

*Butte County
Local Hazard Mitigation Plan Update
October 2019*





Executive Summary

This LHMP Update serves to update the 2014 Federal Emergency Management Agency (FEMA) approved Butte County LHMP. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Butte County, five incorporated communities, and ten special districts prepared this Local Hazard Mitigation Plan (LHMP) Update to the FEMA approved 2014 Butte County LHMP, in order to make the County and its residents less vulnerable to future hazard events. This LHMP Update demonstrates the community's commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. This LHMP Update was also developed, among other things, to ensure Butte County and participating jurisdictions' continued eligibility for certain federal disaster assistance: specifically, the FEMA Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation Program (PDM), and the Flood Mitigation Assistance Program (FMA).

Each year in the United States, natural disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses to insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many natural disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated. The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards.

LHMP Plan Development Process

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts determined, mitigation goals set, and appropriate mitigation strategies determined, prioritized, and implemented. This LHMP Update documents the hazard mitigation planning process and identifies relevant hazards and vulnerabilities and strategies the County will use to decrease vulnerability and increase resiliency and sustainability in the community.

This is a multi-jurisdictional plan with the following seeking approval of the plan by FEMA:

- Butte County*
- City of Biggs*
- City of Chico*
- City of Gridley*
- City of Oroville*
- Town of Paradise*
- Paradise Irrigation District*
- Thermalito Water and Sewer District*
- Durham Irrigation District
- North Yuba Water District
- Feather River Recreation and Park District
- Butte County Fire Safe Council
- Lake Oroville Area Public Utility District

- Paradise Recreation and Park District
 - South Feather River Water and Power Agency
 - Butte County Office of Education (representing Butte County School Districts)
- * Participated in 2014 Butte County LHMP

This LHMP Update was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the Federal Register on February 26, 2002, (44 CFR §201.6) and finalized on October 31, 2007. The County and all participating jurisdictions followed a planning process prescribed by FEMA as detailed in Table ES-1.

Table ES-1 Local Hazard Mitigation Planning Process

| DMA Process | Modified CRS Process |
|---|---|
| 1) Organize Resources | |
| 201.6(c)(1) | 1) Organize the Planning Effort |
| 201.6(b)(1) | 2) Involve the Public |
| 201.6(b)(2) and (3) | 3) Coordinate with Other Departments and Agencies |
| 2) Assess Risks | |
| 201.6(c)(2)(i) | 4) Identify the Hazards |
| 201.6(c)(2)(ii) | 5) Assess the Risks |
| 3) Develop the Mitigation Plan | |
| 201.6(c)(3)(i) | 6) Set Goals |
| 201.6(c)(3)(ii) | 7) Review Possible Activities |
| 201.6(c)(3)(iii) | 8) Draft an Action Plan |
| 4) Implement the Plan and Monitor Progress | |
| 201.6(c)(5) | 9) Adopt the Plan |
| 201.6(c)(4) | 10) Implement, Evaluate, and Revise the Plan |

The planning process began with the organizational phase to establish the Hazard Mitigation Planning Committee (HMPC) comprised of key County representatives, and other local and regional stakeholders; to involve the public; and to coordinate with other departments and agencies. A detailed risk assessment was then conducted followed by the development of a focused mitigation strategy by all participating jurisdictions or the Butte County Planning Area. Once approved by Cal OES and FEMA, this LHMP Update will be adopted and implemented by the County and all participating jurisdictions over the next five years.

Risk Assessment

The HMPC conducted a risk assessment that identified and profiled hazards that pose a risk to the County and participating jurisdictions, assessed the vulnerability of the Planning Area to these hazards, and examined the existing capabilities to mitigate them.

The Butte County Planning Area is vulnerable to numerous hazards that are identified, profiled, and analyzed in this Plan. Floods, earthquakes, drought, levee failures, landslides, wildfires, and other severe weather events are among the hazards that can have a significant impact on the County. Table ES-2 details the hazards identified for this Butte County LHMP Update.

Table ES-2 Butte County Hazard Identification Assessment

| Hazard | Geographic Extent | Likelihood of Future Occurrences | Magnitude/Severity | Significance | Climate Change Influence |
|--|--|----------------------------------|--------------------|--------------|--------------------------|
| Climate Change | Extensive | Likely | Limited | Medium | – |
| Dam Failure | Extensive | Occasional | Catastrophic | High | Medium |
| Drought & Water shortage | Extensive | Likely | Critical | Medium | High |
| Earthquake and Liquefaction | Extensive | Unlikely | Catastrophic | Medium | Low |
| Floods: 100/200/500 year | Significant | Likely | Critical | High | Medium |
| Floods: Localized Stormwater | Significant | Highly Likely | Limited | Medium | Medium |
| Hazardous Materials Transportation | Significant | Likely | Limited | Medium | Low |
| Invasive Species: Aquatic | Limited | Likely | Limited | Medium | Low |
| Invasive Species: Pests/Plants | Extensive | Highly Likely | Limited | Medium | Low |
| Landslide, Mudslide, and Debris Flow | Significant | Likely | Critical | Medium | Medium |
| Levee Failure | Significant | Occasional | Critical | High | Medium |
| Severe Weather: Extreme Heat | Extensive | Highly Likely | Limited | Medium | High |
| Severe Weather: Freeze and Winter Storm | Extensive | Highly Likely | Limited | Medium | Medium |
| Severe Weather: Heavy Rain and Storms (Hail, Lightning) | Extensive | Highly Likely | Limited | Medium | Medium |
| Severe Weather: Wind and Tornado | Extensive | Highly Likely/Likely | Critical | Medium | Low |
| Stream Bank Erosion | Significant | Highly Likely | Limited | Medium | Low |
| Volcano | Extensive | Unlikely | Negligible | Low | Low |
| Wildfire | Extensive | Highly Likely | Catastrophic | High | High |
| Geographic Extent Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area Likelihood of Future Occurrences Highly Likely: Near 100% chance of occurrence in next year, or happens every year. Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less. Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years. | Magnitude/Severity Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid Significance Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact Climate Change Influence Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact | | | | |

Mitigation Strategy

Based on the results of the risk assessment, the participating jurisdictions and the HMPC developed a mitigation strategy for reducing the County's and all participating jurisdictions' risk and vulnerability to hazards. The resulting Mitigation Strategy for the Butte County Planning Area is comprised of LHMP goals and objectives and a mitigation action plan which includes a series of mitigation action projects and implementation measures. Based on the risk assessment, the HMPC identified goals and objectives for reducing the Butte County Planning Area's vulnerability to hazards. The goals and objectives of this multi-hazard mitigation plan are:

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

- Focus on the hazards that have the biggest impact on life safety
- Reduce the incidence of negative human consequences produced by a disaster
- Minimize economic and financial impacts
- Protect and preserve natural resources and the environment to preserve "our" way of life.
- Minimize impacts to both existing and future development

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

- Protect/harden critical facilities, infrastructure, and lifeline utilities
- Minimize interruption of essential services
- Minimize effect of Public Safety Power Shutoff (PSPS) on critical infrastructure and services
- Provide for continuity of operations and essential services before, during, and after disasters
- Increase jurisdictional and statewide coordination to improve disaster response capabilities for designated critical facilities (shelters) such as the Butte County Fairgrounds

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

- Minimize damage to communities from disaster events through public awareness
- Enhance public outreach, education and preparedness to include all hazards of concern
- Educate residents and visitors on personal responsibility and self-reliance prior to, during, and after a disaster
- Train and educate public on actions to take during different emergencies
- Enhance public communications to keep public well informed during disasters
- Increase public's awareness and involvement in communities' mitigation projects

Goal 4: Increase communities' ability to be prepared for, respond to, and recover from a disaster event

- Improve/upgrade multi-agency mass warning and notification systems/Develop effective community warning systems for catastrophic events
- Implement better technology and processes for communication with public
- Increase inter-agency coordination and develop interagency mitigation and disaster response capabilities for major disasters
- Increase use of shared resources and facilities

- Increase and foster mutual aid to enhance and ensure desired response actions
- Provide staff and volunteers with education, training, and support to assist with disaster response
- Build and maximize GIS resources (platform, access, education)
- Minimize damage to communities from disaster events through comprehensive community planning at every stage to address all populations
- Enhance and participate in regional planning efforts in preparation for large events
- Improve communities' circulation, ingress and egress, and primary and secondary evacuation routes during disasters.
- Provide strategies and options for shelter in place at public facilities and parks for remote areas or if evacuation routes are blocked
- Actively prepare and practice (exercise) disaster plans to ensure effective implementation
- Provide effective and swift disaster recovery services (human and animals), resources, and relief

Goal 5: Reduce fire severity and intensity in Butte County and surrounding lands

- Reduce life safety issues, property loss, and damages associated with wildfires
- Prevent and reduce wildfire ignitions and wildfire-related losses
- Implement a fuels management strategy for fuels reduction by all landowners on both public and private lands
- Manage and reduce large fuel loads on non-grazed agricultural and grass lands
- Minimize danger of evacuation on roadways by reducing adjacent fuels
- Ongoing updates to Community Wildfire Protection Plans and Evacuation Routes (Projects?)

Goal 6: Coordinate land use development with LHMP and General Plan

- Consider and address priority hazards of concern in future land use planning and development
- Integrate regional and local climate change adaption planning efforts into future land use planning and development

Goal 7: Increase community resiliency to climate change's influence on disasters

- Integrate climate change into mitigation efforts for natural hazards with a focus on high loss disasters such as flood and wildfire

Goal 8: Ensure AB 2140 compliance

- Incorporate the LHMP Update into the Safety Element of the General Plan

Goal 9: Maintain FEMA eligibility/position the communities for grant funding.

- Monitor and communicate available grant programs, timelines, and processes to all communities.
- Educate jurisdictions/Annexes on how to utilize the LHMP during grant applications

Actions to support these goals are shown on Table ES-3.

Table ES-3 Butte County Planning Area Mitigation Actions

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|--|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Butte County | | | | | | |
| Multi-Hazard Actions | | | | | | |
| Action 1.Integrate Local Hazard Mitigation Plan into Safety Element of General Plan | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention |
| Action 2.Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness | Butte County and all participating jurisdictions | New Action | X | X | X | Prevention Public Information |
| Action 3.Countywide Alert and Notification System | Butte County and all participating jurisdictions | 2014 Action | X | X | | Emergency Services |
| Action 4.Mass Notification of Emergency/Evacuation Notification | Butte County and all participating jurisdictions | New Action | X | X | | Emergency Services |
| Action 5.Butte County Fairground Emergency Generator(s) Installation | Butte County and all participating jurisdictions | New Action | X | X | | Emergency Services |
| Action 6. Butte County Fairground Emergency Shelter Operation Plan | Butte County and all participating jurisdictions | New Action | X | X | | Emergency Services |
| Action 7.Butte County Fairground WIFI Upgrade | Butte County and all participating jurisdictions | New Action | X | X | | Emergency Services |
| Action 8.Butte County Fairground Emergency Shelter Facility | Butte County and all participating jurisdictions | New Action | X | X | | Emergency Services |
| Action 9.Critical Facility Back Up Power | Butte County and all participating jurisdictions | New Action | X | X | X | Prevention Emergency Services Property Protection Structural Projects |
| Action 10. Critical Facility and Infrastructure Back Up Power and Light Towers | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Emergency Services Property Protection Structural Projects |
| Action 11. Post-Disaster Building Code Compliance | Butte County | New Action | X | X | | Prevention |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|--|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Action 12. Cohasset Road Improvements | Butte County | New Action | X | X | X | Property Protection Structural Projects Emergency Services |
| Action 13. Concow Culvert Upsizing, Guardrail and Road Widening | Butte County | New Action | X | X | X | Property Protection Structural Projects Emergency Services |
| Action 14. Evacuation Routes | Butte County and all participating jurisdictions | New Action | X | X | X | Emergency Services |
| Action 15. Honey Run Rd. and Centerville Rd. Culvert Upsizing and Road Widening | Butte County | New Action | X | X | X | Property Protection Structural Projects Emergency Services |
| Action 16. Portable Message Boards | Butte County and all participating jurisdictions | New Action | X | X | X | Emergency Services |
| Climate Change Actions | | | | | | |
| Action 17. Climate Change (Greenhouse Gas reduction measures and adaptation/resilience) | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Public Information |
| Drought Actions | | | | | | |
| Action 18. Drought Planning | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Public Information |
| Earthquake and Liquefaction Actions | | | | | | |
| Action 19. Identify and Mitigate Un-Reinforced Masonry Buildings in the County | Butte County | 2014 Action | X | | | Property Protection Structural Projects |
| Flood, Localized Flood, Levee Failure, Dam Failure; Streambank Erosion, and Heavy Rains and Storm Actions | | | | | | |
| Action 20. Nord Localized Flooding | Butte County | 2014 Action | X | | X | Property Protection Structural Projects |
| Action 21. Water on Road Warning signs on River Road at Brick House | Butte County | 2014 Action | X | X | X | Property Protection |
| Action 22. Rock Creek and Keefer Slough and Flood Control | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|--|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Action 23. Palermo Drainage Study | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 24. Reinforce Nelson Road at its crossing of the Western Canal | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 25. Little Chico Creek 200- and 100-year Flood Protection Study | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 26. Lindo Chanel 200 and 100 year Flood Protection Study | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 27. Feather River West Levee Improvement Project | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 28. Chico Creek-Mud Creek Levees System Study to Provide 200 Year Flood Protection Levels | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 29. 3B's Overflow Structure Construction | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 30. Big Chico Creek 100- and 200-year Flood Protection Study | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|---|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Action 31. Keefer Slough to Mud Creek Flood Mitigation | Butte County | New Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 32. Rock and Sand Creek Flood Mitigation | Butte County | New Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 33. Rock Creek and Keefer Slough Flood Mitigation | Butte County | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 34. Flood Control at Cherokee Canal | Butte County | New Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 35. Community Rating System | Butte County | New Action | X | X | X | Prevention Public Information |
| Action 36. Butte County Drainage and Culvert Improvements | Butte County | New Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 37. Palermo Drainage Study | Butte County | New Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 38. Rock Creek and Keefer Slough Flood Control | Butte County | New Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Action 39. Streamflow Gage | Butte County | New Action | X | X | X | Prevention |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|--|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Hazardous Materials Actions | | | | | | |
| Action 40. Hazardous Materials Transportation Mitigation | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection |
| Invasive Species Actions | | | | | | |
| Action 41. Marine/Aquatic Invasive Species Survey/ Surveillance Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Natural Resource Protection |
| Action 42. Foreign Animal Disease Rapid Response Quarantine Program | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Natural Resource Protection |
| Action 43. Fire Break Maintenance / Broom Eradication Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 44. California DWR Red Sesbania (Sesbania punicea) Removal and Flood Mitigation Project | Butte County and all participating jurisdictions | 2014 Action | X | X | X | Prevention Property Protection Natural Resource Protection |
| Landslide and Debris Flow Actions | | | | | | |
| Action 45. Slope Stabilization, Erosion Protection and Control | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Severe Weather Actions | | | | | | |
| Action 46. Tree Mitigation | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 47. Extreme Heat Planning | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|--|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Wildfire Actions (including Drought and Water Shortage, High Winds, Extreme Heat, Invasive Species) | | | | | | |
| Action 48. Upper Ridge Fuels Reduction Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 49. Upper Ridge Fuels Reduction Maintenance | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 50. Concow/Yankee Hill Fuels Reduction Project | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 51. Concow/Yankee Hill Fuels Reduction Maintenance Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 52. Berry Creek Fuels Reduction Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 53. Berry Creek Fuels Reduction Maintenance Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 54. Butte Meadows Fuels Reduction Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 55. Cohasset Fuels Reduction Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|--|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Action 56. Cohasset Fuels Reduction Maintenance Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 57. Forest Ranch Fuels Reduction Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 58. Forest Ranch Fuels Reduction Maintenance Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 59. Feather Falls Fuels Reduction Project | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 60. Feather Falls Fuels Reduction Maintenance Project | Butte County and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 61. Forbestown Fuels Reduction Project | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 62. Forbestown Fuels Reduction Maintenance Project | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 63. Eave Vent Replacement/Education Project | Butte County and Paradise | New Action | X | X | | Property Protection |
| Action 64. Firewise Communities and Education Program | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|--|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Action 65. Fuels Reduction Chipper Program | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 66. Residents Assistance Program - Fuels Reduction and Defensible Space | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 67. Camp Fire Hazard Tree Removal - Fuels Reduction | Butte County and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 68. CA Department of Water Resources Fuel Load Management Plan | Butte County and all Participating Jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 69. Refuge Areas | Butte County and all Participating Jurisdictions | New Action | X | X | | Emergency Services |
| City of Biggs | | | | | | |
| Multi-Hazard Actions | | | | | | |
| Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan | City of Biggs | 2014 Action | X | X | | Prevention |
| Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness | City of Biggs | 2014 Action | X | X | X | Public Information |
| Flood and Localized Flood Actions | | | | | | |
| Action 3. Storm Water Management Plan Update | City of Biggs | New Action | X | X | X | Prevention Property Protection Structural Projects Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|---|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Action 4. Storm Water improvement projects | City of Biggs | New Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| City of Chico | | | | | | |
| Multi-Hazard Actions | | | | | | |
| Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan | City of Chico | 2014 Action | X | X | | Prevention |
| Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness | City of Chico | 2014 Action | X | X | X | Public Information |
| Action 3. Chico Municipal Airport Generator | City of Chico | New Action | X | X | | Prevention Property Protection Emergency Services |
| Action 4. Chico Fire Station 2 Generator | City of Chico | New Action | X | X | | Property Protection Emergency Services |
| Action 5. Intelligent Transportation System (ITS) | City of Chico | New Action | X | X | | Prevention |
| Flood, Localized Flood, Levee Failure, and Dam Failure Actions | | | | | | |
| Action 6. Bruce Road Bridge Retrofit | City of Chico | New Action | X | X | X | Property Protection Structural Projects |
| Action 7. BD Drainage Ditch @ Fair Street Detention Pond | City of Chico | New Action | X | X | X | Prevention Property Protection Natural Resource Protection |
| Action 8. De-silt drainage channels from just north of 5-mile through Chico City Limits | City of Chico | New Action | X | X | X | Prevention Property Protection Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|---|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Wildfire Actions | | | | | | |
| Action 9. Lindo Channel Defensible Space Project | City of Chico | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 10. Upper Bidwell Park Fuel Reduction | City of Chico | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| City of Gridley | | | | | | |
| Multi-Hazard Actions | | | | | | |
| Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan | City of Gridley | 2014 Action | X | X | | Prevention |
| Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness | City of Gridley | 2014 Action | X | X | | Public Information |
| Drought and Water Shortage Actions | | | | | | |
| Action 3. Groundwater Well Contamination | City of Gridley | 2014 Action | X | X | | Property Protection |
| Action 4. Drought and Water Shortage Education | City of Gridley | New Action | X | X | | Public Information |
| Action 5. Generators for Pumps during Power Loss and PSPS | City of Gridley | New Action | X | X | | Prevention Property Protection Emergency Services |
| Flood and Localized Flood | | | | | | |
| Action 6. Continue to Improve Drainage System | City of Gridley | 2014 Action | X | X | X | Property Protection Structural Projects Natural Resource Protection |
| Hazardous Materials Actions | | | | | | |
| Action 7. Hazardous Material Transportation Plan | City of Gridley | New Action | X | X | | Prevention |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|---|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Volcano Actions | | | | | | |
| Action 8. Volcano Mitigation | City of Gridley | New Action | X | X | | Property Protection |
| Wildfire Actions | | | | | | |
| Action 9.Continued Weed Abatement Program | City of Gridley | 2014 Action | X | X | | Property Protection |
| Action 10. Wildfire Mitigation | City of Gridley | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| City of Oroville | | | | | | |
| Multi-Hazard Actions | | | | | | |
| Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan | City of Oroville | 2014 Action | X | X | | Prevention |
| Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness | City of Oroville | 2014 Action | X | X | X | Public Information |
| Action 3. City Infrastructure Protection | City of Oroville | 2014 Action | X | X | | Property Protection |
| Action 4. Planning for Mass Evacuation-Notifications Early Warning System | City of Oroville | 2014 Action | X | X | | Prevention Emergency Services |
| Action 5. Weed Abatement | City of Oroville | 2014 Action | X | X | | Property Protection |
| Action 6. Public Safety Power Shut-off (PSPS) | City of Oroville | New Action | X | X | | Prevention |
| Action 7.Community Development (Code Enforcement) post disaster recovery projects. | City of Oroville | New Action | X | X | | Prevention |
| Action 8.Flood Sewage Commission-Oroville Region (SC-OR) | City of Oroville | New Action | X | X | X | Prevention Property Protection Natural Resource Protection |
| Town of Paradise | | | | | | |
| Multi-Hazard Actions | | | | | | |
| Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan | Town of Paradise | 2014 Action | X | X | | Prevention |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|---|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Action 2. Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness | Town of Paradise | 2014 Action | X | X | | Public Information |
| Action 3. Early Warning System | Town of Paradise | New action | X | X | | Emergency Services |
| Action 4. Public Works Signs | Town of Paradise | New action | X | X | | Emergency Services Public Information |
| Flood and Localized Flood Actions | | | | | | |
| Action 5. Storm Drain Master Plan | Town of Paradise | New action | X | X | X | Prevention Property Protection Natural Resource Protection |
| Landslide, Mudslide, and Debris Flow Actions | | | | | | |
| Action 6. Reseeding Program | Town of Paradise | New action | X | X | | Property Protection Natural Resource Protection |
| Wildfire Actions | | | | | | |
| Action 7. Building Inspectors | Town of Paradise | New action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 8. Standing Burnt Tree Removal | Town of Paradise | New action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 9. Chipper Program | Town of Paradise | New action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 10. Commercial Ignition Resistant Improvement Program | Town of Paradise | New action | X | X | | Prevention Property Protection Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|---|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Action 11. Education and Outreach Program | Town of Paradise | New action | X | X | | Public Information |
| Action 12. Generator for Fire Station #82 | Town of Paradise | New action | X | X | | Property Protection Emergency Services |
| Action 13. Fire Station #3 | Town of Paradise | New action | X | X | | Prevention Property Protection |
| Action 14. Residential Ignition Resistant Improvement Program | Town of Paradise | New action | X | X | | Prevention Property Protection |
| Action 15. Firewise Communities and Education Program | Town of Paradise/Butte County/FSC | New action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 16. Fuels Reduction Chipper Program | Town of Paradise/Butte County/FSC | New action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 17. Residents Assistance Program - Fuels Reduction and Defensible Space | Town of Paradise/Butte County/FSC | New action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 18. Camp Fire Hazard Tree Removal - Fuels Reduction | Town of Paradise/Butte County/FSC | New action | X | X | | Prevention Property Protection Natural Resource Protection |
| Paradise Irrigation District | | | | | | |
| Action 1. Hydraulic Modeling Pipe Replacement Program | PID | 2014 Action | X | X | | Prevention Property Protection Structural Projects |
| Action 2. Drought Water Supply | PID | 2014 Action | X | X | | Prevention Property Protection |
| Action 3. Magalia Dam Replacement | PID | 2014 Action | X | X | X | Prevention Property Protection Structural Projects |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|---|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Action 4. Install Bladder Dam in the Paradise Lake Spillway | PID | 2014 Action | X | X | X | Prevention Property Protection Structural Projects |
| Action 5. Service Line Replacement | PID | New Action | X | X | | Prevention Property Protection Structural Projects |
| Action 6. B-Reservoir Replacement | PID | New Action | X | X | X | Prevention Property Protection Structural Projects |
| Action 7. A-Zone Pipeline and Generator | PID | New Action | X | X | | Prevention Property Protection Structural Projects Emergency Services |
| Action 8. Water Shed Fuel Reduction | PID | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 9. Backup Portable Generators | PID | New Action | X | X | | Prevention Property Protection Emergency Services |
| Action 10. Earthquake Vulnerability Assessment on Water Distribution Infrastructure | PID | New Action | X | X | | Prevention Property Protection Structural Projects |
| Thermalito Water and Sewer District | | | | | | |
| Action 1. Management of Fuels and non-Native Flora Intrusion | TWSD | 2014 action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 2. Steel Main Replacement | TWSD | New action | X | X | | Property Protection Structural Projects |
| Action 3. Well Emergency Generators | TWSD | New action | X | X | | Property Protection Emergency Services |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|---|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Action 4. Toleman Ravine Sewer Crossing | TWSD | New action | X | X | | Property Protection Structural Projects |
| Durham Irrigation District | | | | | | |
| Action 1. Pipe Replacement Program for Water Redundancy and Fire Flows | DID | New action | X | X | | Prevention Property Protection Structural Projects |
| Action 2. Well Improvements Station #3 | DID | New action | X | X | | Property Protection Structural Projects |
| North Yuba Water District | | | | | | |
| Action 1. Ditch to Pipe Replacement Project | NYWD | New action | X | X | | Property Protection Structural Projects |
| Action 2. Public Education and Outreach Information Program | NYWD | New action | X | X | | Public Information |
| Action 3. Update to the NYWD Flood Plan | NYWD | New action | X | X | X | Prevention Property Protection Natural Resource Protection |
| Feather River Rec and Park District | | | | | | |
| Action 1. Riverbend Park Mitigation | FRRPD | New action | X | X | | Property Protection Natural Resource Protection |
| Action 2. Feather River Trail Mitigation | FRRPD | New action | X | X | | Property Protection Natural Resource Protection |
| Action 3. Palermo Park – Storm Water Mitigation Plan | FRRPD | New action | X | X | X | Prevention Property Protection Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|--|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Butte County Fire Safe Council | | | | | | |
| Action 1. Upper Ridge Fuels Reduction Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 2. Upper Ridge Fuels Reduction Maintenance | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 3. Concow/Yankee Hill Fuels Reduction Project | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 4. Concow/Yankee Hill Fuels Reduction Maintenance Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 5. Berry Creek Fuels Reduction Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 6. Berry Creek Fuels Reduction Maintenance Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 7. Butte Meadows Fuels Reduction Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 8. Cohasset Fuels Reduction Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|--|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Action 9. Cohasset Fuels Reduction Maintenance Project | C Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 10. Forest Ranch Fuels Reduction Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 11. Forest Ranch Fuels Reduction Maintenance Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 12. Feather Falls Fuels Reduction Project | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 13. Feather Falls Fuels Reduction Maintenance Project | Fire Safe Council, Butte County, and all participating jurisdictions | 2014 Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 14. Forbestown Fuels Reduction Project | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 15. Forbestown Fuels Reduction Maintenance Project | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 16. Firewise Communities and Education Program | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Public Education |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|--|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| Action 17. Fuels Reduction Chipper Program | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 18. Residents Assistance Program - Fuels Reduction and Defensible Space | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 19. Camp Fire Hazard Tree Removal - Fuels Reduction | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 20. Defensible Space and Hazardous Fuels Reduction Program - Butte County WUI | Fire Safe Council, Butte County, and all participating jurisdictions | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Lake Oroville Area Public Utility District | | | | | | |
| Action 1. Lake Oroville Area Public Utility District Stress Testing | LOAPUD | New Action | X | X | | Prevention |
| Action 2. Lake Oroville Area Public Utility District Backup Generators | LOAPUD | New Action | X | X | | Prevention Emergency Services |
| Action 3. Lake Oroville Area Public Utility District Overflow Capacity at Lift Stations | LOAPUD | New Action | X | X | X | Prevention |
| Action 4. Lake Oroville Area Public Utility District Emergency Fueling | LOAPUD | New Action | X | X | | Prevention Emergency Services |
| Action 5. Lake Oroville Area Public Utility District Mooretown Lift Station Flood Impact Analysis | LOAPUD | New Action | X | X | X | Prevention Property Protection |
| Action 6. Lake Oroville Area Public Utility District Portable Backup Generators | LOAPUD | New Action | X | X | | Prevention Emergency Services |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|---|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Paradise Recreation and Park District | | | | | | |
| Action 1. Enhance and Add (Property Acquisition or Easements) for Existing Parks to Improve Fuels Management, Road Connectivity and Access and Recreation | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection Emergency Services |
| Action 2. Develop a Community Buffer (Rim and Watershed) Park Feasibility Study and Plans and Complete Initial Acquisitions. | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection Emergency Services |
| Action 3. Acquire Land and Develop the Camp Fire Park and Community Buffer (Sunrise/Sunset Rim and Watershed) Parks. | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection Emergency Services |
| Action 4. Acquire and Develop Community Centers and Sport Fieldhouse/Auditorium Complex | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection |
| Action 5. Develop Magalia Park (Lakeridge) and Community Center. | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection |
| Action 6. Concow and Yankee Hill Community Center | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|---|---|-------------------------|-----------------------------|----------------------------|--------------------------------|---|
| Action 7. Butte Creek Canyon Park Expansion and Development | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection |
| Action 8. Extend Butte County Rail Trail project and Expand Fuels Management Projects | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection |
| Action 9. Anticipated watershed protection projects and enhancement of recreation resources | PRPD | New Action | X | X | X | Prevention Property Protection Structural Projects Natural Resource Protection |
| Action 10. Economic Development, Watershed Protection, and Restoration and Fire Protection Camp | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection |
| Action 11. Study of Land-use and Appropriate Park Development in the Concow/Yankee Hill/Feather River Canyon Region | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects Natural Resource Protection |
| Action 12. Examine District Facilities for preparedness and roles during emergencies | PRPD | New Action | X | X | | Prevention Property Protection Structural Projects |
| Action 13. Develop Community Programs to Improve Resiliency | PRPD | New Action | X | X | | Prevention |
| Action 14. Invasive Plants | PRPD | New Action | X | X | | Prevention Property Protection |

| Action Title | Jurisdictions Benefitting from Action (s) | New Action/ 2014 Action | Address Current Development | Address Future Development | Continued Compliance with NFIP | Mitigation Type |
|--|---|-------------------------|-----------------------------|----------------------------|--------------------------------|--|
| South Feather Water and Power Agency | | | | | | |
| Action 1. Wildfire threat to the surrounding areas of Miners Ranch Reservoir and Miners Ranch Treatment Plant | SFWPA | New Action | X | X | | Prevention Property Protection Natural Resource Protection |
| Action 2. Earthquake Vulnerability Assessment on Water Transmission Infrastructure | SFWPA | New Action | X | X | | Prevention Property Protection |
| Action 3. Localized Drainage Issues | SFWPA | New Action | X | X | X | Prevention Property Protection Natural Resource Protection |
| Action 4. Increase capacity at Miner Ranch Reservoir to offset the impact of an outage along the Miners Ranch Canal. | SFWPA | New Action | X | X | X | Prevention Property Protection Natural Resource Protection |



Table of Contents

Chapters

| | | |
|--------|--|------|
| 1 | INTRODUCTION | 1-1 |
| 1.1 | Purpose | 1-1 |
| 1.2 | Background and Scope | 1-1 |
| 1.3 | Community Profile | 1-2 |
| 1.3.1 | History | 1-6 |
| 1.3.2 | Geography and Climate | 1-7 |
| 1.3.3 | Population and Demographics | 1-8 |
| 1.3.4 | Economy and Tax Base | 1-9 |
| 1.4 | Plan Organization | 1-12 |
| 2 | WHAT'S NEW | 2-1 |
| 2.1 | What's New in the Plan Update | 2-1 |
| 2.2 | Summary of Significant Changes to Current Conditions and Hazard Mitigation Priorities .. | 2-3 |
| 2.3 | 2014 LHMP Mitigation Strategy Status and Successes | 2-9 |
| 2.3.1 | Success Stories..... | 2-10 |
| 2.3.2 | 2014 Mitigation Strategy Update..... | 2-16 |
| 3 | PLANNING PROCESS | 3-1 |
| 3.1 | Local Government Participation..... | 3-2 |
| 3.2 | The 10-Step Planning Process | 3-3 |
| 3.2.1 | Phase 1: Organize Resources | 3-4 |
| 3.2.2 | Phase 2: Assess Risks | 3-14 |
| 3.2.3 | Phase 3: Develop the Mitigation Plan..... | 3-14 |
| 3.2.4 | Phase 4: Implement the Plan and Monitor Progress | 3-15 |
| 4 | RISK ASSESSMENT | 4.1 |
| 4.1 | Hazard Identification | 4-2 |
| 4.1.1. | Results and Methodology | 4-2 |
| 4.1.2. | Disaster Declaration History | 4-6 |
| 4.2 | Hazard Profiles | 4-11 |
| 4.2.1. | Severe Weather: General | 4-14 |
| 4.2.2. | Severe Weather: Extreme Heat..... | 4-15 |
| 4.2.3. | Severe Weather: Freeze and Winter Storm..... | 4-23 |
| 4.2.4. | Severe Weather: Heavy Rains and Storms | 4-30 |
| 4.2.5. | Severe Weather: High Winds and Tornadoes | 4-41 |
| 4.2.6. | Climate Change..... | 4-48 |
| 4.2.7. | Dam Failure | 4-53 |
| 4.2.8. | Drought and Water Shortage | 4-65 |

| | | |
|---------|--|-------|
| 4.2.9. | Earthquake and Liquefaction | 4-80 |
| 4.2.10. | Flood: 100-/200-/500-year | 4-93 |
| 4.2.11. | Flood: Localized Flooding..... | 4-114 |
| 4.2.12. | Hazardous Materials Transport..... | 4-122 |
| 4.2.13. | Invasive Species: Pests/Plants..... | 4-127 |
| 4.2.14. | Invasive Species: Aquatic | 4-133 |
| 4.2.15. | Landslides, Mudslides, and Debris Flows | 4-141 |
| 4.2.16. | Levee Failure | 4-148 |
| 4.2.17. | Stream Bank Erosion | 4-156 |
| 4.2.18. | Volcano..... | 4-163 |
| 4.2.19. | Wildfire..... | 4-173 |
| 4.2.20. | Natural Hazards Summary..... | 4-202 |
| 4.3 | Vulnerability Assessment..... | 4-203 |
| 4.3.1. | Butte County Vulnerability and Assets at Risk | 4-205 |
| 4.3.2. | Butte County Vulnerability to Specific Hazards..... | 4-237 |
| 4.3.3. | Climate Change Vulnerability Assessment | 4-239 |
| 4.3.4. | Dam Failure Vulnerability Assessment | 4-246 |
| 4.3.5. | Drought and Water Shortage Vulnerability Assessment | 4-288 |
| 4.3.6. | Earthquake and Liquefaction Vulnerability Assessment | 4-292 |
| 4.3.7. | Flood: 100-/200-/500-Year Vulnerability Assessment | 4-312 |
| 4.3.8. | Flood: Localized Stormwater Flooding Vulnerability Assessment | 4-343 |
| 4.3.9. | Hazardous Materials Transport Vulnerability Assessment..... | 4-343 |
| 4.3.10. | Invasive Species: Pests/Plants Vulnerability Assessment | 4-366 |
| 4.3.11. | Invasive Species: Aquatic | 4-368 |
| 4.3.12. | Landslide and Debris Flows Vulnerability Assessment | 4-369 |
| 4.3.13. | Levee Failure | 4-389 |
| 4.3.14. | Severe Weather: Extreme Heat Vulnerability Assessment..... | 4-392 |
| 4.3.15. | Severe Weather: Freeze and Winter Storm Vulnerability Assessment..... | 4-394 |
| 4.3.16. | Severe Weather: Heavy Rains and Storms Vulnerability Assessment | 4-395 |
| 4.3.17. | Severe Weather: High Winds and Tornadoes | 4-395 |
| 4.3.18. | Streambank Erosion Vulnerability Assessment..... | 4-396 |
| 4.3.19. | Wildfire Vulnerability Assessment..... | 4-397 |
| 4.4 | Capability Assessment | 4-424 |
| 4.4.1. | Butte County’s Regulatory Mitigation Capabilities..... | 4-425 |
| 4.4.2. | Butte County’s Administrative/Technical Mitigation Capabilities | 4-436 |
| 4.4.3. | Butte County’s Fiscal Mitigation Capabilities..... | 4-437 |
| 4.4.4. | Butte County Mitigation Education, Outreach, and Partnerships | 4-438 |
| 4.4.5. | Other Mitigation Efforts | 4-438 |
| 5 | MITIGATION STRATEGY..... | 5-1 |
| 5.1 | Mitigation Strategy: Overview | 5-1 |
| 5.1.1 | Continued Compliance with NFIP..... | 5-2 |
| 5.1.2 | Integration of Mitigation with Post Disaster Recovery and Mitigation Strategy Funding Opportunities | 5-3 |

| | | |
|-------|--|------|
| 5.2 | Goals and Objectives..... | 5-5 |
| 5.3 | Identification and Analysis of Mitigation Actions | 5-8 |
| 5.31 | Prioritization Process | 5-11 |
| 5.4 | Mitigation Action Plan | 5-12 |
| 6 | PLAN ADOPTION..... | 6-1 |
| 7 | PLAN IMPLEMENTATION AND MAINTENANCE | 7-1 |
| 7.1 | Implementation..... | 7-1 |
| 7.1.1 | Role of Hazard Mitigation Planning Committee in Implementation and Maintenance..... | 7-2 |
| 7.2 | Maintenance | 7-3 |
| 7.2.1 | Maintenance Schedule | 7-3 |
| 7.2.2 | Maintenance Evaluation Process | 7-3 |
| 7.2.3 | Incorporation into Existing Planning Mechanisms | 7-5 |
| 7.2.4 | Continued Public Involvement | 7-6 |

Annexes

Annex A: City of Biggs

Annex B: City of Chico

Annex C: City of Gridley

Annex D: City of Oroville

Annex E: Town of Paradise

Annex F: Paradise Irrigation District

Annex G: Thermalito Water and Sewer District

Annex H: Durham Irrigation District

Annex I: North Yuba Water District

Annex J: Feather River Recreation and Park District

Annex K: Butte County Fire Safe Council

Annex L: Lake Oroville Area Public Utility District

Annex M: Paradise Recreation and Park District

Annex N: South Feather Water and Power Agency

Annex O: Butte County Office of Education

Appendices

Appendix A: Planning Process

Appendix B: References

Appendix C: Mitigation Strategy

Appendix D: Adoption Resolution

Appendix E: Threatened and Endangered Species

Appendix F: Critical Facilities

Appendix G: Watershed Flood Analysis

Appendix H: Wildfire History

Abbreviations and Acronyms

| Acronym | Definition |
|---------|---|
| AB | Assembly Bill |
| ALS | Arundo donax, Lythrum salicria and Sesbania punicea |
| APG | Adaptation Planning Guide |
| APN | Assessor Parcel Numbers |
| AQI | Air Quality Index |
| BAM | Best Available Map |
| BCEGS | Building Code Effectiveness Grading Schedule |
| BCRGA | Butte County Rice Growers |
| BLM | Bureau of Land Management |
| CAC | Community Assistance Contact |
| Cal DWR | California Department of Water Resources |
| Cal-IPC | California Invasive Plant Council |
| Cal OES | California Office of Emergency Services |
| CAS | Climate Adaptation Strategy |
| CAV | Community Assistance Visit |
| CCSM3 | Community Climate System Model Version 3 |
| CDAA | California Disaster Assistance Act |
| CDBG | Community Development Block Grant |
| CDFA | California Department of Food and Agriculture |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CFR | Code of Federal Regulations |
| CFS | Cubic Feet per Second |
| CGS | California Geological Survey |
| CNRA | California Natural Resource Agency |
| CRS | Community Rating System |
| CRV | Contents Replacement Values |
| CVP | Central Valley Project |
| DAC | Disadvantaged Community Status |
| DFIRM | Digital Flood Insurance Rate Map |
| DMA | Disaster Mitigation Act |
| DSOD | Division of Safety of Dams |
| DSR | Damage Survey Reports |
| EF | Enhanced Fujita |
| EHS | Extremely Hazardous Substances |

| Acronym | Definition |
|---------|---|
| EOP | Emergency Operations Plan |
| EPA | Environmental Protection Agency |
| F | Fujita |
| FEMA | Federal Emergency Management Agency |
| FHSZ | Fire Hazard Severity Zones |
| FIRM | Flood Insurance Rate Map |
| FIS | Flood Insurance Study |
| FMA | Flood Mitigation Assistance |
| FMMP | Farmland Mapping and Monitoring Program |
| FRA | Federal Responsibility Area |
| FRAP | Fire and Resource Assessment Program |
| GCM | Global Circulation Model |
| GFDL | Geophysical Fluid Dynamics Laboratory |
| GHG | Greenhouse Gas |
| GIS | Geographic Information Systems |
| HMGP | Hazard Mitigation Grant Program |
| HMPC | Hazard Mitigation Planning Committee |
| IBC | International Building Code |
| ICC | Increased Cost of Compliance |
| IPCC | Intergovernmental Panel on Climate Change |
| IRC | International Residential Code |
| IRWM | Integrated Regional Water Management |
| LFPZ | Levee Flood Protection Zone |
| LOMA | Letter of Map Amendment |
| LOMR | Letter of Map Revision |
| LHMP | Local Hazard Mitigation Plan |
| LRA | Local Responsibility Area |
| MAF | Million Acre-Feet |
| MHDP | Multi-Hazards Demonstration Project |
| MHI | Median Household Income |
| MMI | Modified Mercalli Intensity |
| MPH | Miles Per Hour |
| NAS | Non-native Aquatic Species |
| NCDC | National Climactic Data Center |
| NDMC | National Drought Mitigation Center |
| NEPA | National Environmental Policy |
| NFHL | National Flood Hazard Layer |

| Acronym | Definition |
|---------|---|
| NFIP | National Flood Insurance Program |
| NIDIS | National Integrated Drought Information System |
| NOAA | National Oceanic and Atmospheric Administration |
| NPS | National Park Service |
| NRCS | Natural Resource Conservation Service |
| NWS | National Weather Service |
| OEM | Butte County Office of Emergency Management |
| OHP | Office of Historic Preservation |
| OSHA | Occupation Safety and Health Administration |
| PDM | Pre-Disaster Mitigation |
| PG&E | Pacific Gas and Electric |
| PHMSA | Pipeline and Hazardous Material Safety Administration |
| PM | Particulate Matter |
| PNAS | Proceedings of the National Academy of Sciences |
| RCP | Representative Concentration Pathways |
| RD | Reclamation District |
| RFMP | Regional Flood Management Plan |
| RL | Repetitive Loss |
| SAC-SJ | Sacramento-San Joaquin |
| SB | Senate Bill |
| SBA | Small Business Administration |
| SDAC | Severely Disadvantaged Community |
| SFHA | Special Flood Hazard Area |
| SGMA | Sustainable Groundwater Management Act |
| SH | State Highway |
| SR | State Route |
| SRA | State Responsibility Area |
| SRL | Severe Repetitive Loss |
| SWP | State Water Project |
| UBC | Uniform Building Code |
| UCERF | Uniform California Earthquake Rupture Forecast |
| URM | Unreinforced masonry |
| USACE | US Army Corps of Engineers |
| USDA | US Department of Agriculture |
| USFS | US Forest Service |
| USGS | US Geological Survey |
| WRCC | Western Regional Climate Center |

| Acronym | Definition |
|---------|--------------------------|
| WUI | Wildland Urban Interface |