



# 5 MITIGATION STRATEGY

**Requirement §201.6(c)(3): [The plan shall include] a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.**

This section describes the mitigation strategy process and mitigation action plan for the Butte County Local Hazard Mitigation Plan. It describes how the County and participating jurisdictions met the following requirements from the 10-step planning process:

- Planning Step 6: Set Goals
- Planning Step 7: Review Possible Activities
- Planning Step 8: Draft an Action Plan

## 5.1 Mitigation Strategy: Overview

The results of the planning process, the risk assessment, the goal setting, the identification of mitigation actions, and the hard work of the HMPC led to the mitigation strategy and mitigation action plan for this LHMP update. As part of the plan update process, a comprehensive review and update of the mitigation strategy portion of the plan was conducted by the HMPC. Some of the initial goals and objectives from the 2007 plan were refined and reaffirmed, some goals were deleted, and others were added. The end result was a new set of goals, reorganized to reflect the completion of 2007 actions, the updated risk assessment and the new priorities of this plan update. In general, the goals were modified to address multiple hazards instead of the hazard specific goals developed for the 2007 plan. To support the new LHMP goals, the mitigation actions from 2007 were reviewed and assessed for their value in reducing risk and vulnerability to the planning area from identified hazards and evaluated for their inclusion in this plan update (See Section 2.0 What's New). Section 5.2 below identifies the new goals and objectives of this plan update and Section 5.4 details the new mitigation action plan.

Taking all of the above into consideration, the HMPC developed the following umbrella mitigation strategy for this LHMP update:

- Communicate the hazard information collected and analyzed through this planning process as well as HMPC success stories so that the community better understands what can happen where and what they themselves can do to be better prepared.
- Implement the action plan recommendations of this plan.
- Use existing rules, regulations, policies, and procedures already in existence.
- Monitor multi-objective management opportunities so that funding opportunities may be shared and packaged and broader constituent support may be garnered.

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## 5.1.1 Continued Compliance with NFIP

Given the flood hazard in the planning area, an emphasis will be placed on continued compliance with the National Flood Insurance Program (NFIP) and future participation by Butte County in the Community Rating System. Other cities are encouraged to begin participating in the CRS. Detailed below is a description of the County's flood management program to ensure continued compliance with the NFIP. Also to be considered are the numerous flood mitigation actions contained in this LHMP that support the ongoing efforts by the county to minimize the risk and vulnerability of the community to the flood hazard and to enhance their overall floodplain management program.

### Butte County's Flood Management Program

Butte County has participated in the NFIP since 1989. Since then, the County has administered floodplain management regulations that meet the minimum requirements of the NFIP. Under that arrangement, residents and businesses paid the same flood insurance premium rates as most other communities in the country.

Butte County is looking to participate in the CRS program after the completion of the LHMP. The CRS program is designed to recognize floodplain management activities that go above and beyond the NFIP's minimum requirements. CRS is designed to reward a community for implementing public information, mapping, regulatory, loss reduction and/or flood preparedness activities. Many of the activities that are outlined in the CRS program Butte County is doing therefore the County is looking to apply to be a part of the CRS program.

The activities credited by the CRS will provide direct benefits to Butte County and its residents, including:

- Enhanced public safety;
- A reduction in damage to property and public infrastructure;
- Avoidance of economic disruption and losses;
- Reduction of human suffering; and
- Protection of the environment.

The activities that Butte County implements and will be looking to receive CRS credits for include:

- **Activity 310 – Elevation Certificates:** The Development Services Department maintains elevation certificates for new and substantially improved buildings. Copies of elevation certificates are made available upon request. As the program is expanded Elevation Certificates will be kept for post-FIRM and pre-FIRM buildings and maintained in computer format. Currently Elevation Certificates, plans, and other records are maintained as a part of the property file in the Development Services Department, Building Division.

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- **Activity 320 – Map Information Service:** The County furnishes inquirers with flood zone information from the community's latest Flood Insurance Rate Map (FIRM), we also publicize the service on the County web site and maintain records of contacts. The digital information and maps are also available through the Counties web site.
  - **Activity 330 – Outreach Projects:** The County provides flood information through displays at public buildings and community events.
  - **Activity 340 – Hazard Disclosure:** Currently this activity is not being done.
  - **Activity 350 – Flood Protection Information:** Documents relating to floodplain management are available in the reference section of the Butte Public Library. The County also provides for floodplain information on the Counties website.
  - **Activity 360 – Flood Protection Assistance:** The County does through its normal contact with citizens applying for building permits provide technical advice and assistance.
  - **Activity 410 – Additional Flood Data:** Currently this activity is not being done.
  - **Activity 420 – Open Space Preservation:** Currently this activity is not being done.
  - **Activity 430 – Higher Regulatory Standards:** Currently this activity is not being done.
  - **Activity 440 – Flood Data Maintenance:** The County maintains and uses digitized maps on its County GIS system in the day to day management of the floodplain. In addition the County maintains digital copies of all previous FIRMs and Flood Insurance Study Reports.
  - **Activity 450 – Stormwater Management:** The County enforces regulations for stormwater management, freeboard in non-SFHA zones, soil and erosion control, and water quality.
  - **Activity 510 – Floodplain Management Planning:** currently the County does not closely track the NFIP Report of Repetitive Losses CRS purposes. As a part of the update to the LHMP the County will begin to track repetitive loss properties as a part of joining the CRS program In addition, as detailed in the Section 3.0, Planning Process, this LHMP is being developed to maximize CRS credits for Activity 510.
  - **Activity 520 – Acquisition and Relocation:** Currently this activity is not being done.
  - **Activity 530 – Flood Protection:** Currently the County does not have any active program of encouraging flood proofing of homes an structures other than when application are made for building permits. In those cases we require that new and substantial improvements are flood proofed or raised to reduce risk and property damage.
  - **Activity 540 – Drainage System Maintenance:** Portions of the community's drainage system are inspected regularly throughout the year and maintenance is performed as needed by the Department of Public Works. Records are being maintained for both inspections and required maintenance.
  - **Activity 610 – Flood Warning Program:** Currently this activity is not being done.
  - **Activity 630 – Dam Safety:** All California communities currently receive CRS credit for the state's dam safety program.

The 300-series CRS activities will be continued and expanded as a regular part of the County's floodplain management program as we look to joining the CRS program.

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The County will be looking to use the 2012 CRS Public Information Series to help our credits in the CRS program for public information specifically tailored to our particular hazards, natural resources, and audiences. The program would be like our existing public information strategy but using more creative approaches to communicate with our target audiences. We will also include measurement techniques to assess outcomes and redirect programs as needed to achieve desired outcomes.

**Additional work in the 400-series** – The County is planning to map local flood hazards as a part of an Emergency Response Grant Program through the California Department of Water Resources. These flood hazard maps will be posted on a web-based system (activity 410) in an effort to provide the public with flood hazard information in addition to the FEMA flood insurance rate maps.

**Additional work in the 500-series** – The County will begin to monitor and work with repetitive loss property owners to mitigate future loss potential reporting on an annual basis. Meanwhile the Counties drainage maintenance team is maintaining GIS based call logs and prioritizing drainage improvement projects.

**Additional work in the 600-series** – A committee will be assembled to consider how public outreach might better describe various flood hazards.

## 5.2 Goals and Objectives

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**Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.**

Up to this point in the planning process, the HMPC has organized resources, assessed hazards and risks, and documented mitigation capabilities. The resulting goals, objectives, and mitigation actions were developed based on these tasks. The HMPC held a series of meetings and exercises designed to achieve a collaborative mitigation strategy as described further throughout this section.

During the initial goal-setting meeting, the HMPC reviewed the results of the hazard identification, vulnerability assessment, and capability assessment. This analysis of the risk assessment identified areas where improvements could be made and provided the framework for the HMPC to formulate planning goals and objectives and to develop the mitigation strategy for the Butte County Planning Area.

Goals were defined for the purpose of this mitigation plan as broad-based public policy statements that:

- Represent basic desires of the community;
- Encompass all aspects of community, public and private;

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- Are nonspecific, in that they refer to the quality (not the quantity) of the outcome;
  - Are future-oriented, in that they are achievable in the future; and
  - Are time-independent, in that they are not scheduled events.

Goals are stated without regard to implementation. Implementation cost, schedule, and means are not considered. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement. Goal statements form the basis for objectives and actions that will be used as means to achieve the goals. Objectives define strategies to attain the goals and are more specific and measurable.

HMPC members were provided with the list of goals from the 2007 plan as well as a list of other sample goals to consider. They were told that they could use, combine, or revise the statements provided or develop new ones, keeping the risk assessment in mind. Each member was given three index cards and asked to write a goal statement on each. Goal statements were collected and grouped into similar themes and displayed on the wall of the meeting room. The goal statements were then grouped into similar topics. New goals from the HMPC were discussed until the team came to consensus. Some of the statements were determined to be better suited as objectives or actual mitigation actions and were set aside for later use.

Based on the risk assessment review and goal setting process, the HMPC identified the following goals and objectives, which provide the direction for reducing future hazard-related losses within the Butte County Planning Area.

**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

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- 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 narrowbanding 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.**

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## 5.3 Identification and Analysis of Mitigation Actions

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**Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.**

In order to identify and select mitigation actions to support the mitigation goals, each hazard identified in Section 4.1 Identifying Hazards: Natural Hazards was evaluated. Only those hazards that were determined to be a priority hazard were considered further in the development of hazard-specific mitigation actions.

These priority hazards (in alphabetical order) are:

- Dam Failure
- Drought & Water shortage
- Earthquakes
- Earth Movements: Erosion
- Floods: 100/200/500 year
- Floods: Localized Stormwater
- Hazardous Materials Incidents: Transportation
- Levee Failure
- Severe Weather: Freeze and Winter Storms
- Severe Weather: Heavy rain, hailstorm, lightning
- Severe Weather: Windstorms
- Wildfires

The HMPC eliminated the hazards identified below from further consideration in the development of mitigation actions because the risk of a hazard event in the County is unlikely or nonexistent, the vulnerability of the County is low, or capabilities are already in place to mitigate negative impacts. The eliminated hazards are:

- Earth Movements: Landslide
- Invasive Species: Pests/Plants
- Marine Invasive Species
- Severe Weather: Extreme Heat
- Severe Weather: Tornado
- Volcanoes

It is important to note, however, that all the hazards addressed in this plan are included in the countywide multi-hazard public awareness mitigation action as well as in other multi-hazard, emergency management actions.

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Once it was determined which hazards warranted the development of specific mitigation actions, the HMPC analyzed viable mitigation options that supported the identified goals and objectives. The HMPC was provided with the following list of categories of mitigation actions, which originate from the Community Rating System:

- Prevention
- Property protection
- Structural projects
- Natural resource protection
- Emergency services
- Public information

The HMPC was also provided with examples of potential mitigation action alternatives for each of the above categories. The HMPC was also instructed to consider both future and existing buildings in considering possible mitigation actions. A facilitated discussion then took place to examine and analyze the options. Appendix C, Mitigation Strategy, provides a detailed discussion by CRS mitigation category to assist in the review and identification of possible mitigation activities. Also utilized in the review of possible mitigation measures is FEMA's publication on Mitigation Ideas, by hazard type. This was followed by a brainstorming session that generated a list of preferred mitigation actions by hazard.

### **5.3.1 Prioritization Process**

Once the mitigation actions were identified, the HMPC was provided with several decision-making tools, including FEMA's recommended prioritization criteria, STAPLEE sustainable disaster recovery criteria; Smart Growth principles; and others, to assist in deciding why one recommended action might be more important, more effective, or more likely to be implemented than another. STAPLEE stands for the following:

- Social: Does the measure treat people fairly? (e.g., different groups, different generations)
- Technical: Is the action technically feasible? Does it solve the problem?
- Administrative: Are there adequate staffing, funding, and other capabilities to implement the project?
- Political: Who are the stakeholders? Will there be adequate political and public support for the project?
- Legal: Does the jurisdiction have the legal authority to implement the action? Is it legal?
- Economic: Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?
- Environmental: Does the action comply with environmental regulations? Will there be negative environmental consequences from the action?

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In accordance with the DMA requirements, an emphasis was placed on the importance of a benefit-cost analysis in determining action priority. Other criteria used to assist in evaluating the benefit-cost of a mitigation action includes:

- Does the action address hazards or areas with the highest risk?
- Does the action protect lives?
- Does the action protect infrastructure, community assets or critical facilities?
- Does the action meet multiple objectives (Multiple Objective Management)?
- What will the action cost?
- What is the timing of available funding?

The mitigation categories, multi-hazard actions, and criteria are included in Appendix C: Mitigation Categories, Alternatives, and Selection Criteria.

With these criteria in mind, HMPC members were each given a set of nine colored dots, three each of red, blue, and green. The dots were assigned red for high priority (worth five points), blue for medium priority (worth three points), and green for low priority (worth one point). The team was asked to use the dots to prioritize actions with the above criteria in mind. The point score for each action was totaled. Appendix C contains the total score given to each identified mitigation action.

The process of identification and analysis of mitigation alternatives allowed the HMPC to come to consensus and to prioritize recommended mitigation actions. During the voting process, emphasis was placed on the importance of a benefit-cost review in determining project priority; however, this was not a quantitative analysis. After completing the prioritization exercise, some team members expressed concern that prioritizing all the actions as a group is not very effective, since many of the actions are jurisdiction- or department-specific. However, the team agreed that prioritizing the actions collectively enabled the actions to be ranked in order of relative importance and helped steer the development of additional actions that meet the more important objectives while eliminating some of the actions which did not garner much support.

Benefit-cost was also considered in greater detail in the development of the Mitigation Action Plan detailed below in Section 5.3. Specifically, each action developed for this plan contains a description of the problem and proposed project, the entity with primary responsibility for implementation, any other alternatives considered, a cost estimate, expected project benefits, potential funding sources, and a schedule for implementation. Development of these project details for each action led to the determination of a High, Medium, or Low priority for each.

Recognizing the limitations in prioritizing actions from multiple jurisdictions and departments and the regulatory requirement to prioritize by benefit-cost to ensure cost-effectiveness, the HMPC decided to pursue:

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- mitigation action strategy development and implementation according to the nature and extent of damages;
  - the level of protection and benefits each action provides;
  - political support;
  - project cost;
  - available funding; and
  - individual jurisdiction and department priority.

This process drove the development of a prioritized action plan for the Butte County Planning Area. Cost-effectiveness will be considered in greater detail through performing benefit-cost project analyses when seeking FEMA mitigation grant funding for eligible actions associated with this plan.

## 5.4 Mitigation Action Plan

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**Requirement §201.6(c)(3)(iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.**

This action plan was developed to present the recommendations developed by the HMPC for how the Butte County Planning Area can reduce the risk and vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. Emphasis was placed on both future and existing development. The action plan summarizes who is responsible for implementing each of the prioritized actions as well as when and how the actions will be implemented. Each action summary also includes a discussion of the benefit-cost review conducted to meet the regulatory requirements of the Disaster Mitigation Act. Table 5.1 identifies the mitigation actions and lead jurisdiction for each action for the entire planning area. Only those actions where the County is the lead jurisdiction are detailed further in this section. Actions specific to other participating jurisdictions, or where other jurisdictions are taking the lead, are detailed in each respective jurisdictional annex to this plan.

The action plan detailed below contains both new action items developed for this plan update as well as old actions that were yet to be completed from the 2007 plan the HMPC decided to carry forward in this plan. Table 5.1 indicates whether the action is new or from the 2007 plan and Section 2.0 contains the details for each 2007 mitigation action item indicating whether a given action item has been completed, deleted, or deferred.

It is important to note that Butte County and the participating jurisdictions have numerous existing, detailed action descriptions, which include benefit-cost estimates, in other planning documents, such as stormwater plans, community wildfire protection plans, and capital improvement budgets and reports. These actions are considered to be part of this plan, and the

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details, to avoid duplication, should be referenced in their original source document. The HMPC also realizes that new needs and priorities may arise as a result of a disaster or other circumstances and reserves the right to support new actions, as necessary, as long as they conform to the overall goals of this plan.

Further, it should be clarified that the actions included in this mitigation strategy are subject to further review and refinement; alternatives analyses; and reprioritization due to funding availability and/or other criteria. The participating communities are not obligated by this document to implement any or all of these projects. Rather this mitigation strategy represents the desires of the community to mitigate the risks and vulnerabilities from identified hazards. The actual selection, prioritization, and implementation of these actions will also be further evaluated in accordance with the CRS mitigation categories and criteria contained in Appendix C.

Also, many of the action items included in this plan are a collaborative effort among participating jurisdictions and other local, state, and federal agencies and stakeholders in the Butte County planning area. Table 5.1 identifies the lead jurisdiction. The individual worksheets for each mitigation action item identify other mitigation partners. In addition, many of the more regional actions where the county or other jurisdictions are identified as the lead, such as the Enhance Public Awareness of the Affects of Natural Hazards and Public Understanding of Disaster Preparedness, will provide a mitigation benefit to all participating jurisdictions.

**Table 5.1. Butte County Planning Area's Mitigation Actions**

Jurisdiction/Action Title	Lead Jurisdiction	New Action/2007 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
<b>Multi-Hazard Mitigation Actions</b>						
Enhance Public Awareness of the Affects of Natural Hazards and Public Understanding of Disaster Preparedness (Unincorporated/Jurisdictions)	Butte County	New action	X	X	X	Public Information
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	Butte County	New action	X	X		Prevention
Countywide Alert and Notification System	Butte County	New Action	X	X		Emergency Services
Implementation of Climate Action Plan	City of Chico	New Action	X	X		Prevention
Common County early warning system	City of Chico	2007 Action	X	X		Emergency Services
Water Main Extension to Mobile Home Park	City of Gridley	New Action	X	X		Prevention Structural Projects
Planning for Mass Evacuation in the Event of a Catastrophic Flood or Earthquake Event.	City of Oroville	New Action	X	X		Prevention Emergency Services
Pipe Replacement Program	Paradise Irrigation District	New Action	X	X		Structural Projects
Restore the Seismic Stability of the Magalia Dam	Paradise Irrigation District	New Action	X	X		Structural Projects
Management of Fuels and non Native Flora Intrusion	Thermalito Water and Sewer District	New Action	X	X		Property Protection Natural Resource Protection Prevention
<b>Earthquake Mitigation Actions</b>						
Identify Un-Reinforced Masonry Buildings in the County	Butte County	New action	X	X		Prevention

Jurisdiction/Action Title	Lead Jurisdiction	New Action/2007 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
<b>Drought Mitigation Actions</b>						
Drought Supply Project	Paradise Irrigation District	New Action	X	X		Property Protection
<b>Flooding, Localized Flooding, and Dam/Levee Failure Mitigation Actions</b>						
Nord Localized Flooding	Butte County	New action	X	X	X	Property Protection
Water on Road Warning signs on River Road at Brick House.	Butte County	New action	X	X	X	Prevention Emergency Services
Rock Creek and Keefer Slough and Flood Control	Butte County	New action	X	X	X	Structural Projects
Palermo Drainage Study	Butte County	New action	X	X	X	Prevention
Reinforce Nelson Road at its crossing of the Western Canal	Butte County	New action	X	X	X	Structural Projects
Little Chico Creek 200 and 100 year Flood Protection Study	Butte County	New action	X	X	X	Prevention Structural Projects
Lindo Chanel 200 and 100 year Flood Protection Study	Butte County	New action	X	X	X	Prevention Structural Projects
Feather River West Levee Improvement Project	Butte County	New action	X	X	X	Structural Projects
Improve DWR Maintenance of flood control channels	Butte County	New action	X	X		Structural Projects
Regional Flood Management Plan (RFMP) for CVFPP.	Butte County	New action	X	X	X	Prevention
Chico Creek-Mud Creek Levees System Study to Provide 200 Year Flood Protection Levels	Butte County	New action	X	X	X	Prevention Structural Projects
Cherokee Canal Levees Certified to FEMA 100 Year Flood Protection Levels	Butte County	New action	X	X	X	Structural Projects

Jurisdiction/Action Title	Lead Jurisdiction	New Action/2007 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Butte Creek Levees Certified to FEMA 100 Year Flood Protection Levels	Butte County	New action	X	X	X	Structural Projects
3B's Overflow Structure Construction	Butte County	New action	X	X	X	Structural Projects
Big Chico Creek 200 and 100 year Flood Protection Study	Butte County	New action	X	X	X	Structural Projects
Move EOC from Dam Inundation zone	Butte County	New action	X	X		Property Protection
Feather River Flood Control	City of Biggs/Sutter Butte Flood Control Agency	New action	X	X	X	Structural Projects
Feather River Levee Reinforcement	City of Gridley/Sutter Butte Flood Control Agency	2007 Action	X	X	X	Structural Projects
Continue to Improve Drainage System	City of Gridley	2007 Action	X	X	X	Structural Projects
Install Bladder Dam in the Paradise Lake Spillway	Paradise Irrigation District	New Action	X	X		Structural Projects
Little Chico Creek study; protection for 100 year flood	City of Chico	2007 Action	X	X	X	Prevention
Provide additional storm-water retention	City of Chico	2007 Action	X	X	X	Structural Projects
Restore capacity of existing flood control features	City of Chico	2007 Action	X	X	X	Structural Projects
Water service to areas being annexed	City of Chico	2007 Action	X	X	X	Property Protection
<b>Hazardous Materials</b>						
Well monitoring	City of Gridley	New Action	X	X		Prevention
<b>Invasive Species: Pests/Plants Mitigation Actions</b>						
Fire Break Maintenance / Broom Eradication Project	Butte County	New action	X	X		Prevention Natural Resource Protection

Jurisdiction/Action Title	Lead Jurisdiction	New Action/2007 Action	Address Current Development	Address Future Development	Continued Compliance with NFIP	CRS Category
Foreign Animal Disease Rapid Response Quarantine Program	Butte County	New action	X	X		Natural Resource Protection
<b>Marine Invasive Species Mitigation Actions</b>						
Marine/Aquatic Invasive Species Survey/ Surveillance Project	Butte County	New action	X	X		Natural Resource Protection
Sesbania Eradication and Flood Mitigation Project	Butte County	New action	X	X		Natural Resource Protection Property Protection
<b>Wildfire Mitigation Actions</b>						
Upper Ridge Fuels Reduction Project	Butte County	New action	X	X		Prevention Property Protection
Upper Ridge Fuels Reduction Maintenance	Butte County	New action	X	X		Prevention Property Protection
Concow/Yankee Hill Fuels Reduction Maintenance Project	Butte County	New action	X	X		Prevention Property Protection
Berry Creek Fuels Reduction Project	Butte County	New action	X	X		Prevention Property Protection
Berry Creek Fuels Reduction Maintenance Project	Butte County	New action	X	X		Prevention Property Protection
Butte Meadows Fuels Reduction Project	Butte County	New action	X	X		Prevention Property Protection
Cohasset Fuels Reduction Project	Butte County	New action	X	X		Prevention Property Protection
Cohasset Fuels Reduction Maintenance Project	Butte County	New action	X	X		Prevention Property Protection
Forest Ranch Fuels Reduction Project	Butte County	New action	X	X		Prevention Property Protection
Feather Forest Ranch Fuels Reduction Maintenance Project	Butte County	New action	X	X		Prevention Property Protection

<b>Jurisdiction/Action Title</b>	<b>Lead Jurisdiction</b>	<b>New Action/2007 Action</b>	<b>Address Current Development</b>	<b>Address Future Development</b>	<b>Continued Compliance with NFIP</b>	<b>CRS Category</b>
Falls Fuels Reduction Maintenance Project	Butte County	New action	X	X		Prevention Property Protection
Continued Weed Abatement Program	City of Gridley	New Action	X	X		Prevention Property Protection
Clear Creek Shaded Fuel Break (was Wildfire – Fire reduction)	Town of Paradise	New Action/2007 Action	X	X		Prevention Property Protection
Hamlin Canyon Shaded Fuel Break(was Wildfire – Fire reduction)	Town of Paradise	New Action/2007 Action	X	X		Prevention Property Protection
Shaded Fuel Break Management and Maintenance Project(was Wildfire – Fire reduction)	Town of Paradise	New Action/2007 Action	X	X		Prevention Property Protection

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## Mitigation Actions

### *Multi-Hazard Mitigation Actions*

#### ***1. Enhance Public Awareness of the Affects of Natural Hazards and Public Understanding of Disaster Preparedness (Unincorporated/Jurisdictions)***

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**Hazards Addressed:** All hazards – both priority and non-priority

**Issue/Background:** There are a total of 8 jurisdictions participating in the Butte Local Hazard Mitigation Plan. Each jurisdiction is responsible for their own outreach/education program for hazards in their community. The level of effort varies by jurisdiction. All jurisdictions contend with limited resources; some must sacrifice educational outreach campaigns to direct their limited resources to the most critical projects. A single unified outreach program will ascertain both broad and targeted educational needs. Resources will be leveraged by consolidating messaging where appropriate and reaching across jurisdictional lines.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Existing outreach programs will be reviewed for effectiveness. Successful components will be expanded across the broader region.

**Responsible Office:** Butte County Office of Emergency Management

**Cost Estimate:** To be determined

**Benefits (Losses Avoided):** Increase residents knowledge of potential hazards and activities required to mitigate hazards.

**Potential Funding:** HMP Grant

**Schedule:** 2013

#### ***2. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan***

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**Hazards Addressed:** All

**Issue/Background:** Local jurisdiction reimbursement for mitigation projects and cost recovery after a disaster is guided by Government Code Section 8685.9. Specifically, this section requires that the County and incorporated jurisdictions adopt a local hazard mitigation plan (LHMP) in accordance with the federal Disaster Mitigation Act of 2000 as part of the safety element of its general plan pursuant to subdivision (g) of Section 65302. It is important for Butte County and the incorporated jurisdictions to incorporate the County's LHMP into the safety element as part of the next general plan update.

**Other Alternatives:** No feasible alternatives

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**Existing Planning Mechanisms through which Action will be Implemented:**

**Responsible Office:** Butte County Office of Emergency Management

**Priority (High, Medium, Low):** High

**Cost Estimate:** Staff time

**Potential Funding:** State and/or Federal Grant

**Benefits (avoided Losses):** Planning documents will help the County maximize potential for state reimbursement

**Schedule:** As soon as possible

### **3. Countywide Alert and Notification System**

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**Hazards Addressed:** All

**Issue/Background:** In the past, the county and cities maintained alert and notification systems to notify citizens of hazardous situations. Most jurisdictions had server based systems which required the purchase of specific equipment and maintaining dozens of phone line connections. Due to increased costs associated with maintaining equipment and decreasing budgets several jurisdictions have not upgraded or replaced outdated equipment, thus eliminating their Alert and Warning Capability. The County and Cities within would like to explore the idea of purchasing a web based Alert and Notification System available for all to use.

**Other Alternatives:** No action

**Existing Planning Mechanism(s) through which Action Will Be Implemented:**

**Priority (H, M, L):** High

**Responsible Office:** Butte County Office of Emergency Management

**Cost Estimate:** \$20,000 to \$30,000 annually for the entire County.

**Benefits (Losses Avoided):** Timely alert and notifications can assist with evacuations and closures of areas. A fast moving event, such as wildland fires requires timely notifications to provide current information and prepare citizens for evacuations. Failure to provide timely notifications to citizens can result in deaths, increased property damage and impacts to the environment.

**Potential Funding:** Emergency Management Performance Grant, Homeland Security Grants, and Interoperable Communications Grants.

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**Schedule:** 2013-2014

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## Earthquake Mitigation Actions

### ***4. Identify Un-Reinforced Masonry Buildings in the County***

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**Hazards Addressed:** Earthquake

**Issue/Background:** In Butte County, there are many old buildings with no record of the construction type or building method used in construction. Damages in the 1975 Oroville earthquake were greatest in unreinforced masonry buildings.

**Other Alternatives:** No action.

**Existing Planning Mechanism(s) through which Action will be implemented:** None at this time.

**Responsible Office:** Office of Emergency Management

**Priority (High, Medium, Low):** Medium

**Cost Estimate:** Staff time

**Benefits (Losses Avoided):** Reducing the potential for loss of life and injury by reducing response time for emergency personnel by identifying the buildings with the highest risk of collapse due to earthquake.

**Potential Funding:** Staff time

**Schedule:** Within 5 years

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

### ***5. Nord Localized Flooding***

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**Hazards Addressed:** Flooding

**Issue/Background:** During heavy rain storms the community of Nord is impacted by sheet flooding which has flooded many homes several times. More specifically, homes in the vicinity of Nord Hwy, Carmen Lane and Victor Drive have been impacted every few years. Recent flood events include 1996, 2005, 2008 and 2012. The most recent flooding occurred on December 2, 2012 and affected at least 11 homes. Flooding has been from a few inches into the garage to 18 inches in one home.

We believe this area would be an excellent candidate to elevate homes above the flood level.

**Other Alternatives:** No action

**Existing Planning Mechanism(s) through which Action Will Be Implemented:**

**Priority (H, M, L):** High

**Responsible Office:** Butte County Office of Emergency Management

**Cost Estimate:** \$125,000 per structure

**Benefits (Losses Avoided):** Repetitive losses to homes in the Nord community, financial and emotional stress to affected residences.

**Potential Funding:** Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program, Flood Mitigation Assistance Program and the Repetitive Flood Claims Program.

**Schedule:** 2013-2015

### ***6. Water on Road Warning Signs on River Road at Brick House***

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**Hazards Addressed:** Flooding

**Issue/Background:** At a number of locations on River Road between Chico River Road and Ord Ferry Road the road dips at local sloughs that only have water in them during the heavy rain season. These dips flood during heavy rains and when down stream flows in the sloughs backup across the road. The road has gates just north of Ord Ferry Road and just south of Chico River Road to warn the traveling public that the road may be flooded. The dips are signed and the pavement marked with red lines to a location of the highest recorded water level in the slough. The signs warn the traveling public not to proceed on the road when water is up to or above the red line. At one location just north of Ord Ferry Road commonly referred to as the Brick House

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there have been a number of accidents when there is sometime only one inch of water on the road. CHP has suggested that the County install more permanent signs with larger flashing beacons to warn drivers that there is water on the road.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project would be done through the Public Works Departments Road Maintenance Division

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** \$5,000.

**Benefits(Losses Avoided):** Reduce traffic accidents at this location.

**Potential Funding:** Local or Grant Funds.

**Schedule:** None at this time.

## ***7. Rock Creek and Keefer Slough and Flood Control***

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**Hazards Addressed:** Flooding

**Issue/Background:** Flooding and flood protection have been an issue along Rock Creek and Keefer Slough for some time. There have been numerous efforts to address the issue from both a flood protection and flood proofing perspectives. Now is the time to bring property owners and the community together to develop a plan to solve the problem.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will also be listed on the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** Based on previous feasibility studies the cost estimate is in the \$36 million range.

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**Benefits (Losses Avoided):** The benefits would be to reduce recurrence period of flooding that currently exists.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

## ***8. Palermo Drainage Study***

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**Hazards Addressed:** Flooding

**Issue/Background:** Local flooding is a regular occurrence in the Community of Palermo especially in heavy rainfall events. The existing storm drain system in the community is a series of roadside ditches small streams and cross culverts that direct flows to the south west. This study would analyze the existing system and make recommendations on improvements to reduce the occurrence of localized flooding.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will also be listed on the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** None at this time.

**Benefits (Losses Avoided):** The benefits would be to reduce recurrence period of localized flooding that currently exists.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

## ***9. Reinforce Nelson Road at its Crossing of the Western Canal***

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**Hazards Addressed:** Flooding

**Issue/Background:** At the location that Nelson Road crosses the Western Canal just east of the Nelson Road/ 7Mile Road Intersection the road is sometimes closed when the operators of the Western Canal release water into Little Butte Creek for downstream customers the flows are greater than the ability of the Road culverts to handle. The flow overtops the road and washes

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away the gravel surface and portions of the shoulders. Public Works crews have to close the road and then make repairs before opening it back to traffic. This project would either create a concrete low-water crossing to prevent future erosion or construct a larger box culvert to handle the flow of water so it does not overtop the road.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project would be done through the Public Works Departments Road Maintenance Division

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** None at this time.

**Benefits (Losses Avoided):** Reduce road closures at this location.

**Potential Funding:** Local Funds.

**Schedule:** None at this time.

### ***10. Little Chico Creek 200 and 100 year Flood Protection Study***

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**Hazards Addressed:** Flooding

**Issue/Background:** Little Chico Creek has limited flood protection facilities along its length. This Study would determine the needed improvements to provide both, SB5 required, 200 year flood protection for the urban areas of Chico and, FEMA required, 100 year protection for the non-urban areas to the west of the Chico urban core.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will be included in the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division & the Building and Development Services Department of the City of Chico

**Cost Estimate:** None at this time.

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**Benefits (Losses Avoided):** Once the 200 year and 100 year flood protection is provided property owners in the area will not be required to buy Flood Insurance and there will not be the threat of flood damage to homes and businesses in the area.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

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### ***11. Lindo Chanel 200 and 100 year Flood Protection Study***

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**Hazards Addressed:** Flooding

**Issue/Background:** Lindo Chanel has limited flood protection facilities along its length. This Study would determine the needed improvements to provide both, SB5 required, 200 year flood protection for the urban areas of Chico and, FEMA required, 100 year protection for the non-urban areas to the west of the Chico urban core.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will be included in the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division & the Building and Development Services Department of the City of Chico

**Cost Estimate:** None at this time.

**Benefits (Losses Avoided):** Once the 200 year and 100 year flood protection is provided property owners in the area will not be required to buy Flood Insurance and there will not be the threat of flood damage to homes and businesses in the area.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

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### ***12. Feather River West Levee Improvement Project***

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**Hazards Addressed:** Flooding & Levee Failure

**Issue/Background:** The levees along the west bank of the Feather River do not provide 100-year flood protection because they suffer from potential underseepage and through-seepage. The

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Sutter Butte Flood Control Agency is planning a project to improve these levees from Thermalito Afterbay, in Butte County, to the Sutter Bypass in Sutter County.

**Other Alternatives:** None.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** SBFCA is currently in the design, environmental clearance and permitting phase of improving the Feather River west bank levees. Property owners in the Agencies boundaries approved the formation of an Assessment District to provide local funding for the project with the remainder of funding coming from the State and Federal governments.

**Priority (H, M, L):** High

**Responsible Office:** Sutter Butte Flood Control Agency

**Cost Estimate:** \$312 million,

**Benefits (Losses Avoided):** The planned improvements will provide 200 year level of flood protection for the southern portion of Butte County that are currently either in a FEMA 100 year flood zone A or in the shaded X zone both of which were imposed by FEMA in 2011. This will allow these designation to be removed or modified thus eliminating or reducing flood insurance costs for property owners in the area.

**Potential Funding:** Current funding is 77% state and 23% local.

**Schedule:** Phase I will begin in 2013. Phase II will begin in 2014. Project completion for both phases is 2016

### ***13. Improve DWR Maintenance of Flood Control Channels***

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**Hazards Addressed:** Flooding

**Issue/Background:** In many areas of the County where there are flood control structures the responsible agency to maintain the channels themselves is the California Department of Water Resources. Maintenance has in some cases been spotty due to a number of factors. Those factors are funding, environmental permitting and other issues. This effort would work with DWR and other counties and flood control agencies to develop policies and funding to help to increase channel maintenance by DWR.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will also be listed on the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

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**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** None at this time.

**Benefits (Losses Avoided):** The benefits would be to reduce potential flooding due to lack of maintenance and establish more secure funding than currently exists.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

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#### ***14. Regional Flood Management Plan (RFMP) for CVFPP***

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**Hazards Addressed:** Flooding & Levee Failure

**Issue/Background:** In 2012 the Central Valley Flood Protection Board (CVFPB) approved the Central Valley Flood Protection Plan (CVFPP). Part of the implementation of the CVFPP was to develop RFMP's throughout the CVFPP planning area. Butte County is covered by three of the nine regional planning areas identified in the CVFPP. The County will be participating over the next two years to develop these RFMP's.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will be implemented as is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the regions that cover the county and will propose a number of projects as a part of the RFMP's for the regions.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** \$2.1 million.

**Benefits (Losses Avoided):** The benefits would be to develop a strategy and list of projects to reduce potential flooding in the regions.

**Potential Funding:** Project is being 100% funded by grant funds through DWR.

**Schedule:** RFMP's should be completed by July 2014.

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### **15. Chico Creek-Mud Creek Levees System Study to Provide 200 Year Flood Protection Levels**

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**Hazards Addressed:** Flooding & Levee Failure

**Issue/Background:** The Chico Creek-Mud Creek Levee System that protects the City of Chico and the unincorporated areas north and west of Chico were certified to meet FEMA 100 year Flood Protection. Under SB5 the Chico Urban Area must have a 200 year level of protection. This study would determine the improvements necessary to provide this 200 year level of protection.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will be included in the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division & the Building and Development Services Department of the City of Chico

**Cost Estimate:** None at this time.

**Benefits (Losses Avoided):** Once the levee system is certified to meet the SB5 requirements for the 200 year flood event the properties in the area will be even more protected than they currently are.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

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### **16. Cherokee Canal Levees Certified to FEMA 100 Year Flood Protection Levels**

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**Hazards Addressed:** Flooding & Levee Failure

**Issue/Background:** The levees along Cherokee Canal that protect the communities of Richvale and Nelson were declared by FEMA to not provide 100 year protection under their guidelines. It is believed that the only criteria that the levees do not meet in FEMA's guidelines are for channel capacity.

**Other Alternatives:** None at this time.

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**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will be included in the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** None at this time.

**Benefits(Losses Avoided):** Once the levees for this stream are certified to meet the FEMA requirements for the 100 year flood event the property owners in the area will be removed from the FEMA 100 year flood zones in the area and their flood insurance rates will go down or in some cases may be eliminated.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

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***17. Butte Creek Levees Certified to FEMA 100 Year Flood Protection Levels.***

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**Hazards Addressed:** Flooding & Levee Failure

**Issue/Background:** The Butte Creek levees that protect the communities of South Chico, Durham and Nelson were declared by FEMA to not provide 100 year protection under their guidelines. It is believed that the only criteria that the levees do not meet in FEMA's guidelines are for freeboard. This project would prepare the necessary documentation to certify the levees and identify any needed construction to achieve that certification.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will be included in the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** None at this time.

**Benefits (Losses Avoided):** Once the levees for this stream are certified to meet the FEMA requirements for the 100 year flood event the property owners in the area will be removed from

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the FEMA 100 year flood zones in the area and their flood insurance rates will go down or in some cases may be eliminated.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

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### ***18. Big Chico Creek 200 and 100 year Flood Protection Study***

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**Hazards Addressed:** Flooding

**Issue/Background:** Big Chico Creek has limited flood protection facilities along its length. This Study would determine the needed improvements to provide both, SB5 required, 200 year flood protection for the urban areas of Chico and, FEMA required, 100 year protection for the non-urban areas to the west of the Chico urban core.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will be included in the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division & the Building and Development Services Department of the City of Chico

**Cost Estimate:** None at this time.

**Benefits (Losses Avoided):** Once the 200 year and 100 year flood protection is provided property owners in the area will not be required to buy Flood Insurance and there will not be the threat of flood damage to homes and businesses in the area.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

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### ***19. 3B's Overflow Structure Construction***

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**Hazards Addressed:** Flooding

**Issue/Background:** The 3B's Overflow Structure is one of three overflow structures along the Sacramento River that allow flows from the Sacramento River to enter the Butte Basin Overflow Area. The 3B's Structure was originally constructed about 1964 as an earthen structure. Since

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then high-water events on the Sacramento River have degraded the structure to the point that now even low-water events will spill into the Butte Basin causing problems for property owners getting access to their fields and orchards. The proposed project would reconstruct the 3B's structure to its design elevation and harden it to prevent future degradation.

**Other Alternatives:** None at this time.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** This project will be included in the Regional Flood Management Plan (RFMP) that is required by the Central Valley Flood Protection Plan (CVFPP). The County is active in the RFMP process for the region and will propose this project as a part of the RFMP for the region.

**Priority (H, M, L):** Medium

**Responsible Office:** Department of Public Works, Land Development Division

**Cost Estimate:** None at this time.

**Benefits (Losses Avoided):** Once these improvements are made nuisance flooding in the Butte Basin will be eliminated allowing property owners to access their fields and orchards earlier in normal years.

**Potential Funding:** None identified at this time.

**Schedule:** None at this time.

## ***20. Move EOC from Dam Inundation Zone***

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**Hazards Addressed:** Dam Failure/Flooding

**Issue/Background:** The County's Emergency Operations Center (EOC) is located approximately 2 miles downstream from Lake Oroville, the largest earth filled dam in the United States. During the 1997 floods the County EOC was within hours of evacuating due to possible uncontrolled water releases from Oroville Dam. It is not advisable to have an EOC located at the base of a dam due to possible failure or overtopping. If Oroville Dam were to fail most of the county's critical infrastructure would be affected. In order to maintain continuity of operations the EOC should be relocated to a safer location.

**Other Alternatives:** Remove dam, maintain EOC at current location.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:**

**Priority (H, M, L):** Medium

**Responsible Office:** Butte County Office of Emergency Management

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**Cost Estimate:** 3 to 5 million dollars.

**Benefits (Losses Avoided):** Continuity of Operations by County government during a dam failure event.

**Potential Funding:** FEMA EOC Grant, USDA Grants

**Schedule:** TBD

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## **Invasive Species: Pests/Plants Mitigation Actions**

### ***21. Fire Break Maintenance / Broom Eradication Project***

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**Hazards Addressed:** Invasive Species: Pests/Plants and Wildfire

**Issue/Background:** Broom species (*Genista monspessulana*, *Cytisus striatus*, *Cytisus scoparius*) are invasive weeds that have filled in fire breaks and have significantly added to the fuel load creating fire prone habitat adjacent roads in the county forested areas. Eradicating them reduces fire danger. At present, along the foothill roads, the Broom infestations occur at easily accessible locations for truck mounted spray equipment and are in controllable quantities; however, the infestations are increasing and spreading. An aggressive control project will prevent forest fires, severely retard the spread of this invasive pest and likely achieve eradication in most locations.

**Other Alternatives:** Presently, there are no feasible alternatives to fuel reduction or invasive species eradication that will mitigate the fire destruction of forest, public and private property and loss of life.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** The County Agricultural Department is the lead member in the Butte County Weed Management Area (BCWMA), a collective of resource, regulatory agencies and private associations cooperating under an MOU. The Management Group plans and coordinates eradication activities on invasive noxious weeds in Butte County.

**Priority (H, M, L):** High

**Responsible Office:** Butte County Agricultural Department

**Cost Estimate:** \$65,000.00 for a five year program.

**Benefits (Losses Avoided):** Maintaining the integrity of the fire breaks and prevention of wild fires, preservation of the forest resources and air quality, protection of foothill/mountain communities, mitigate loss of life, public and private property, resources. Stop the spread of invasive species.

**Potential Funding:** Competitive grants

**Schedule:** To be determined based on the availability of funding

### ***22. Foreign Animal Disease Rapid Response Quarantine Program.***

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**Hazards Addressed:** Invasive Species: Pests/Plants

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**Issue/Background:** The introduction of a FAD in California poultry, livestock or wildlife presents substantial risks to animals, human health and the agricultural economy. Rapid response and quarantine are fundamental to preventing region-wide outbreak. Biologist from the County Agricultural Department are the most likely to encounter a FAD event. A response plan exists but department support resources to carry out rapid response, quarantine and decontamination are not in place. The Department needs to acquire specific response and decontamination equipment and training.

**Other Alternatives:** Rely on other county organizations to provide or share required equipment and resources. There is no alternative for proper FAD response training.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** CDFA, Animal Health Branch, Emergency Disease Programs has developed and provided an FAD outbreak response strategy and plan to be administered locally by the County Agricultural Department.

**Priority (H, M, L):** High

**Responsible Office:** Butte County Agricultural Department

**Cost Estimate:** \$15,000.00

**Benefits (Losses Avoided):** Protection of a \$30 million county poultry, dairy and livestock industry/ economy. Protect the \$36 billion state poultry, dairy and livestock industry/ economy. Prevent disease contagion, outbreak and human FAD exposure.

**Potential Funding:** Competitive grants. Response training can be provided by CDFA, Animal Health Branch.

**Schedule:** To be determined based on the availability of funding

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## Marine Invasive Species Mitigation Actions

### ***23. Marine/Aquatic Invasive Species Survey/ Surveillance Project***

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**Hazards Addressed:** Marine Invasive Species

**Issue/Background:** Water and the natural and manmade conveyances' and infrastructure are among Butte County's most important natural and industrial resources. The County's water systems are the critical component for many of the environmental and agricultural cycles both terrestrial and aquatic. Marine/ Aquatic invasive species can jeopardize and damage any part of the entire system ranging from human economy dependent infrastructure to natural aquatic, riparian and wetland habitat. Entire water sheds can be affected when an aggressive invasive species infests the rivers, shorelines, tributaries, drainage, irrigation and domestic delivery systems. An aggressive survey project will identify incipient, undocumented infestations for eradication by the Agricultural Dept. and Dept. of Boating and Waterways.

**Other Alternatives:** Rely on the present incidental discovery scenario.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** The County Agricultural Department is the lead member in the Butte County Weed Management Area (BCWMA), a collective of resource, regulatory agencies and private associations cooperating under an MOU. The Management Group plans and coordinates eradication activities on invasive noxious weeds in Butte County. California Department of Boating and Waterways is designated as the lead state agency to cooperate with other state, local and federal agencies in controlling Marine/Aquatic Invasive weeds.

**Priority (H, M, L):** Medium

**Responsible Office:** Butte County Agricultural Department

**Cost Estimate:** \$8,000.00 per annual survey

**Benefits (Losses Avoided):** Prevent damage to, or failure of, the drainage irrigation and domestic water delivery systems and infrastructure. Mitigate severe impact to natural aquatic, riparian and wetland habitat.

**Potential Funding:** Competitive grants

**Schedule:** To be determined based on the availability of funding

### ***24. Sesbania Eradication and Flood Mitigation Project***

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**Hazards Addressed:** Marine Invasive Species

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**Issue/Background:** The invasive weed “Sesbania punicea” has invaded the Feather River from a central Oroville flood water drainage system. The infested drainage system provides seed stock to continually infest the Feather River. Unchecked, Sesbania has fills in open areas and banks down to the waterline impeding drainage, exacerbating flood prone areas and degrading the riparian habitat. An aggressive control project will likely achieve eradication in the central Oroville drainage system.

**Other Alternatives:** Presently no funded mitigation/control projects are in place in Butte County other than sporadic and minimal herbicide control, by the County Agricultural Department, at the worst infested locations.

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** The County Agricultural Department is the lead member in the Butte County Weed Management Area (BCWMA), a collective of resource, regulatory agencies and private associations cooperating under an MOU. The Management Group plans and coordinates eradication activities on invasive noxious weeds in Butte County.

**Priority (H, M, L):** High

**Responsible Office:** Butte County Agricultural Department

**Cost Estimate:** \$32,000.00 for a five year program.

**Benefits (Losses Avoided):** Flood damage and loss of private and public property and infrastructure.

**Potential Funding:** Competitive grants.

**Schedule:** To be determined based on the availability of funding.

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## Wildfire Mitigation Actions

### ***25. Upper Ridge Fuels Reduction Project***

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** High

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1800 - \$2800 per acre treated. Approximately 55 acres: \$154,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Complete remaining portions of the "17-mile fuel break" around the community of Magalia as grant funds allow.

### ***26. Upper Ridge Fuels Reduction Maintenance***

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

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**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1800 - \$2000 per acre treated. Approximately 247 acres: \$445,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Maintain shaded fuel breaks around the community of Magalia and along roadways including Skyway, Dogtown Rd and Coutelenc Rd.

***27. Concow/Yankee Hill Fuels Reduction Maintenance Project***

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium

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**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1800 - \$2800 per acre treated. Approximately 205 acres: \$369,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Maintain shaded fuel breaks along roadways including Concow Rd, Crain Ridge Rd, and Rim Rd in the community of Concow as grant funds allow.

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**28. Berry Creek Fuels Reduction Project**

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1800 - \$2800 per acre treated. Approximately 85 acres: \$238,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

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**Potential Funding:** Grant funding

**Schedule:** Construct shaded fuel breaks along roadways including Bald Rock Rd and Zink Rd in the community of Berry Creek as grant funds allow.

### ***29. Berry Creek Fuels Reduction Maintenance Project***

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium - Low

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1,800 - \$2,800 per acre treated. Approximately 16 acres: \$29,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Maintain shaded fuel break around Lake Madrone in the community of Berry Creek as grant funds allow.

### ***30. Butte Meadows Fuels Reduction Project***

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**Hazards Addressed:** Fire hazard / Fuel reduction

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**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium - Low

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1,800 - \$2,800 per acre treated. Approximately 173 acres: \$484,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Construct a shaded fuel break along Humboldt Road from Hwy 32 to the community of Jonesville as grant funds allow.

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***31. Cohasset Fuels Reduction Project***

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

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**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium - Low

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1800 - \$2800 per acre treated. Approximately 182 acres: \$510,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Construct a shaded fuel break along Vilas Rd, Mann and Nolta Ridge Rd, and Mud Creek Rd in the community of Cohasset as grant funds allow.

### ***32. Cohasset Fuels Reduction Maintenance Project***

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium - Low

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1800 - \$2800 per acre treated. Approximately 97 acres: \$175,000

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**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Maintain a shaded fuel break along Cohasset Road from Vilas Rd. to Mud Creek Rd in the community of Cohasset as grant funds allow.

### ***33. Forest Ranch Fuels Reduction Project***

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium - Low

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1,800 - \$2,800 per acre treated. Approximately 265 acres: \$742,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
  - Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Construct shaded fuel breaks along roadways including Doe Mill Road, Headwaters Road, and Schott Road in the community of Forest Ranch as grant funds allow.

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### **34. Forest Ranch Fuels Reduction Maintenance Project**

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- Increased number of initial attack resources
- Public education to reduce ignitions
- Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium - Low

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1,800 per acre treated. Approximately 100 acres: \$180,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Maintain existing shaded fuel breaks along Hwy 32, Wilder Rd, and Crown Point Rd in the community of Forest Ranch as grant funds allow.

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### **35. Feather Falls Fuels Reduction Maintenance Project**

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**Hazards Addressed:** Fire hazard / Fuel reduction

**Issue/Background:** Butte County has experienced many damaging wildland fires during the past century. Dense vegetative fuel loading provides the potential for future catastrophic wildland fires and damage to communities and assets at risk.

**Other Alternatives:**

- 
- Increased number of initial attack resources
  - Public education to reduce ignitions
  - Nothing

**Existing Planning Mechanism(s) through which Action Will Be Implemented:** Butte Unit Fire Plan/Community Wildfire Protection Plan

**Priority (H, M, L):** Medium

**Responsible Office:** CAL FIRE/Butte County Fire Department in cooperation with the Butte County Fire Safe Council

**Cost Estimate:** \$1,800 - \$2,800 per acre treated. Approximately 50 acres: \$90,000

**Benefits (Losses Avoided):**

- Reduced fire intensity within the fuel reduction zone.
- Increased probability of containing a fire within the fuel reduction zone.
- Reduced risk to public safety, property, environment and other assets at risk.

**Potential Funding:** Grant funding

**Schedule:** Maintain shaded fuel break along Lumpkin Rd in the community of Feather Falls as grant funds allow.