measures. In addition, the Prevention Bureau has developed a Public Service Announcement to address the problem. The PSA focuses on the factors contributing to the problem, including mowing during warm weather, and what steps can be taken to help prevent these types of fires.

The Fire Prevention Bureau will continue to support the fire investigation needs of the Unit, assisting with complex fire investigations such as those involving fire fatalities, commercial structures, arson, or detailed follow-up investigative work. Through the fire investigation process, specific fire cause problems will be addressed utilizing focused prevention efforts of education and enforcement programs.

The Law Enforcement Officers (LEO) in the fire prevention bureau have the responsibility of instituting appropriate cost recovery and law enforcement on negligently and criminally caused fires. Officers are responsible for instituting follow up investigations and creating case reports for incidents that presumed negligent or criminal. Officers are required where appropriate to make arrests and present case~~s~~ reports to the District Attorney.

Fire Prevention Positions:

Pre Fire Engineer (PFE)

The PFE is responsible for the implementation of the Butte Fire Management Plan. This document serves as a blue print for pre fire management projects including fire safe and evacuation planning and hazardous fuel reduction projects. The PFE uses GIS technology to conduct assessments of the Unit's geographical fire hazard areas and produces mapping requests for hazard reduction projects. The PFE works with fire safe councils and monitors financial expenditures for the Proposition 40 and HR 2389 Grants. These grants are used for various community base fuel reduction projects.

Fire Protection Planning (FPP)

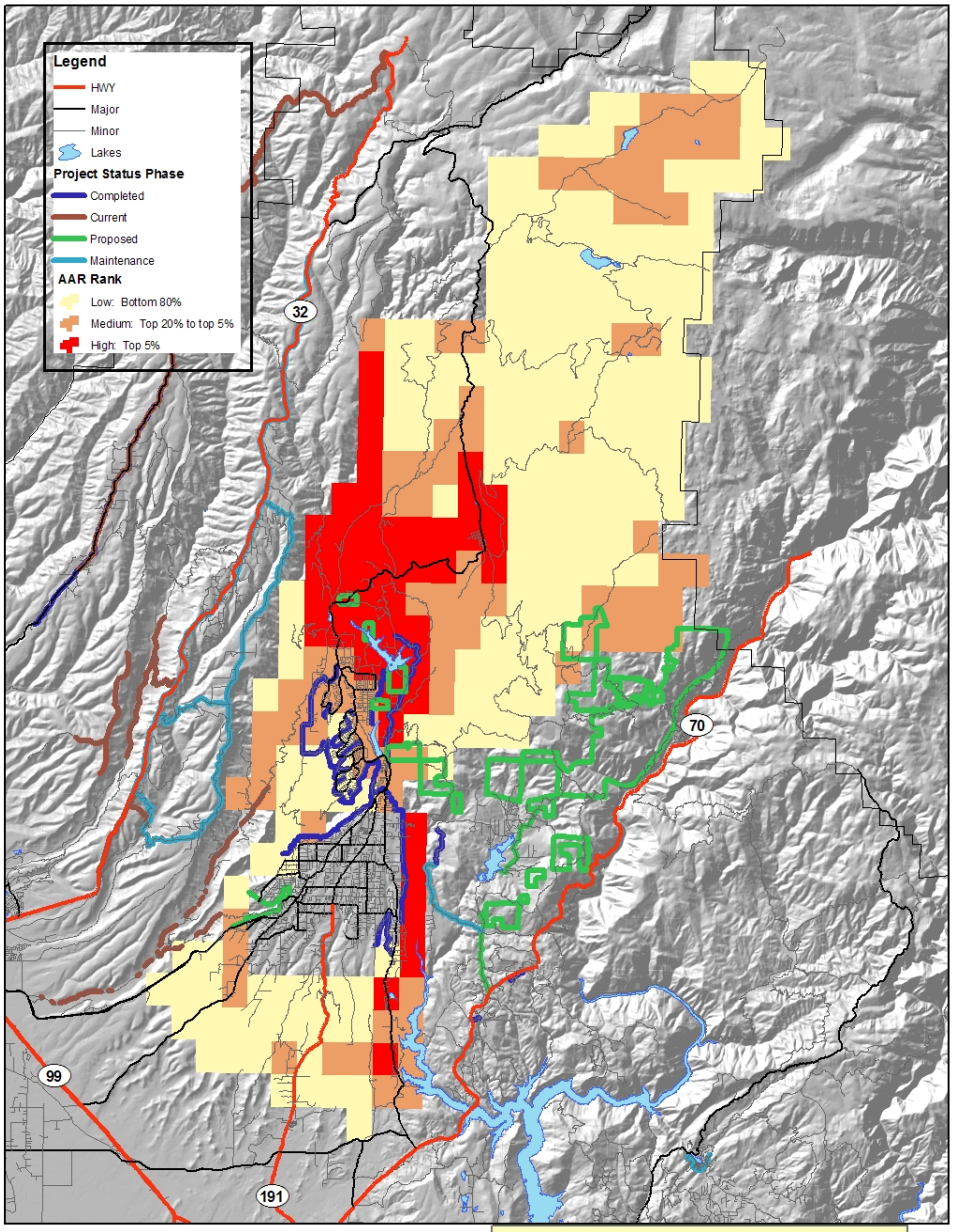
The FPP is an investigator who is responsible for the enforcement of Public Resources Code (PRC) 4290 (with in SRA), 4291, the Butte County Improvement Standards, and when applicable the CAL FIRE Code on all use permits. The FPP attends

Inter Department Review, Planning Commission, Pre Development, Users Group, Board of Supervisors, and other meetings pertinent to Fire Protection Planning. The FPP provides current fire safe building requirements to all Butte County Contractors, Engineers and Architects.

Hazard Abatement Officer (Program suspended due to budget Cuts)

Appendix 44

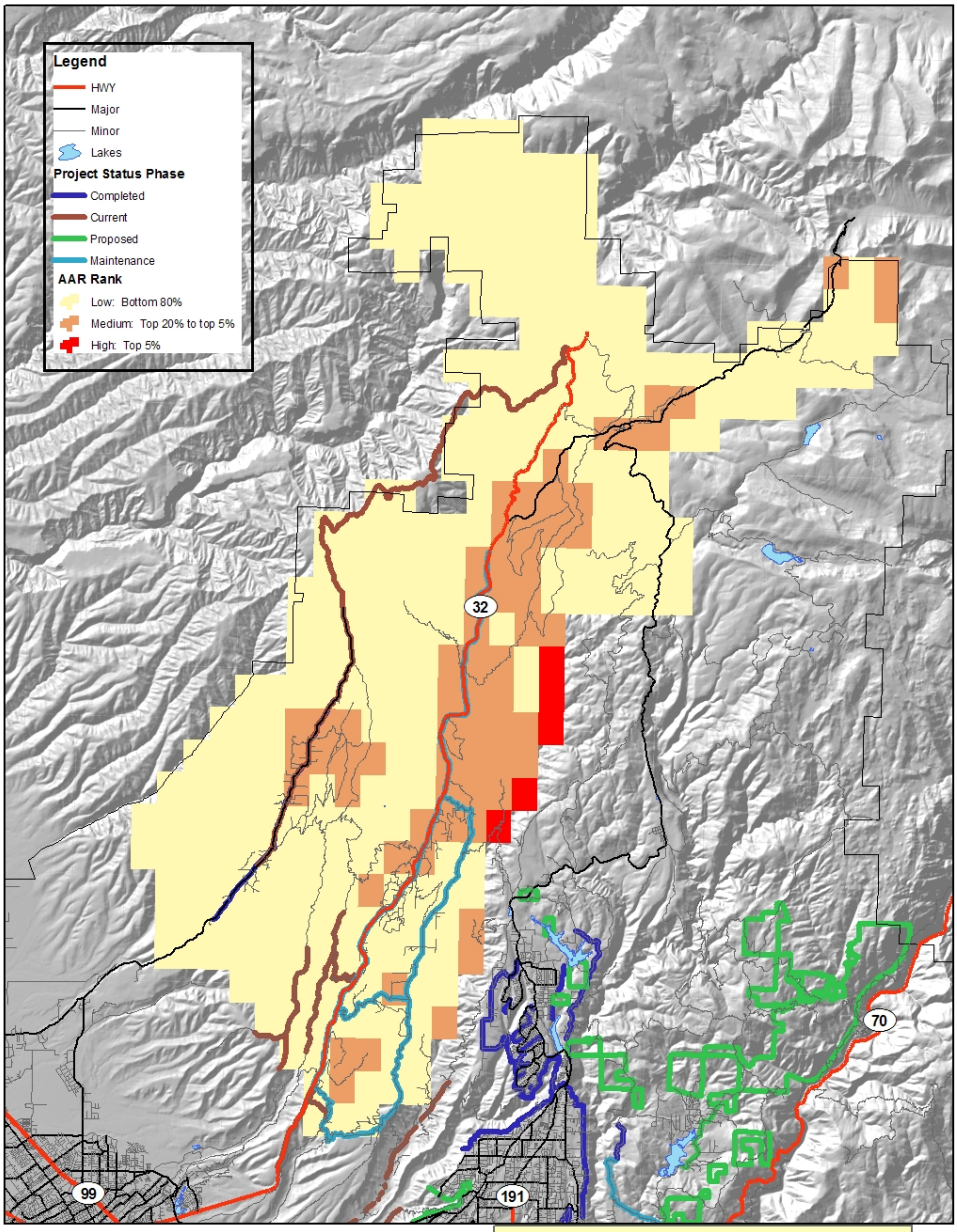
Assets at Risk / Battalion One Project Status



All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness.The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

Appendix 45

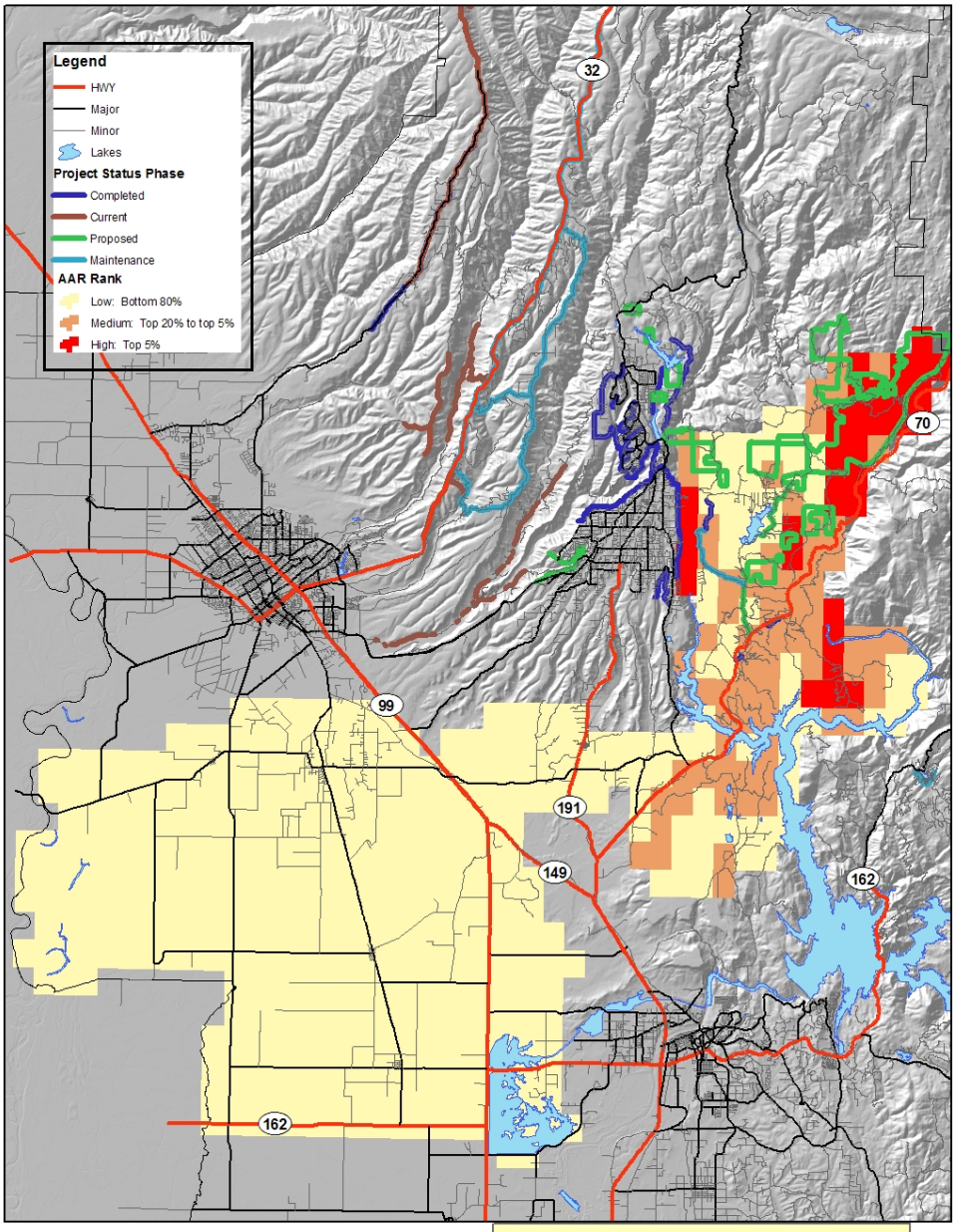
Assets at Risk / Battalion Two Project Status



All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness.The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

Appendix 46

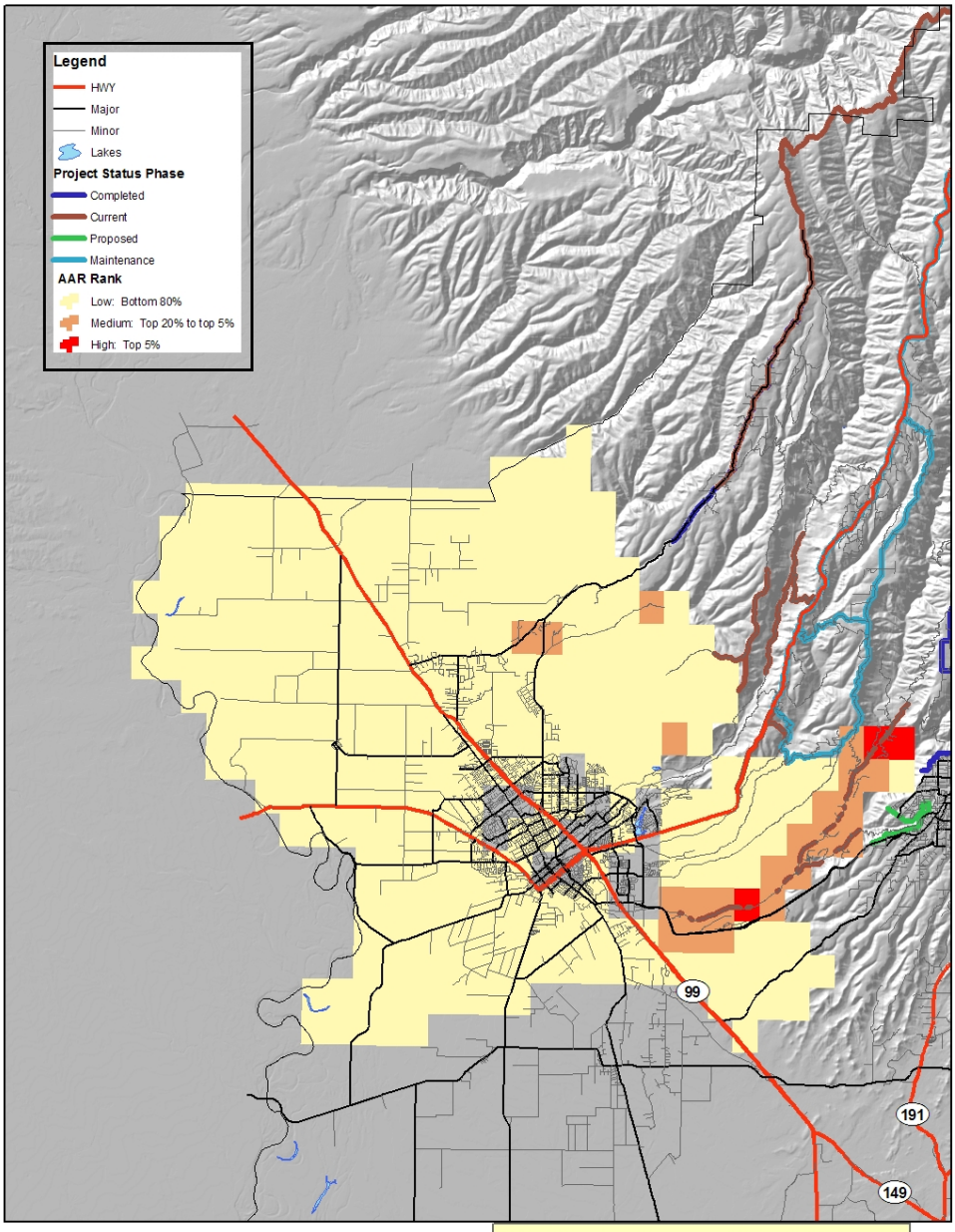
Assets at Risk / Battalion Three Project Status



All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness. The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

Appendix 47

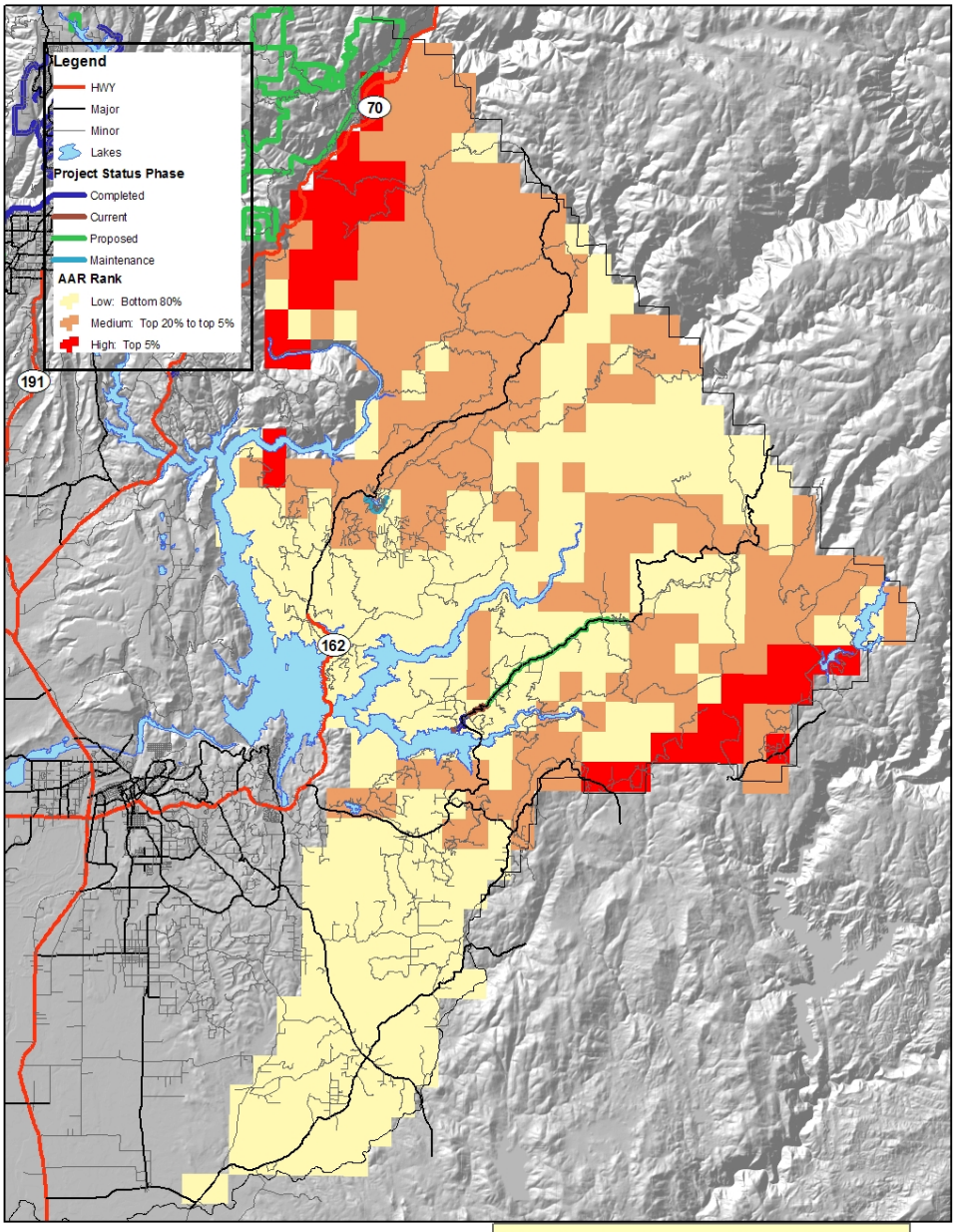
Assets at Risk / Battalion Four Project Status



All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness. The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

Appendix 48

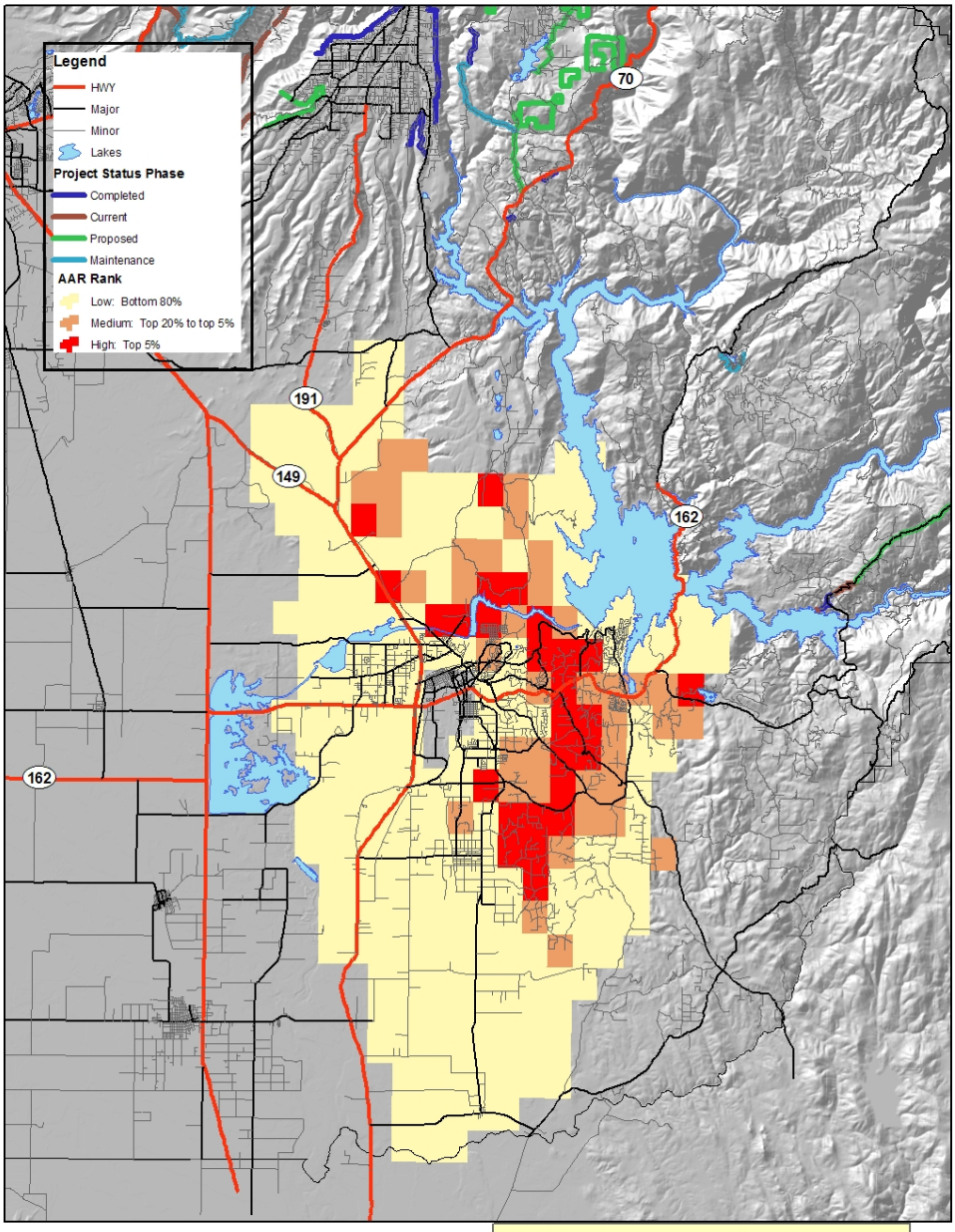
Assets at Risk / Battalion Five Project Status



All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness. The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

Appendix 49

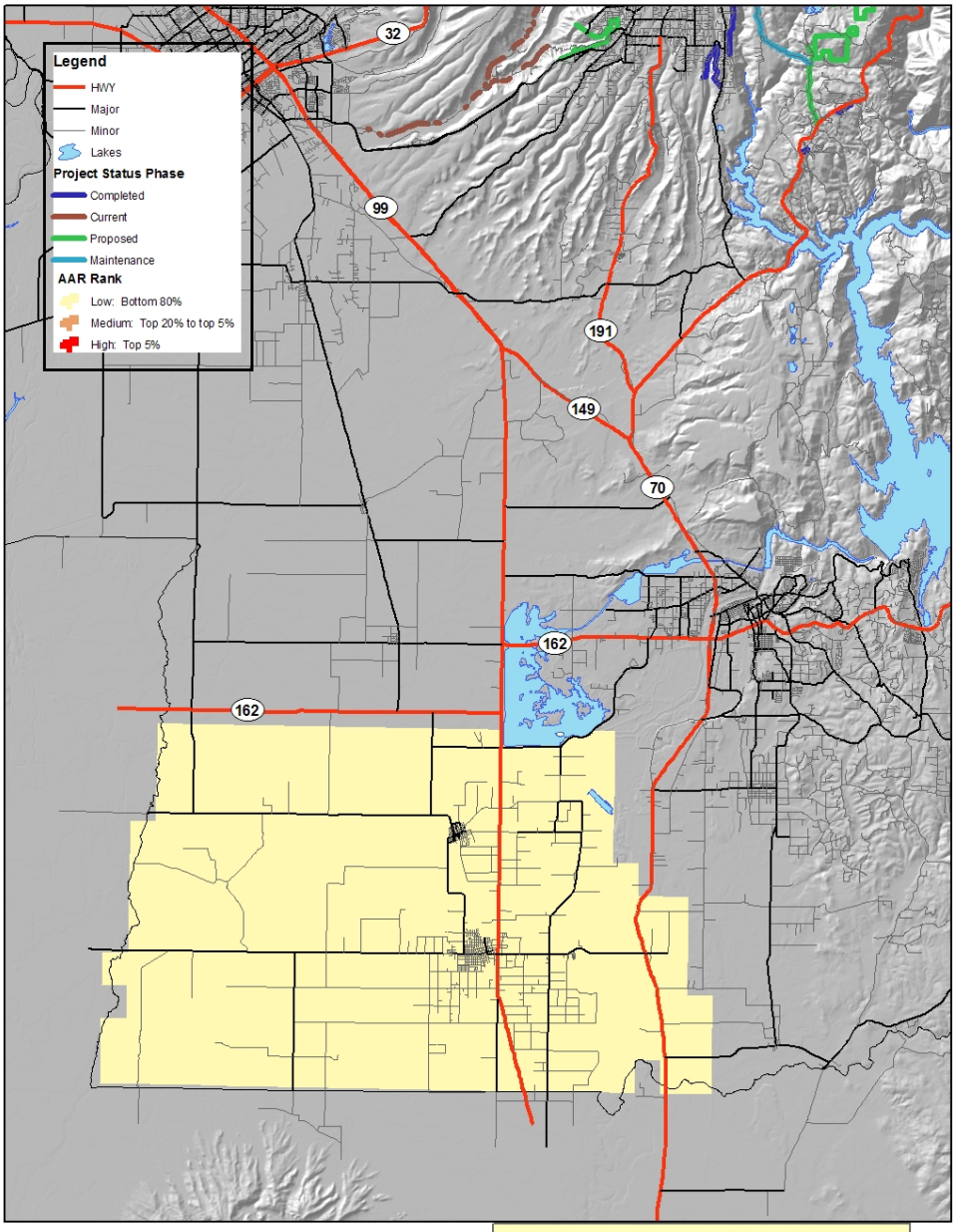
Assets at Risk / Battalion Six Project Status



All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness. The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

Appendix 50

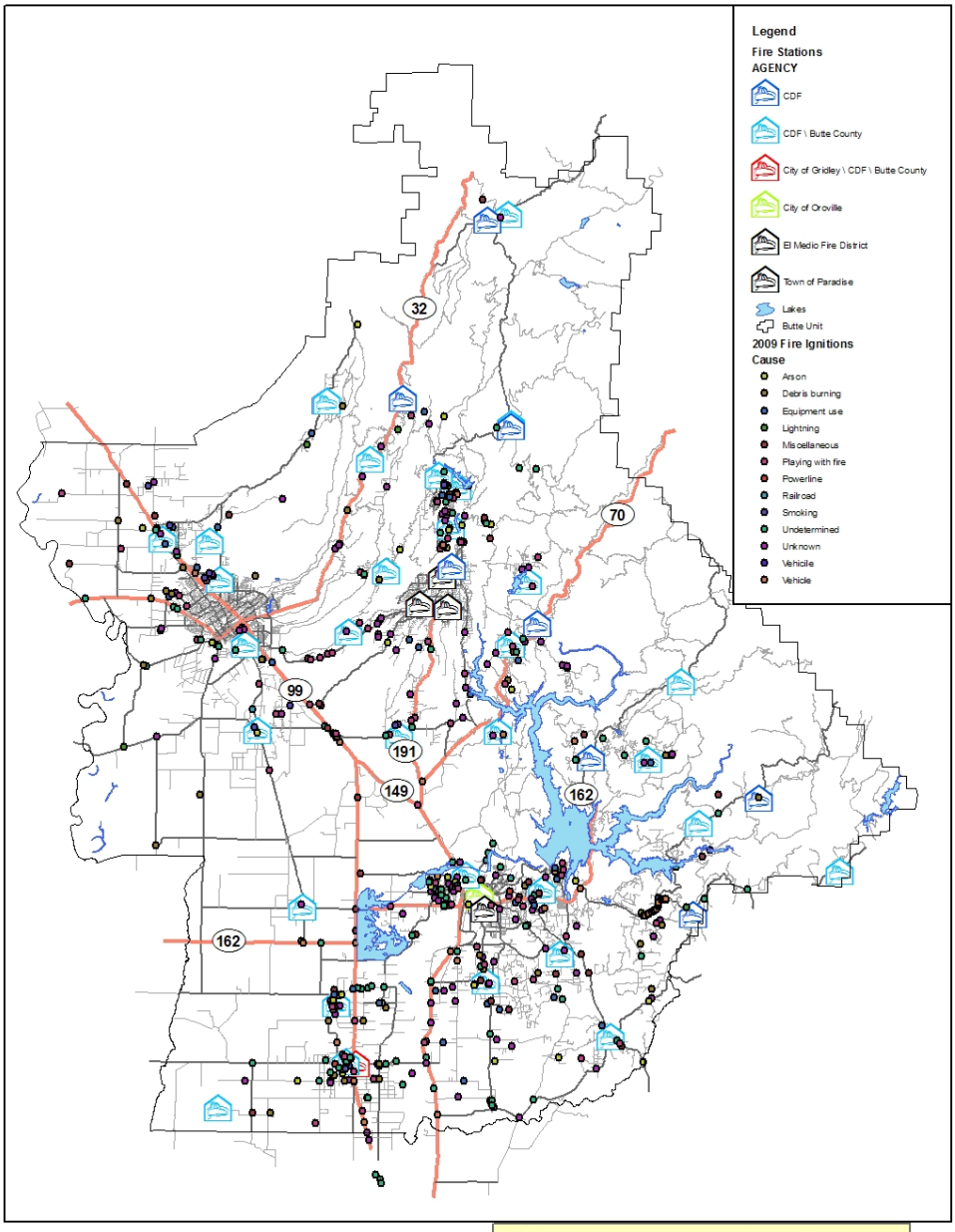
Assets at Risk / Battalion Seven Project Status



All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness. The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

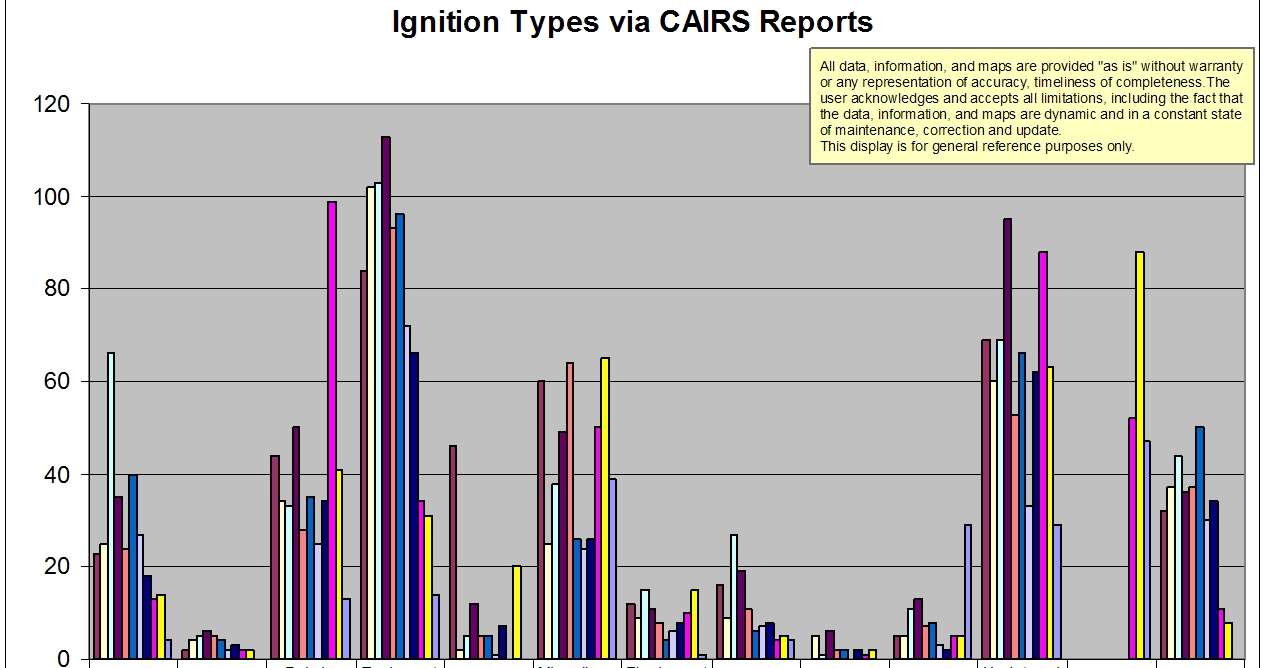
Appendix 51

Ignition Workload 2009



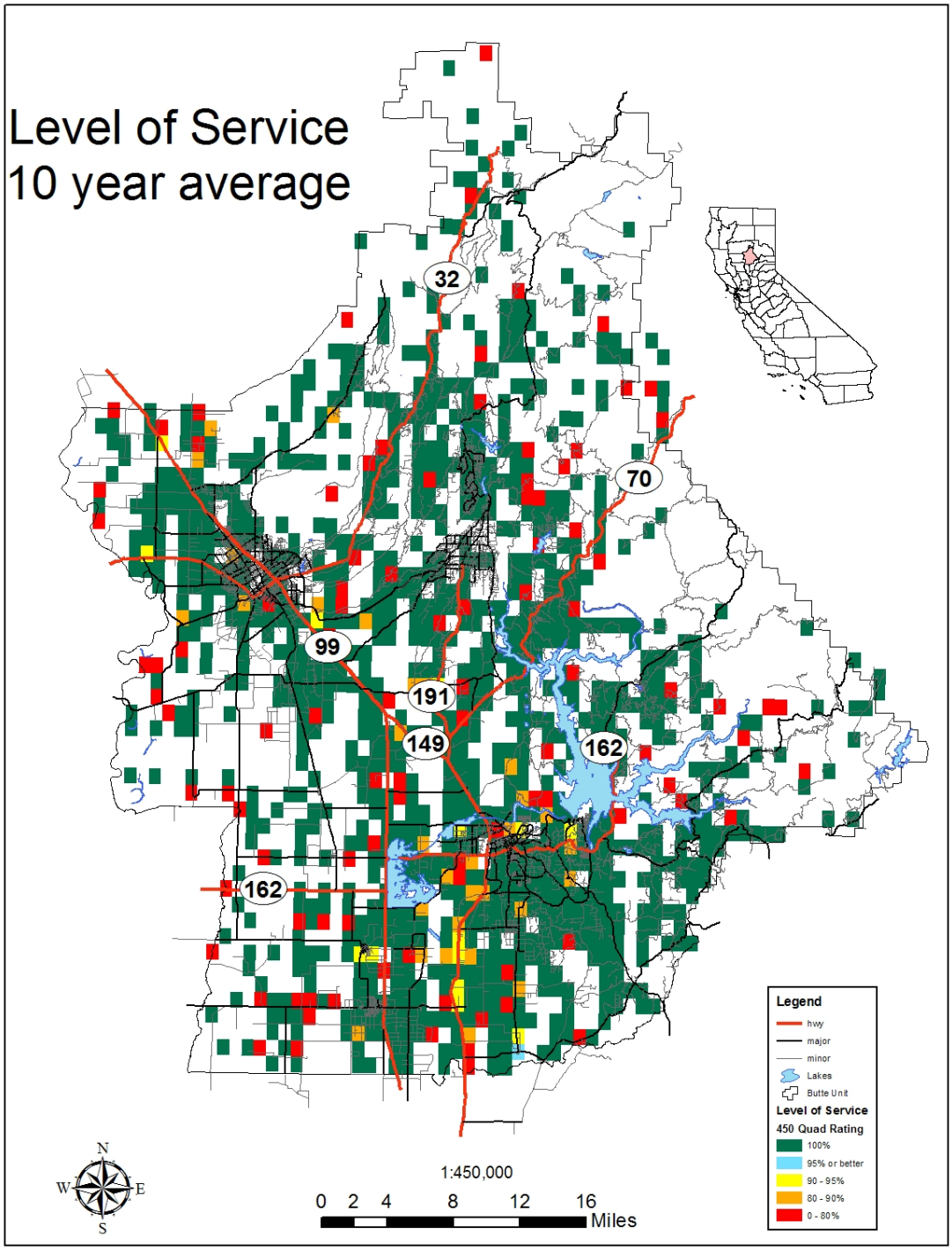
All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness. The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

Appendix 52



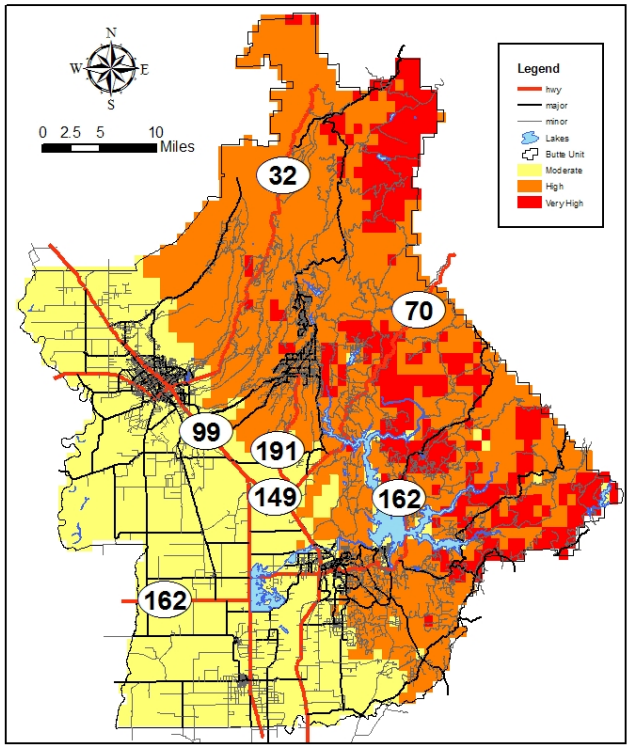
	Arson	Campfire	Debris Burning	Equipment Use	Lightning	Miscellaneous	Playing w / Fire	Powerline	Railroad	Smoking	Undetermined	Unknown	Vehicle
1999	23	2	44	84	46	60	12	16	0	5	69		32
2000	25	4	34	102	2	25	9	9	5	5	60		37
2001	66	5	33	103	5	38	15	27	1	11	69		44
2002	35	6	50	113	12	49	11	19	6	13	95		36
2003	24	5	28	93	5	64	8	11	2	7	53		37
2004	40	4	35	96	5	26	4	6	2	8	66		50
2005	27	2	25	72	1	24	6	7	0	3	33		30
2006	18	3	34	66	7	26	8	8	2	2	62		34
2007	13	2	99	34	0	50	10	4	1	5	88	52	11
2008	14	2	41	31	20	65	15	5	2	5	63	88	8
2009	4	0	13	14	0	39	1	4	0	29	29	47	0

Appendix 53

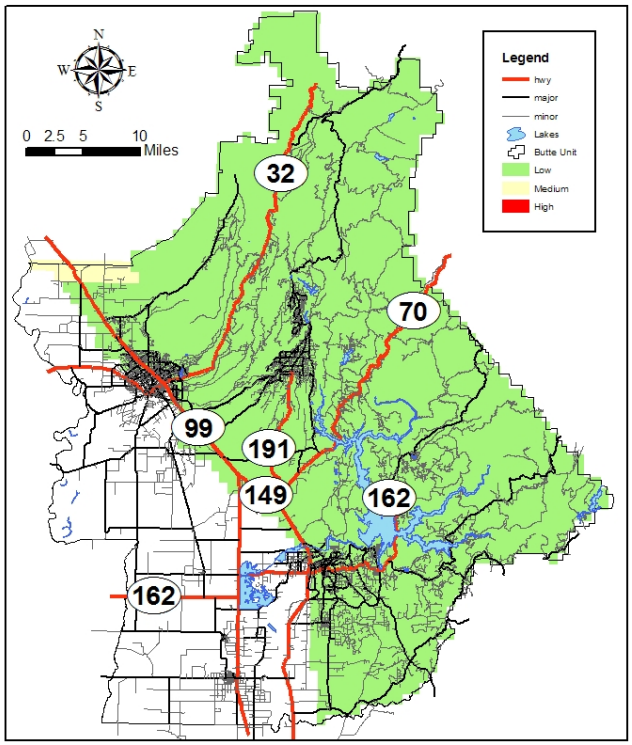

Level of Service
10 year average
32
70
99
191
149
162
162
Legend
hwy
major
minor
Lakes
Butte Unit
Level of Service
450 Quad Rating
100%
95% or better
90 - 95%
80 - 90%
0 - 80%
N
W
E
S
1:450,000
0 2 4 8 12 16
Miles

Appendix 54

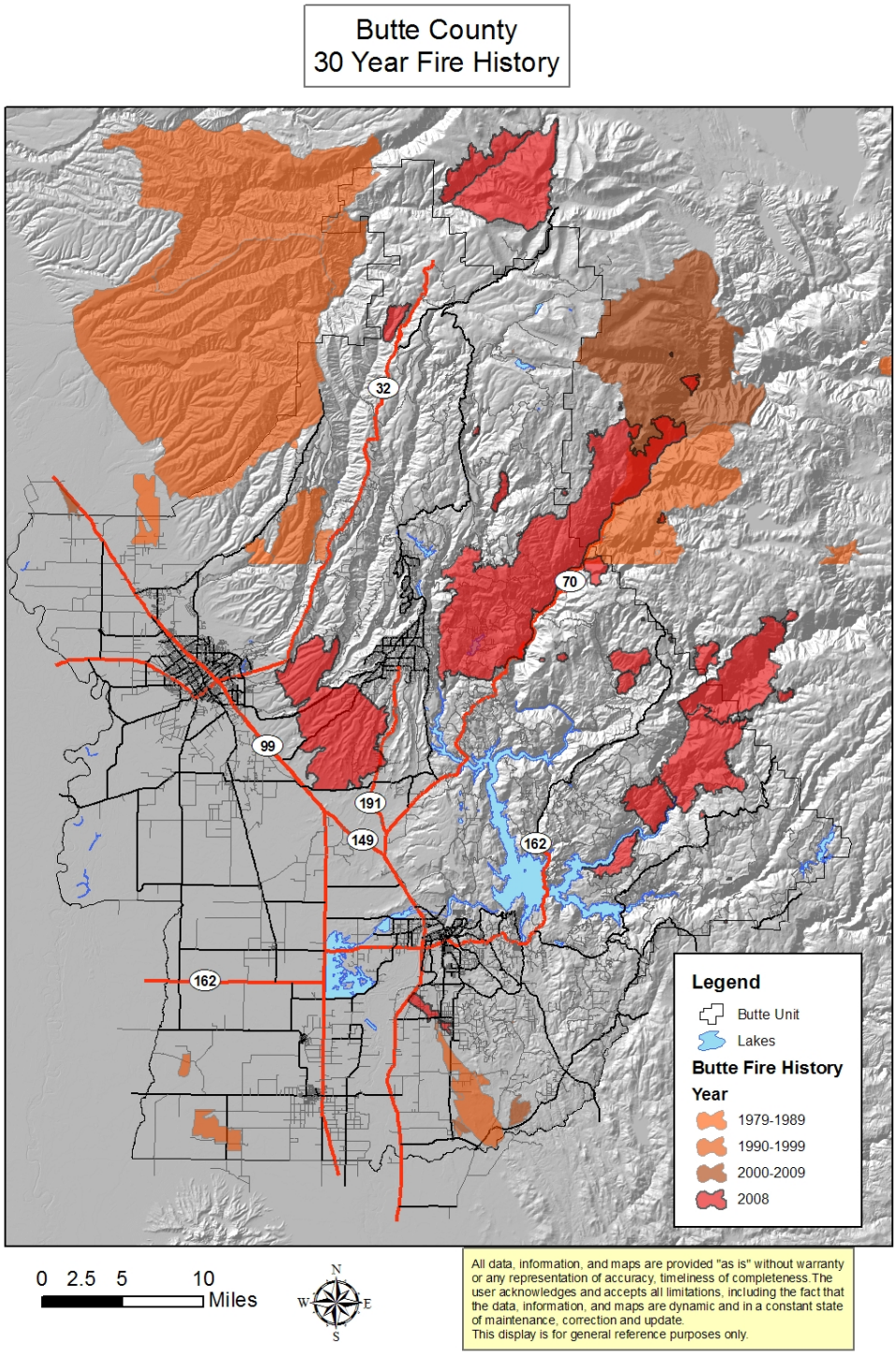
Fuel Hazard Ranking



Fire Weather Map

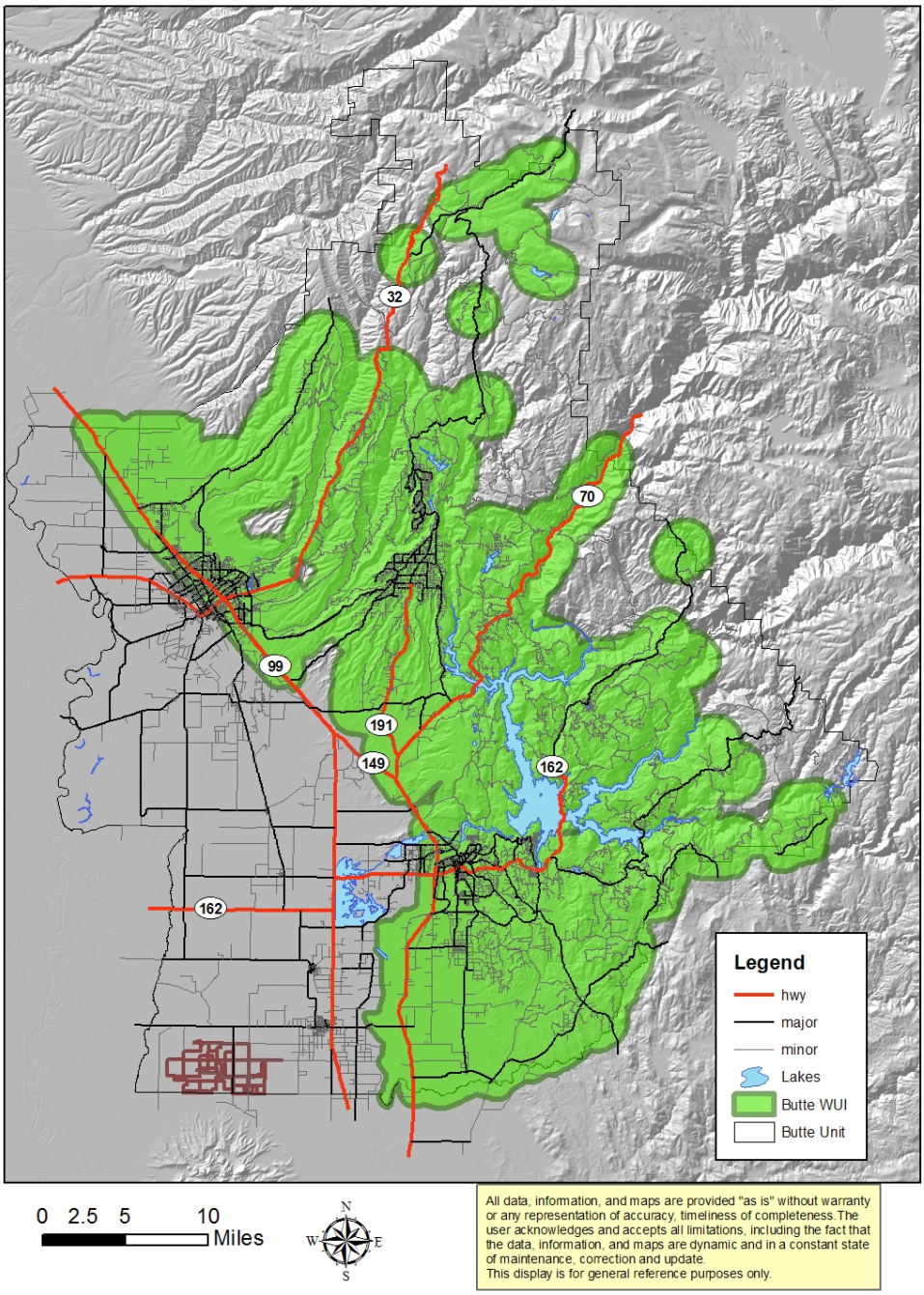


Appendix 55


Butte County
30 Year Fire History
32
70
99
191
149
162
162
Legend
Butte Unit
Lakes
Butte Fire History
Year
1979-1989
1990-1999
2000-2009
2008
0 2.5 5 10
Miles
N
W
E
S
All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness.The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.

Appendix 56

Butte County
Wildland Urban Interface



All data, information, and maps are provided "as is" without warranty or any representation of accuracy, timeliness of completeness.The user acknowledges and accepts all limitations, including the fact that the data, information, and maps are dynamic and in a constant state of maintenance, correction and update.
This display is for general reference purposes only.