



Chapter 2 What's New

Requirements §201.6(d)(3) and §201.7(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

The 2014 Butte County Local Hazard Mitigation Plan (LHMP) contained descriptions of their planning processes, the risk assessments of identified hazards for the Butte County Planning Area and mitigation strategies for reducing the risk and vulnerability from these hazards. Since approval of this plan by FEMA, progress has been made by the County, the five incorporated communities, and two special Districts as participating jurisdictions to the 2014 LHMP on implementation of the 2014 mitigation strategies. As part of this LHMP Update, a thorough review and update of the 2014 County LHMP was conducted to ensure that this Update reflects current community conditions and priorities in order to realign the updated mitigation strategy for the next five-year planning period. This section of the Plan includes the following:

- **What's New in the Plan Update.** Section 2.1 provides an overview of the approach to updating the Plan and identifies new analyses, data and information included in this LHMP Update to reflect current community conditions. This includes a summary of new hazard and risk assessment data as it relates to the Butte County Planning Area as well as information on current and future development trends affecting community vulnerability and related issues. The actual updated data, discussions, and associated analyses are contained in their respected sections within this LHMP Update.
- **Summary of Significant Changes to Current Conditions and Hazard Mitigation Program Priorities.** Section 2.2 provides a summary of significant changes in current conditions, changes in vulnerability, and any resulting modifications to the community's mitigation program priorities.
- **2014 Mitigation Strategy Status and Successes.** Section 2.3 provides a description of the status of mitigation actions from the 2014 LHMP and also indicates whether a project is no longer relevant or is recommended for inclusion in the updated 2019 mitigation strategy. This section also highlights key mitigation success stories of the County and other participating jurisdictions since the 2014 LHMP.

This What's New section provides documentation of Butte County Planning Area's progress or changes in their risk and vulnerability to hazards and their overall hazard mitigation program. Completion of this LHMP Update further provides documentation of the Butte County communities' continued commitment and engagement in the mitigation planning process.

2.1 What's New in the Plan Update

This LHMP Update involved a comprehensive review and update of each section of the 2014 Plan and includes an assessment of the success of the participating communities in evaluating, monitoring, and implementing the mitigation strategy outlined in the 2014 LHMP. Only the information and data still valid from the 2014 LHMP was carried forward as applicable into this LHMP Update.

Also to be noted, Chapter 7 Implementation and Maintenance of this LHMP Update identifies key requirements for updating future plans:

- Consider changes in vulnerability due to action implementation;
- Document success stories where mitigation efforts have proven effective;
- Document areas where mitigation actions were not effective;
- Document any new hazards that may arise or were previously overlooked;
- Incorporate new data or studies on hazards and risks;
- Incorporate new capabilities or changes in capabilities;
- Incorporate growth and development-related changes to inventories; and
- Incorporate new action recommendations or changes in action prioritization.

These requirements and others as detailed throughout this Plan were addressed during this LHMP Update process.

As part of its comprehensive review and update of each section of the Plan, Butte County and participating jurisdictions recognized that updated data, if available, would enhance the analysis presented in the risk assessment and utilized in the development of the updated mitigation strategy. Highlights of new data used for this combined LHMP Update is identified below in this section and is also sourced in context within Chapter 4, Risk Assessment. Specific data used is sourced throughout this Plan document. This new data and associated analysis provided valuable input for the development of the updated mitigation strategy presented in Chapter 5 of this LHMP Update.

Highlights of new information and analyses contained in this combined LHMP Update includes the following:

- All hazards from the 2014 Plan Update were identified and investigated for the 2019 Plan Update.
- Climate change has been addressed as a stand-alone hazard as well as within the hazard profiles of each identified hazard to assist the County in considering climate change issues when identifying future mitigation actions for the Planning Area. This included incorporation of climate action planning conducted by the County since the 2014 LHMP.
- The NCEM Storm Events and FEMA/Cal OES disaster declaration tables were updated.
- For all hazards, values at risk were shown for both pre-Camp Fire and post-Camp fire roll values.
- New dam data provided by Cal OES was used for the dam inventory and analysis. This data included an updated hazard classification for identified dams and updated inundation mapping. Values at risk to dam inundation was analyzed. Critical facilities and populations at risk to dams were tabulated.
- An updated GIS analysis was performed for earthquake, including a Hazus earthquake run to show risk and provide potential loss estimates to the County from earthquake.
- An updated GIS analysis was performed for the flooding hazard for the 1%/0.5%/0.2% annual chance floods, including values at risk, critical facilities at risk, population at risk, future development, and general community impacts.
- Levee status maps were updated to show the expiration status of certification and PAL agreements.
- An updated GIS analysis was performed for landslides, including values at risk, critical facilities at risk, population at risk, future development, and general community impacts.

- More detailed GIS analysis was performed for the wildfire hazard, including values at risk, critical facilities at risk, population at risk, historic, cultural, and natural locations at risk, and general community impacts. Values at risk were shown for both pre-Camp Fire and post-Camp fire roll values.
- An entire rework of the risk assessment for each identified hazard to reflect new information and to reflect the updated FEMA plan review tool. This included reworking the hazard profile and adding sections on location, extent, and new hazard event occurrences; redoing the entire vulnerability analysis to add additional items and updating the vulnerability assessment based on more recent hazard data as well as using the most current parcel and assessor data for the existing built environment to develop loss estimates.
- To better meet the revised FEMA plan review tool, a more extensive analysis of the extents of each community to identified hazards was conducted and included in this LHMP Update.
- Utilizing updated critical facility GIS mapping for the Planning Area, an analysis was conducted to provide an updated inventory of critical facilities by jurisdiction and those that fall within mapped hazard areas.
- An enhanced vulnerability assessment was conducted, which added a GIS analysis of updated future development areas in the Planning Area and specific to each of the mapped hazards.
- A greater study of County and jurisdictional mitigation capabilities was added.
- Incorporation and analysis of the updated California Department of Finance population data was utilized for this LHMP Update.
- Environmental justice concerns were addressed in portions of this Plan Update.
- Also, as required by current FEMA planning guidance, an analysis of ongoing and continued compliance with the NFIP was included in this LHMP Update.

2.2 Summary of Significant Changes to Current Conditions, Planning Area Vulnerability, and Hazard Mitigation Priorities

This section provides a summary by hazard of significant changes in current conditions, Planning Area vulnerability, and any resulting modifications to the community’s mitigation program priorities since the 2014 LHMP:

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Climate Change			X

- Climate change wasn’t addressed in the last plan, but since 2014, the effects of climate change are becoming more apparent in the Butte County Planning Area and all of California.
- NWS data indicates temperatures are increasing resulting in more extreme heat days. 2019 temperatures have been some of the hottest.
- An increase in hot days have affected the air quality in Butte County which has been an issue in Butte County schools.
- Snowpack levels have been occurring at higher elevations in recent years. And overall snowfall rates have been decreasing.

- Weather extremes, including precipitation have become much more variable – the Planning Area is seeing increased precipitation and intensity as well as abnormally dry conditions.
- Data also suggests that changing climate conditions influence the severity of multiple hazards, such as heat, flooding, wildfire, drought, and others, identified in the Planning Area.
- Increased temperatures associated with climate change increase the use and costs of energy leaving critical systems and infrastructures more vulnerable.
- Climate change and its influence on recent drought conditions in Butte County have seen diminished water tables, with less and more varied precipitation.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Dam Failure			X

- With more people moving into dam inundation areas, the vulnerability increases due to an increase in potentially affected populations – this is further evidenced by more people moving from Paradise into the Oroville and other Dam inundation areas.
- Risk increases over years due to aging dam infrastructure
- Following the 2017 Oroville Spillway event, improvements have been made to the dam to reduce the potential for future issues.
- Additionally, other dams are now required to do inundation mapping and develop EAPs which helps mitigation the risk.
- However, with more varied precipitation occurring in the Planning Area, this hazard continues to change.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Drought and Water Shortage			X

- Drought conditions since the 2014 LHMP, including water supply issues such as a diminished water table, have had an impact on the Butte County Planning Area and California. As a result, the drought hazard has become a significant priority for mitigation planning.
- State drought mandates, including conservations measures, to protect water supply throughout California have been implemented and continue within the Planning Area.
- Recent drought conditions have contributed to an increase in tree mortality issues, dry fuels, and general increase in wildfire conditions.
- Drought impacts the stability of soils in the Planning Area leading to more erosion and other issues.
- Water quality concerns are exacerbated in drought conditions including post fire watershed impacts.
- Although drought impacts were significant from 2013 through 2016, the winter storms of 2017 provided some relief from the most recent drought. As the 2017 storms were very short lived, there was limited recharge to groundwater systems. Drought conditions have continued to improve with more seasonal rain occurring in 2018 and 2019.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Earthquake & Liquefaction		X	

- Overall, Butte County is in a relatively low to moderate seismically active area.
- The primary factor that might change the earthquake vulnerability is additional development and more people moving to the area. However, adherence to current California building codes should ensure sound development in new development areas.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Flood: 1%/0.2% events			X

- Overall, the net increase or decrease in vulnerability to flood depends on the location within the Planning Area.
- The risk and vulnerability of 1% and 0.2% flood events remain somewhat constant, changing from year to year based on weather and new development in the Planning Area.
- With the winter storms of 2017- 2019, heavy rains resulted in full reservoirs and high rivers. This contributed to flooding around the County, including within identified FEMA floodplains.
- Land use planning, flood control measures, and adherence to development requirements in identified floodplains have minimized additional exposure to this hazard in the Planning Area, even in years of heavy storms.
- Ongoing levee improvement projects within the County will help reduce the vulnerability to this hazard, by taking more people out of the Special Flood Hazard Area (SFHA or 1%)
- More people are living in the flood prone areas of the Planning Area, much occurring as a result of people being displaced by the Camp Fire.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Flood: Localized Stormwater Flooding			X

- Climate change issues may result in more localized flooding as the climate warms and more frequent, wetter, and greater intensity storms create more runoff. Weather extremes seem more variable – the Planning Area seems to fluctuate between heavy rains and dry periods.
- New development in unmapped flood hazard areas could result in a net increase in vulnerability should these areas experience increased stormwater/localized flooding. However, development requirements that require mitigation of stormwater runoff work to mitigate this hazard.
- 2017-2019 winter storms, including significant, greater intensity rains, resulted in more localized flooding throughout the Planning Area. Generally, damage occurs in low lying areas around the rivers. Road damage and closures continue to occur during heavy storm events.
- Outdated drainage systems also contribute to a greater vulnerability to localized, stormwater flooding.
- Recent drought conditions in some areas have hardened soils and predisposed areas to worse flooding.

- Recent changes in vegetation cause by past drought conditions as well as large fires also contribute to more runoff, especially in post-fire burn scar areas.
- New development and growth in areas of the Planning Area (often in older predominantly agricultural areas) lack in adequate infrastructure and adherence to protective building codes, and is adding to the vulnerability of the Planning Area to flooding.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Hazardous Materials Transportation		X	

- This hazard is variable in the Planning Area. There still remain large quantities of hazardous materials and waste that are transported throughout the County.
- The increase and decrease of oil through the Planning Area is based on the dynamics of the world stage depending on the volume of oil being acquired from overseas vs domestically.
- An increase in traffic volumes through the Planning Area likely sees an increase in the transportation of hazardous materials

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Invasive Species: Aquatic		X	

- This hazard has not significantly changed in the Planning Area. The County is continuing to address the presence of aquatic invasive species both in waterways and riparian areas.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Invasive Species: Pests/Plants			X

- Invasive species continue to be an ongoing concern throughout the Planning Area.
- The presence of invasive species contributes to the wildfire hazard.
- Post fire, invasive species become even more pervasive and contribute to an overall change in fuel type within the Planning Area.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Landslides, Mudslides, and Debris Flows			X

- With the most recent drought, much of the vegetation along sloped areas was lost contributing to a lack of vegetation to hold soil resulting in a greater landslide/mudslide potential.
- With heavy rains in recent years contributing to saturated and barren soils, the landslide potential increased in the Planning Area, especially in post fire areas.

- An increase in timber harvesting activities including salvage logging, creates additional areas susceptible to erosion and other slope failures.
- The Camp Fire and other fire areas resulting in loss of vegetation has increased the potential for mudslides and debris flows in post fire areas.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Levee Failure		X	

- The current DFIRMs still show some Planning Area levees as being certified (or under PAL agreements) to the 1% annual chance flood. Since then, most levees have all been decertified. However, several projects are underway to certify various levee segments that when complete will again catch up with the FEMA maps. For those levees that won't be certified, the decertification of levees will place more people in the 1% annual chance floodplain subject to NFIP flood insurance requirements. However, even though the floodplains may change due to the levee certification issue, the fact remains that the levees still provide a significant level of protection to Planning Area communities.
- With some communities such as Chico conducting dredging activities in their waterways, the levee failure hazard is being reduced.
- Similar to other hazards, increased development in areas protected by levees could result in an increase in vulnerability.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Extreme Heat			X

- The HMPC noted that there has been an increase in severe heat days in recent years. This last year (2019) was exceptionally hot, especially in the early fall where fire risk is already high following the hot summer months with limited precipitation.
- Climate change issues will continue to increase heat related impacts.
- The heat, combined with drought conditions, has increased the potential for wildfires.
- Extreme heat, combined with high winds, also contributes to the wildfire hazard, including the potential for a PSPS.
- The increase in populations being relocated into the lower, hotter elevations of the County, including an influx of vulnerable populations post -fire, is increasing the population at risk to this hazard.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Freeze and Winter Storms		X	

- Similar to other weather hazards, the overall vulnerability of the Planning Area changes from year to year depending on the season.

- Freeze and winter storms do affect vulnerable populations, but is primarily an agricultural issue in the Planning Area.

2018 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: Heavy Rains and Storms			X

- Similar to other weather hazards, the overall vulnerability of the Planning Area changes from year to year depending on the season. Although during the first few years following 2014, the County experienced drought conditions, the rains of 2017-2019 have been significant, causing flooding and other adverse impacts to the County.
- Post fire conditions resulted in a more vulnerable Planning Area during periods of heavy rain and storms.
- Climate change brings renewed concern moving forward for heavy and more intense rains, storms and associated issues to the County.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Severe Weather: High Winds and Tornadoes			X

- Severe wind events have had greater impact in recent years following several years of drought combined with years of heavy rains, resulting in dead and downed trees in the Planning Area.
- Severe winds, combined with heat and low humidity, was a primary factor in the Camp Fire.
- High winds, combined with extreme heat, also contributes to the wildfire hazard, including the potential for a PSPS

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Streambank Erosion		X	

- An increase in flooding throughout the Planning Area contribute to and increase the potential for streambank erosion.
- High winds and wave action also contribute to an increase in streambank erosion.
- Streambank erosion continues to occur on an annual basis, as areas are fixed, erosion occurs in other areas.
- With improvements to levee systems ongoing, critical levee erosion areas are also being addressed.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Volcano		X	

- This hazard has not changed over the last five years.

2019 LHMP Update Hazards	Decrease in Vulnerability	No Change in Vulnerability	Increase in Vulnerability
Wildfire			X

- Climate change continues to affect the nature and intensity of wildfires.
- Compounded by current drought conditions (increasing tree mortality and overall wildfire conditions) and followed by heavy rains, the wildfire hazard has substantially increased and is no longer just a seasonal issue. The wildfire season, including the potential for a catastrophic wildfire, is now a year around concern.
- The increased development in WUI areas within the County also contributes to an increase in vulnerability.
- Effective fuels management within the County continues to be an issue with the large numbers of absentee owners in wildfire prone areas.
- Century old and aging infrastructure has contributed to the wildfire issue. This includes being a primary cause of wildfires, such as in the Camp Fire, as well as making wildfire more difficult to battle once an ignition has occurred.
- The road network and infrastructure, including construction, connectivity, and ingress-egress issues compound the wildfire vulnerability and impact.
- Wind has been a major contributor to the potential for a catastrophic wildfire. And when combined with extreme heat, also can trigger a PSPS which leaves the community at risk in other ways.
- With large wildfires occurring throughout California, the Planning Area has seen a significant change in air quality from smoke resulting in more recorded bad air days.
- Catastrophic wildfires in northern counties has created other issues in the County, as evacuees flee the fires and look to nearby communities for temporary housing. This was clearly evident with the Camp Fire, where a significant loss in housing stock has made post fire recovery in Paradise uncertain.
- Recent wildfires, such as the Camp Fire, continue to contribute to the wildfire issue, as the Planning Area is seeing a change to more grassy, fine fuels as compared to the large, forested areas of the County.
- Historically, poor land use planning, lack of adherence to more preventative building construction standards, and ineffective code enforcement has led to more communities being at risk and vulnerable to large, devastating wildfires.

2.3 2014 LHMP Mitigation Strategy Successes and Status

Butte County and participating jurisdictions have been successful in implementing actions identified in the 2014 Butte County LHMP Mitigation Strategies, thus, working diligently towards meeting their 2014 goals and objectives of:

Goal 1: Minimize risk and vulnerability of the community to hazards and reduce damages and protect lives, properties, and public health in Butte County

- Minimize economic and resource impact
- Minimize impact to both existing and future development
- Prevent and reduce flood-related losses
- Prevent and reduce wildfire-related losses

- Prevent and reduce hazardous material-related losses

Goal 2: Provide protection for critical facilities, infrastructure, and services from hazard impacts.

Goal 3: Increase public awareness of the risk and vulnerability of the community to hazards

- Enhance public outreach, education and preparedness program to include all hazards of concern
- Encourage people to act in a way that enhances the survivability and sustainability of the community
- Increase public communications to keep the public well informed prior to, during and after a disaster event
- Improve alert and warning capabilities informing public of hazard event
- Increase public's awareness and involvement in communities' mitigation projects

Goal 4: Increase communities' ability to be prepared for a disaster event

- Create and maintain a well-trained and fully functional Butte County/local agency EOC
- ✓ Ensure adequate and continued operations of EOC
- Create and maintain a well-trained, well equipped, and fully functional First Responder network
- Develop plans (EOPs) and standing orders related to hazard preparedness and response activities to include evacuation, medical, shelter, access and functional needs, and related issues
- Create and maintain a fully functional, interoperable radio and communication system that complies with narrow banding requirements
- Ensure adequate backup of electronic records

Goal 5: Increase interagency coordination and develop interagency mitigation and disaster response capabilities for all priority hazards

- Enhance use of shared resources
- Develop, educate, and train interacting agencies on primary and secondary means of communications during disasters

Goal 6: Maintain FEMA eligibility/position the communities for Grant funding.

Where possible, Butte County and participating jurisdictions used existing plans and programs to implement the 2014 mitigation strategies. Examples include implementation of mitigation actions through the 2030 Butte County General Plan and 2011 Butte County EOP.

2.3.1. Success Stories

The County and participating jurisdictions have seen the successful implementation of projects from previous mitigation plans. A few success stories are highlighted below.

Evacuation Maps Provided to Butte County Communities in weeks prior to Wall Fire Evacuation Order Went into Effect (2017)

Butte County has had a history of catastrophic wildfires and preparing residents for evacuation has been a high priority for many years. Evacuation Plans for individual communities through Butte County’s Foothill areas have been developed in partnership with CALFIRE, local fire safe councils, Butte County Sheriff Office and California Highway Patrol and were made available to the communities in paper hard copies and online for a number of years. However, this year grant funds were provided through the State Responsibility Area fee funding for a major update to the evacuation plans and to make more copies available. CALFIRE/Butte County Fire and its partners updated and mailed plans with the new “Wildfire Ready Set Go Evacuation Plan” language to number of communities in Butte County just in time for the Wall Fire that broke out on July 7th.

Just weeks before the Wall Fire, CALFIRE/Butte County Fire announced the online availability of the plans at www.buttecounty.net/oem/DisasterPreparedness and the upcoming mailing of them to residents. Local Action News Now Channel 12/24 broadcast the information along with the Butte County Sheriff Facebook page.

That was on June 14th, the plans arrived in residents’ home and P.O. Box addresses between July 1st and 6th. These plans are designed to provide residents with community specific information they need to “Get Ready, Set and Go” during any type of emergency and cover the communities of Berry Creek, Forest Ranch, Butte Meadows, Cohasset, Lower Paradise, The Town of Paradise, Upper Ridge, Butte Creek Canyon, Butte Valley, Forbestown, Feather Falls, Sweeds Flat, Hurelton and Clipper Mills.

July 7th the Wall Fire broke out in the Hurelton, Bangor, Sweeds Flat Communities in the foothills above Oroville. The fire grew quickly and both Evacuation Orders and Evacuation Warnings were issued. The evacuation plans had been mailed to 2,604 residents in the direct community areas impacted directly by the wildfire through evacuation orders.

The evacuation orders lasted from Friday July 7th through Wednesday July 12th. The Wall fire threatened 606 structures, destroyed 91 of which 41 were single family residents. A total of 5,800 acres were burned. The surrounding communities of Berry Creek, Feather Falls and Forbestown were heavily impacted by the evacuation orders as a hard closure to their primary access road of HWY 162 was closed for four days due to fire threat.

One resident in the lower Berry Creek area called to say they were very appreciative for the mailing of the evacuation plan and it was helpful as they assessed their evacuation routes and potential need to evacuate.

Forbestown, Clipper Mills, Feather Falls, Robinson Mill & Hurelton
Wildfire “Ready, Set, Go” Evacuation Plan

Are you prepared?

Get ready! Prepare your family...

Create an evacuation plan that includes:

- ▲ A designated emergency meeting location outside the fire or hazard area. This is critical to determine who has safely evacuated from the affected area.
- ▲ Several different escape routes from your home and community. Drive these often so everyone in your family is familiar in case of emergency.
- ▲ An evacuation plan for pets and large animals such as horses and other livestock.
- ▲ A Family Communication Plan that designates an out-of-area friend or relative as a point of contact to act as a single source of communication among family members in case of separation. (It is easier to call or message one person and let them contact others than to try and call everyone when phone, cell, and internet systems can be overloaded or limited during a disaster.)
- ▲ Sign up for Emergency Notifications at www.buttecounty.net/emergencynotification

Be Prepared:

- ▲ Have fire extinguishers on hand and train your family how to use them (check expiration dates regularly).
- ▲ Keep your gas tank at least half full.
- ▲ Assemble a Go Bag (emergency supply kit) for each person, as recommended by the American Red Cross.
- ▲ Maintain a list of emergency contact numbers posted near your phone and in your emergency supply kit.
- ▲ Obtain travel maps for the city and county, keep them in your car. Or, download to your smart device.
- ▲ Keep a Go Bag in your car in case you cannot get to your home because of fire or other emergency.
- ▲ Ensure that your family knows where your gas, electric, a red water main shut-off controls are located and how to safely shut them down in an emergency.
- ▲ Make your home/property more fire safer: find resources at www.buttesafesafe.net and www.readyforwildfire.org

Our household safety plan (complete before a wildfire emergency):

Our address: _____ Phone: _____

In the event of a wildfire evacuation, we will meet at _____

Animals: North Valley Animal Disaster Group Hotline: 530-895-0000

During a wildfire, we'll take our animals to _____

Local contact (neighbor/relative): In the event that roads are closed, our local contact to care for children and pets is:

Name: _____ Phone: _____

Out of area contact/phone: _____ School phone: _____

Other important contacts: _____

We have neighbors who may need help (persons with disabilities or persons with access and functional needs): _____

This project resulted in community residents being better prepared through knowledge of the appropriate evacuation procedures and routes.

Concow – Camelot Hazardous Fuels Reduction Project

As a result of a fuels reduction project, a wildfire safety zone was created in the Concow area. Dozens of lives were saved as firefighters, citizens, and Sherriff’s Officers were able to shelter in place during the Camp Fire. This can be seen in Figure 2-1. Another resident in Bangor had received the evacuation plan on July 1st and used the map inside the plan to navigate how to go around the evacuation closure on Oro-Bangor highway to get to the Town of Oroville.

Figure 2-1 Concow – Camelot Wildfire Safety Zone

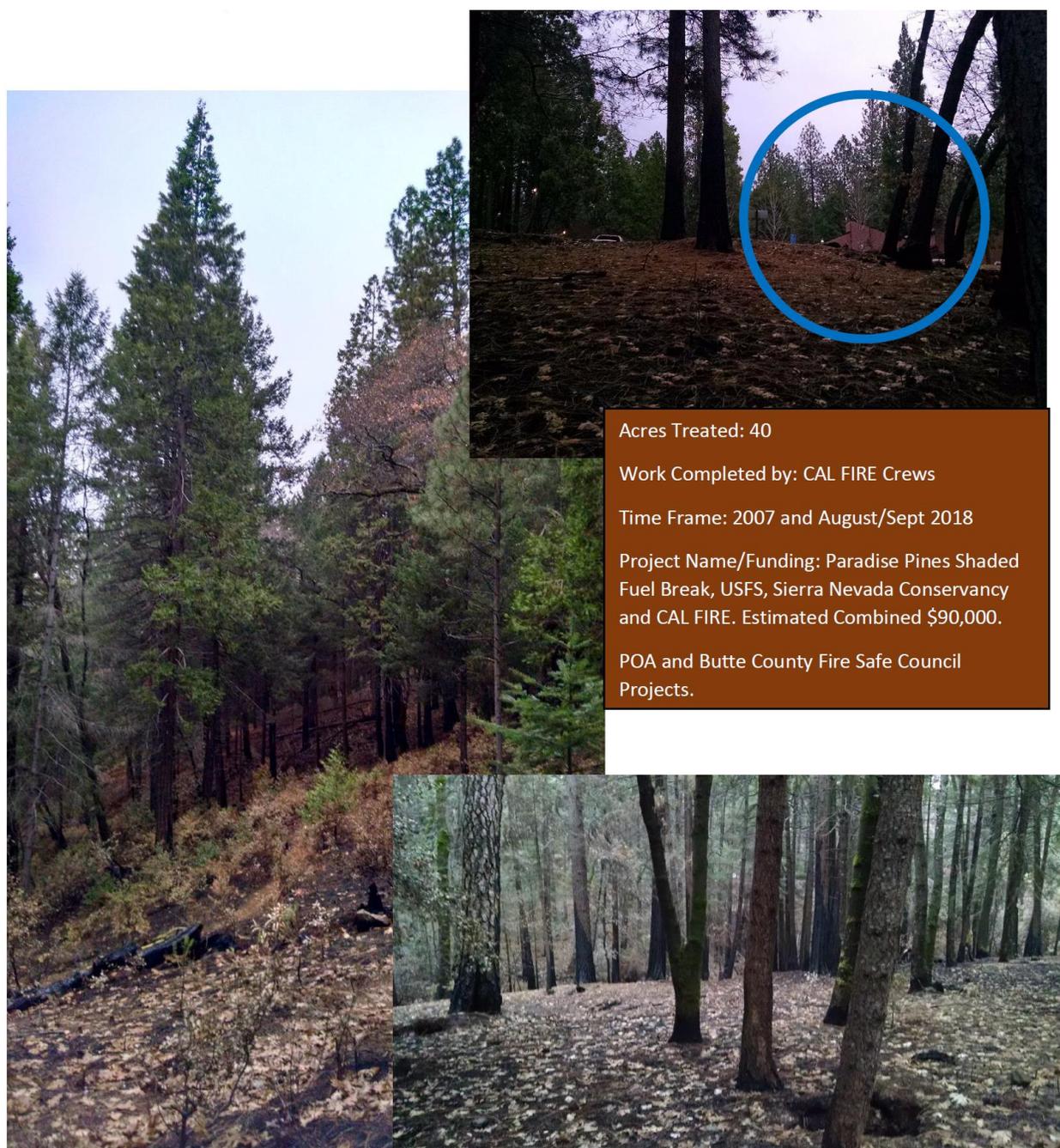


Source: Butte Fire Safe Council

Paradise Pines Fuels Reduction

The Paradise Pines Property Owners Association Village Office was able to survive the Camp Fire due to fuels reduction work done in 2007 and again in 2018. This can be seen on Figure 2-2.

Figure 2-2 Magalia – Paradise Pines Property Association Village Office



Source: Butte County Fire Safe Council

Magalia – Fuels Reduction and Protection of Paradise Lake Drinking Water

In the spring of 2018, the Butte Fire Safe Council, in coordination with numerous partners, treated 176 acres of timber. When the Camp Fire came through, it did minimal damage to this area. This is significant since Paradise Lake provides drinking water to that area of the County.

Figure 2-3 Magalia – Paradise Lake Mastication and Hand Cut/Pile Burn Project



Acres Treated: Total Project 176
 Work Completed by: Partnership with USFS; timber harvest and then mastication with a private Contractor
 Time Frame: Spring 2018
 Project Name/Funding: Little Butte Creek Forest Health Project II, Sierra Nevada Conservancy and US Forest Service. \$379,693.
 Butte County Fire Safe Council Project

Photo Top Left: Project Complete in Spring of 2018.
 Photo Top Right: Maintenance with Community “Adopt A Forest Day” October 2018.
 Photo Middle: Project Area with Camp Fire Burn Through, taken end of November 2018.
 Photo Bottom: The Forest Around Paradise Lake Remains Green and Drinking Water is Protected.

Source: Butte County Fire Safe Council

City of Chico Climate Action Plan

The City’s 2012 Climate Action Plan (CAP) has successfully helped the City reach its 2020 GHG emissions reduction goals. The City Council has directed the preparation of a CAP Update to achieve new States goals for 2030 and 2040. The City is also transforming the ad hoc Sustainability Task Force into a “standing”

Climate Action Commission to address climate action and resiliency, and has funded a position to serve the Commission.

2.3.2. 2014 Mitigation Strategy Update

The 2014 Butte County LHMP mitigation strategy contained 60 separate mitigation actions for the County and participating jurisdictions. Of the 60 actions, 7 have been completed, 2 are completed but still ongoing, 45 are ongoing, and 6 have not been started. 44 2014 Butte County action has been identified for inclusion in this LHMP Update. Table 2-1 provides a status summary of the mitigation action projects from the 2014 Butte County LHMP. Following the table is a description of the status of each project.

Table 2-1 Butte County’s 2014 LHMP Update: Mitigation Action Status Summary

Mitigation Action	Complete	Ongoing	Not Started	Project in Plan Update
Butte County Actions				
Multi-Hazard Mitigation Actions				
Enhance Public Awareness of the Effects of Natural Hazards and Public Understanding of Disaster Preparedness (Unincorporated/Jurisdictions)		X		Y
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan		X		Y
Countywide Alert and Notification System		X		Y
Earthquake Mitigation Actions				
Identify Un-Reinforced Masonry Buildings in the County		X		Y
Flooding, Localized Flooding, and Dam/Levee Failure Mitigation Actions				
Nord Localized Flooding		X		Y
Water on Road Warning signs on River Road at Brick House.		X		Y
Rock Creek and Keefer Slough and Flood Control		X		Y
Palermo Drainage Study		X		Y
Reinforce Nelson Road at its crossing of the Western Canal		X		Y
Little Chico Creek 200- and 100-year Flood Protection Study			X	Y
Lindo Chanel 200- and 100-year Flood Protection Study	X	X		Y
Feather River West Levee Improvement Project	X	X		Y
Improve DWR Maintenance of flood control channels			X	N
Regional Flood Management Plan (RFMP) for CVFPP.		X		N
Chico Creek-Mud Creek Levees System Study to Provide 200 Year Flood Protection Levels		X		Y
Cherokee Canal Levees Certified to FEMA 100 Year Flood Protection Levels		X		N
Butte Creek Levees Certified to FEMA 100 Year Flood Protection Levels		X		N

Mitigation Action	Complete	Ongoing	Not Started	Project in Plan Update
3B's Overflow Structure Construction		X		Y
Big Chico Creek 200- and 100-year Flood Protection Study		X		Y
Move EOC from Dam Inundation zone		X		N
Invasive Species: Pests/Plants Mitigation Actions				
Fire Break Maintenance / Broom Eradication Project		X		Y
Foreign Animal Disease Rapid Response Quarantine Program		X		Y
Marine Invasive Species Mitigation Actions				
Marine/Aquatic Invasive Species Survey/ Surveillance Project		X		Y
Sesbania Eradication and Flood Mitigation Project		X		Y
Wildfire Mitigation Actions				
Upper Ridge Fuels Reduction Project		X		Y
Upper Ridge Fuels Reduction Maintenance		X		Y
Concow/Yankee Hill Fuels Reduction Maintenance Project		X		Y
Berry Creek Fuels Reduction Project		X		Y
Berry Creek Fuels Reduction Maintenance Project		X		Y
Butte Meadows Fuels Reduction Project		X		Y
Cohasset Fuels Reduction Project		X		Y
Cohasset Fuels Reduction Maintenance Project		X		Y
Forest Ranch Fuels Reduction Project		X		Y
Feather Forest Ranch Fuels Reduction Maintenance Project		X		Y
Falls Fuels Reduction Maintenance Project		X		Y
Continued Weed Abatement Program		X		Y
City of Biggs Mitigation Actions				
Feather River Flood Control	X			N
Box Culvert Project – Hamilton Slough	X			N
City of Chico Mitigation Actions				
Implementation of Climate Action Plan	X			N
Common County early warning system	X			N
Little Chico Creek study; protection for 100-year flood		X		N
Provide additional storm-water retention		X		N
Restore capacity of existing flood control features.		X		N
Water service to areas being annexed		X		N
City of Gridley Mitigation Actions				
Continued Weed Abatement Program		X		Y
Water Main Extension to Mobile Home Park	X			N
Well Monitoring		X		Y

Mitigation Action	Complete	Ongoing	Not Started	Project in Plan Update
Feather River Levee Reinforcement	X			N
Continue to Improve Drainage System			X	Y
City of Oroville Mitigation Actions				
Planning for Mass Evacuation in the Event of a Catastrophic Flood or Earthquake Event.		X		Y
Continue to Protect Commercial infrastructure by Improving Storm Runoff System		X		Y
Continued Weed Abatement – Extension into New Areas		X		Y
Town of Paradise Mitigation Actions				
Clear Creek Shaded Fuel Break		X		Y
Hamlin Canyon Shaded Fuel Break	X			N
Shaded Fuel Break Management and Maintenance Project		X		Y
Paradise Irrigation District Mitigation Actions				
Pipe Replacement Program		X		Y
Drought Water Supply			X	Y
Restore the Seismic Stability of the Magalia Dam			X	Y
Install Bladder Dam in the Paradise Lake Spillway			X	Y
Thermalito Water and Sewer District Mitigation Actions				
Management of Fuels and non-Native Flora Intrusion		X		Y

Butte County Actions

Multi-Hazard Mitigation Actions

Enhance Public Awareness of the Effects of Natural Hazards and Public Understanding of Disaster Preparedness (Unincorporated/Jurisdictions)

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?):

Butte County – Butte County continues outreach to our citizens, businesses and community partners to help with preparedness planning. Disaster Preparedness public outreach is ongoing at community events, group meetings, senior housing, etc. OEM has been invited back to several events year after year to continue the education process with new groups of parents and caregivers as well as community events.

City of Biggs – Ongoing activities. We see anecdotal evidence of success (and appreciation) in comments received from citizens regarding ongoing communications about current events, such as mosquito transmitted illnesses, PSPS (Public Safety Power Shutoff), adverse weather communications and the like.

City of Chico - The City prepared a City of Chico Vulnerability Assessment consistent with guidance from the State of California. Further, the City’s Sustainability Task Force meetings have provided a consistent venue over the past 5+ years to enhance public awareness of natural hazard considerations and the need for preparedness. Early Warning System: Chico Fire Department has conducted multiple outreach programs, including a 200 person Town Hall Event, to educate the residents regarding CodeRED, which is the City’s Early Alert Warning System. We are conducting a CodeRED Test on September 27, 2019, and CodeRED currently identifies 38,694 contacts enrolled in this area Chico Urban Area.

City of Gridley - Ongoing; some work completed due to public information release re: Oroville Dam/Paradise Fire

City of Oroville – This is ongoing. Staffing issues have slowed some of the progress of public outreach.

Town of Paradise - Ready, Set, Go campaign, Paradise Evacuation Plan (2014), Stay Informed brochure, Fire on the Ridge Presentations, and organizational presentations help to inform the community about preparing before a fire by creating defensible space, preparing the home to resist fire, preparing a family emergency plan, and informing the about Town evacuation zones, travel routes and the evacuation process. After the 2018 Camp Fire, many residents have stated that the education provided on the above topic help during the catastrophic event. While the town was devastated and 65 death occurred, town officials and the community member feel strongly that the event would have been worse if not for the educational outreach completed by various groups.

Integrate Local Hazard Mitigation Plan into Safety Element of General Plan

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?):

Butte County – Local Hazard Mitigation Plan was incorporated into the Safety Element of the General Plan by resolution and through changes to the Safety Element of the General Plan.

City of Biggs – The City incorporated the 2014 Local Hazard Mitigation Plan via resolution.

City of Chico - The 2014 Local Hazard Mitigation Plan was incorporated into the Safety Element of the General Plan via resolution.

City of Gridley - The 2014 Local Hazard Mitigation Plan was integrated into the Safety Element of the General Plan in late 2014 both by resolution and through changes to the Safety Element of the General Plan.

City of Oroville - The City of Oroville incorporated the LHMP into the Safety Element of the General Plan both via resolution and through changes to the Safety Element of the General Plan. Data was used from the LHMP to create the Safety Element. Under Goal SAF-7, Policy P7.4 states “Use the Butte County Local Hazard Mitigation Plan as the guide for disaster planning in the Oroville Planning Area.”

Town of Paradise – The Town of Paradise incorporated the 2014 LHMP into the Safety Element of their General Plan via a resolution. The updated 2018 Safety Element of the General Plan is currently in draft form and references the Local Hazard Mitigation Plan. The draft Safety Element is expected to be adopted sometime in 2019 and should include language incorporating the 2019 LHMP Update into the Safety Element of the General Plan.

Countywide Alert and Notification System

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Butte County currently has an application in for HMGP funds to determine an additional Alert and Notification System that is not reliant on cell phone technology. This project will be carried forward in the Plan Update.

Earthquake Mitigation Actions

Identify Un-Reinforced Masonry Buildings in the County

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This action has not been started at this point. The County does desire to complete this project, so it will be carried forward in this Plan Update.

Flooding, Localized Flooding, and Dam/Levee Failure Mitigation Actions

Nord Localized Flooding

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): An NOI has been submitted for PDM and FMA funding for home elevation projects in the Nord Community. After the winter storms in February 2019,

several more homes were added to the Repetitive Loss and Severe Repetitive Loss categories by FEMA's NFIP. This project is ongoing and will be included in this Plan Update.

Water on Road Warning signs on River Road at Brick House.

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing and will be included in this Plan Update.

Rock Creek and Keefer Slough and Flood Control

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): 1. We have secured a DWR “small communities grant” to do a feasibility and alternatives analysis of different solutions. In process. 2. Have applied for HMGP to mitigate overtopping on Nord Highway. 3. We are discussing short term solutions with stakeholders to mitigate high frequency low magnitude flooding. This project is ongoing and will be included in this Plan Update.

Palermo Drainage Study

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): NOI was submitted for Hazard Mitigation Grant funding, Butte County was invited to submit an application which has been completed and turned in. Just waiting for grant approval. This project will be included in this Plan Update.

Reinforce Nelson Road at its crossing of the Western Canal

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing and will be included in the Plan Update.

Little Chico Creek 200- and 100-year Flood Protection Study

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Not implemented, not funded. This project will be included in this Plan Update.

Lindo Chanel 200- and 100-year Flood Protection Study

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): DWR did a 100 year and 200-year analysis for the greater Chico area which included this system. This project will be included in this Plan Update.

Feather River West Levee Improvement Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Phase 1 has been implemented (the northern

portion) and a LOMR has been submitted to FEMA and Phase II is in the design process. This project will be included in this Plan Update.

Improve DWR Maintenance of flood control channels

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): We don't have control over DWR maintenance. We have small community grants for both the Richvale Community (Cherokee Canal) and Durham which is Butte Creek to better understand levee stability and flood management options. This project will not be carried forward in the Plan Update.

Regional Flood Management Plan (RFMP) for CVFPP.

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): California DWR issued a Feather River Regional Flood Management Plan as part of their greater regional planning. As part of the Mid and Upper Sacramento River Regional Flood Emergency Response Project, a Flood Response Annex was developed for Butte County in November 2015.

Chico Creek-Mud Creek Levees System Study to Provide 200 Year Flood Protection Levels

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): The 200-year level of protection was a concept established by SB 5 and as part of the FloodSafe legislation.

https://water.ca.gov/LegacyFiles/cvfmp/docs/DWR-2014-Guidance-on-GP-Amendments-for-Flood-Risk_SEPT2014.pdf

<https://watereuse.org/wp-content/uploads/2016/01/SB-5-and-New-Flood-Control-Regulations-Presentation-04202016.pdf>

https://www.watereducation.org/sites/main/files/file-attachments/ferguson_traceyirwm_0.pdf

In summary, DWR developed in 2014, 200-year hydraulic model to better understand what these type of a discharge event in Big Chico Creek. This is a baseline evaluation of existing conditions only- not addressing any potential solutions.

Cherokee Canal Levees Certified to FEMA 100 Year Flood Protection Levels

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This is a DWR facility, not a County facility.

Butte Creek Levees Certified to FEMA 100 Year Flood Protection Levels

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This is a DWR facility, not a County facility.

3B's Overflow Structure Construction

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): 3Bs overflow structure is maintained by the DWR Flood maintenance division, Sutter Maintenance Yard. DWR performs routine inspections, but we are not clear whether maintenance activities occur or not.

Big Chico Creek 200- and 100-year Flood Protection Study

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): The 200-year level of protection was a concept established by SB 5 and as part of the FloodSafe legislation. https://water.ca.gov/LegacyFiles/cvfmfp/docs/DWR-2014-Guidance-on-GP-Amendments-for-Flood-Risk_SEPT2014.pdf

<https://watereuse.org/wp-content/uploads/2016/01/SB-5-and-New-Flood-Control-Regulations-Presentation-04202016.pdf>

https://www.watereducation.org/sites/main/files/file-attachments/ferguson_traceyirwm_0.pdf

In summary, DWR developed in 2014, 200-year hydraulic model to better understand what these type of a discharge event in Big Chico Creek. This is a baseline evaluation of existing conditions only- not addressing any potential solutions.

Move EOC from Dam Inundation zone

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Project has been implemented, the EOC has moved to a new location out of the Dam Inundation zone as we know it, and we also have an agreement with the City of Chico to use their EOC if the County's is unable to be used. Other county properties have been identified that could be used as a backup EOC if necessary. During the Spillway Incident in February 2017, Butte County used Chico's EOC.

Invasive Species: Pests/Plants Mitigation Actions

Fire Break Maintenance / Broom Eradication Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Butte County Agricultural Commissioner works with the Butte County Fire Safe Council on these ongoing projects. This project will be carried forward in this Plan Update.

Foreign Animal Disease Rapid Response Quarantine Program

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Ongoing action that is awaiting funding. This project will be carried forward in this Plan Update.

Marine Invasive Species Mitigation Actions

Marine/Aquatic Invasive Species Survey/ Surveillance Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Ongoing action, applying for funding. This project will be carried forward in this Plan Update.

Sesbania Eradication and Flood Mitigation Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Ongoing action, applying for funding. This project will be carried forward in this Plan Update.

Wildfire Mitigation Actions

Upper Ridge Fuels Reduction Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): There have been a series of projects implemented beginning in year 2001 through present 2019. A history of these projects with maps is available on the Butte County Fire Safe Council website <https://www.buttefiresafe.net/magalia-forest-health-plan>.

The Upper Ridge area has had the most investment of grant funding for fuels reduction of all the areas in the County. There are also areas where the US Forest Service and Sierra Pacific Industries invested funding in fuels reduction. There has also been wide use of the chipper program by individual residents. Together the area has had about 1.5 million dollars of work completed.

A primary focus has been protecting drinking water at Paradise Lake with a series of fuels and forest health projects in the lower Little Butte Creek Watershed.

The projects did reduce risk and evidence was provided through tours conducted with the US Forest Service and Sierra Nevada Conservancy. The evidence shows forested areas that burned high severity with significant tree mortality compared to forested areas that burned high severity with less tree mortality due to the thinning work.

Upper Ridge Fuels Reduction Maintenance

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Maintenance is provided in the area through a combination of efforts:

Private residents – utilize the Chipper Program to maintain fuels on their lands

Large Landowners (US FS, Sierra Pacific Industries, Paradise Irrigation District) – maintain fuels with treatments on their lands and with support of funding from grants through the Fire Safe Council.

There is a need for ongoing maintenance funding.

Concow/Yankee Hill Fuels Reduction Maintenance Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): There have been a series of projects implemented beginning in year 2001 through present 2019. A history of these projects is available in the Butte County Community Wildfire Protection Plan Projects Appendix.

The Concow/Yankee Hill area has had the second most investment of grant funding for fuels reduction of all the areas in the County. Fuels reduction work has been carried out primarily by the Yankee Hill Fire Safe Council a 501 c 3 non-profit organization. There has also been wide use of the chipper program by individual residents. There are also areas where the US Forest Service and Sierra Pacific Industries invested funding in fuels reduction.

A primary focus has been in creating evacuation safety zone areas and keeping roadways free of brush and dead trees to allow fire fighter access and citizen evacuation. Additional focus has taken place around Concow Lake in partnership with the Thermalito Irrigation Water District.

The projects did reduce risk and evidence was provided by lives that were saved from CAL FIRE, Sheriff and citizens who sheltered in the Camelott evacuation safety zone area while the Camp Fire raged around them.

Berry Creek Fuels Reduction Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): There have been a few projects implemented in Berry Creek of which a history is available in the Butte County Community Wildfire Protection Plan Projects Appendix. Primarily work focused on a portion of the community called Lake Madrone with some roadside work along Bald Rock and Rockefeller Roads as well as with the US Forest Services SLAP JACK project. Funding was approved in 2018 to begin a large-scale fuels reduction project in the community and that project is currently underway. There has also been wide use of the chipper program by individual residents.

The projects have been designed to reduce risk. There have not been any large-scale wildfires in the areas of the fuels treatments to provide evidence of loss avoidance.

Berry Creek Fuels Reduction Maintenance Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Maintenance is provided in the area through a combination of efforts:

Private residents – utilize the Chipper Program to maintain fuels on their lands.

Large Landowners (US FS) – maintain fuels with treatments on their lands.

There is a need for ongoing maintenance funding.

Butte Meadows Fuels Reduction Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Fuels Reduction in Butte Meadows has been primarily on Sierra Pacific and US Forest Services lands. Local residents have made organized efforts to utilize the Chipper Program for individual parcels.

Cohasset Fuels Reduction Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): There have been a few projects implemented in Cohasset of which a history is available in the Butte County Community Wildfire Protection Plan Projects Appendix. Primarily work focused on roadside work along Cohasset Road to improve ingress and egress. There has also been wide use of the chipper program by individual residents. There have been some community lead fuels reduction projects along access roads as well. The Cohasset Community Association has been a key leader in efforts for the community.

The projects have been designed to reduce risk. There have not been any large-scale wildfires in the areas of the fuels treatments to provide evidence of loss avoidance.

Cohasset Fuels Reduction Maintenance Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing. There is a need for ongoing maintenance funding.

Forest Ranch Fuels Reduction Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): There have been a few projects implemented in Forest Ranch of which a history is available in the Butte County Community Wildfire Protection Plan Projects Appendix. Primarily work focused on the Highway 32 corridor of the community with Roadside fuels reduction. Funding was approved in 2018 to begin a large-scale fuels reduction project in the community and that project is currently underway. There has also been wide use of the chipper program by individual residents.

The projects have been designed to reduce risk. There have not been any large-scale wildfires in the areas of the fuels treatments to provide evidence of loss avoidance.

Feather Forest Ranch Fuels Reduction Maintenance Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing. There is a need for ongoing maintenance funding.

Falls Fuels Reduction Maintenance Project

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): There have been a few projects implemented in Feather Falls of which a history is available in the Butte County Community Wildfire Protection Plan Projects Appendix. Primarily work focused on the Lumpkin Road corridor of the community with Roadside fuels reduction. Sierra Pacific Industries and the US Forest Service had areas of fuels reduction as well. There has also been wide use of the chipper program by individual residents.

The projects have been designed to reduce risk. There was evidence of loss avoidance in the 2017 Ponderosa Fire in which areas of USFS lands where treatments had been survived. A white paper was developed about this and is available by contacting firesafe@buttefiresafe.net.

City of Biggs Mitigation Actions

Feather River Flood Control

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This roughly \$398 million project replaced and/or reinforced levees that protect the City of Biggs and the region. This was a vast improvement to the nearby levee structures some of which were in excess of 100 years old.

Box Culvert Project – Hamilton Slough

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Project completed. Replacement of a very inadequate bridge constructed in the 1930's with a modern safe, well-functioning structure.

City of Chico Mitigation Actions

Implementation of Climate Action Plan

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?):

A. Program Implemented: The City Council adopted a Climate Action Plan (CAP), which identifies actions to be taken by the City and the community to reduce greenhouse gas (GHG) emissions to 25% below 2005 levels by 2020. The City's Sustainability Task Force (STF) has been meeting regularly over the past five years to review and prioritize CAP actions and other opportunities that might reduce GHG emissions for implementation. A majority of the CAP's actions have been implemented, are underway, or are ongoing.

B. Status of Program: In 2018, the STF performed a GHG Emission Inventory that showed a decrease in overall GHG emissions of approximately 23% from the baseline year of 2005 to 2017 --- a promising "macro" trend towards achieving the City's goal to reduce GHG emissions to 25% below 2005 levels by 2020. In September 2016, California's state legislature passed senate bill (SB) 32 to reauthorize and extend until 2030 the state's GHG reduction program. The bill sets a new GHG target of at least 40% below the 1990 level of emissions by 2030. Therefore, the City's GHG emissions reduction targets are no longer in concert with the State's targets. The Sustainability Task Force is in the process of making a recommendation that the City Council adopt the State of California's new GHG emissions reduction target of 40% below the 1990 level of emissions by 2030, and direct preparation of a new Climate Action Plan to achieve the new GHG emissions reduction goal.

C. Positive/negative effects of the program: Generally, the effects are positive as reductions in GHG emissions reduces the negative impacts associated with climate change.

D. Costs: The preparation of new CAP is approximately \$100,000. The cost for implementation of the CAP is unknown, but would be significant.

E. Description of the Program: The CAP is broken into Phase I and Phase 2 actions. Phase I actions are to be implemented prior to 2015 and are projected to reduce GHG emissions to 10% below 2005 levels, with the remaining 15% of the 25% goal to be achieved in Phase 2 between the years 2016 and 2020. A new CAP would have a similar program.

F. Time Limitations: Ongoing consistent with State set goals.

Finally, attached is the Chico's Climate Change Vulnerability Assessment prepared last year for the City of Chico. State law (AB 379) requires local governments to address climate adaptation and resiliency in their General Plans and other planning documents. The first step in meeting this requirement is to conduct a Vulnerability Assessment to identify the risks that climate change poses to a local jurisdiction. The Vulnerability Assessment provides both a quantitative and qualitative analysis of how climate change may impact populations, structures, and function in the City of Chico through 2100. Using a modelling tool developed by the State (see Cal-Adapt.org), the assessment documents anticipated impacts of climate change specific to Chico, including increased frequency, intensity, and duration of extreme heat days and

heat waves/events; increased flooding; increased wildfire; and, loss of snowpack and decreased water supplies. Over the long term, these changes create the potential for a wide variety of secondary consequences, including human health and safety risks, economic disruptions, shifts in ecosystem function and habitat qualities, and difficulties with the provision of public services.

The findings of the Vulnerability Assessment can be used to support the update to the Butte County Hazard Mitigation Plan.

Common County early warning system

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): Implementation of County Wide Emergency Notification System called Code Red occurred in 2018. The City of Chico utilizes the Code Red mass notification system to alert Chico residents in the event of an emergency. CodeRED is a web-based critical communication solution that enables local public safety personnel to notify residents and businesses by telephone, text message, email, and social media of time-sensitive information, emergencies, or urgent notifications.

Little Chico Creek study; protection for 100-year flood

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): FEMA met with City staff regarding this issue. They said that they would be evaluating it. This project is ongoing.

Provide additional storm-water retention

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing.

Restore capacity of existing flood control features.

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): The California Department of Water Resources met with City staff regarding this issue specifically as it relates to gravel accumulation at the five-mile diversion. DWR is developing a project to remove the gravel and improve capacity.

Water service to areas being annexed

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing and will be monitored going forward.

City of Gridley Mitigation Actions

Continued Weed Abatement Program

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is an annual ongoing project. It will be carried forward in this Plan Update.

Water Main Extension to Mobile Home Park

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project was completed.

Well Monitoring

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This is an ongoing project. It will be carried forward in this Plan Update.

Feather River Levee Reinforcement

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project was completed.

Continue to Improve Drainage System

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project has not yet started due to constraints on the City. It will be carried forward in this Plan Update.

City of Oroville Mitigation Actions

Planning for Mass Evacuation in the Event of a Catastrophic Flood or Earthquake Event.

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing. Progress has been made, and continues to be made. This project will be carried forward in the Plan Update,

Continue to Protect Commercial infrastructure by Improving Storm Runoff System

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing. This project will be carried forward in the Plan Update,

Continued Weed Abatement – Extension into New Areas

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing. Progress has been made, and continues to be made especially post-Camp Fire. This project will be carried forward in the Plan Update,

Town of Paradise Mitigation Actions

Clear Creek Shaded Fuel Break (was Wildfire – Fire reduction)

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing and will be included in this Plan Update.

Hamlin Canyon Shaded Fuel Break (was Wildfire – Fire reduction)

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project was completed. It is not being carried forward into this Plan Update.

Shaded Fuel Break Management and Maintenance Project (was Wildfire – Fire reduction)

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing and will be included in this Plan Update.

Paradise Irrigation District Mitigation Actions

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): The project was implemented on a pay as you go basis. The District replaced 4,670 feet of mainline pipe in the last five years. The project increased fire flows in all of the areas of replacement.

Drought Water Supply

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): The District did not implement a drought water supply project due to lack of funds.

Restore the Seismic Stability of the Magalia Dam

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): The District did not implement the seismic stability project for Magalia Dam due to lack of funding.

Install Bladder Dam in the Paradise Lake Spillway

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): The District did not implement the bladder dam in Paradise Lake spillway due to lack of funds.

Thermalito Water and Sewer District Mitigation Actions

Management of Fuels and non-Native Flora Intrusion

Progress to Date (Consider: Was the project implemented – why or why not? Did the project reduce risks? Can you provide evidence of loss avoidance?): This project is ongoing and is included as a mitigation action in this Plan Update.