Appendix C Mitigation Strategy

Colusa County
Local Hazard Mitigation Plan (LHMP) Update
HMPC Meetings #3 & #4 - Mitigation Strategy
April 24 & 25, 2024

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AGENDA

Colusa County
Local Hazard Mitigation Plan (LHMP) Update
HMPC Meetings #3 & #4
Mitigation Strategy

Wednesday April 24, 2024 (1:00 - 4:00 pm)
Thursday April 25, 2024 (9:00 am - 12:00 pm)

Colusa County Sheriff's Office
929 Bridge St.
Colusa, CA 95932

HMPC Meeting #3:

1. Introductions
2. LHMP Project Status and Next Steps/Timeline
3. Risk Assessment Status
4. Priority Hazards Review
5. Develop Plan Goals and Objectives
6. Introduction to HMPC Meeting #4: Mitigation Alternatives/Actions/Projects

HMPC Meeting #4:

1. Introductions
2. Review Mitigation Categories and Selection Criteria
3. Brainstorming of Mitigation Alternatives/Actions/Projects by Hazard
4. Prioritization of Mitigation Actions/Projects
5. Questions

Mitigation Strategy Meetings
April 24 & 25, 2025
Day 1

Status of the 2024 Colusa County LHMP Update Project/Next Steps

FEMA's 4-Phase-10 Step DMA/CRS Planning Process

Phase I: Organize Resources

1) Get organized

2) Plan for public involvement

3) Coordinate with other departments and agencies

Phase II: Risk Assessment

4) Identify the hazard(s)

5) Assess the risks

Capability Assessment

Phase III: Mitigation Strategy

6) Set planning goals

7) Review mitigation alternatives

8) Draft an action plan

Phase IV: Adoption and Implementation

9) Adopt the plan

10) Implement the plan, evaluate its worth, and revise as needed

LHMP Project Schedule/Key Dates

LHMP Meetings

- **April 24** (Wednesday) HMPC Meeting #3 (Mitigation Strategy: Goals Development) (1:00-4:00 pm)
- **April 25** (Thursday) HMPC Meeting #4 (Mitigation Strategy: Actions and Projects) (9:00 am -12:00 pm)
- **August 14** (Wednesday) Final Public Meeting #3 (6:00-7:30 pm)
- **August 15** (Thursday) HMPC Meeting #5 (9:00 am -12:00 pm)

Mitigation Strategy Meetings - Follow up

- **May 8 (**Wednesday**)** Mitigation Strategy (goals/actions) processed and sent to Colusa/HMPC
- **May 31** (Friday) Mitigation Action (Project) Worksheets and edits/refinement to draft Goals and Objectives due to Foster Morrison

LHMP Document Drafts

- **June 7** (Friday): HMPC (First) Draft LHMP to Colusa/HMPC
- **June 28** (Friday): Colusa/HMPC comments due on Draft Plan
- **July 12** (Friday): Comments incorporated into Public Review (Second) Draft to Colusa/HMPC
- **July 17** (Wednesday): Public Review Draft on County's LHMP website
- **August 21** (Wednesday**):** All Colusa, HMPC, and Public input to Foster Morrison
- **August 30 (Friday):** All final comments incorporated and LHMP submittal to Cal OES – August 2024

*HMPC = Hazard Mitigation Planning Committee

Colusa County Hazard Identification & Profiles

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)	Extensive	Highly Likely	Catastrophic	High	Medium
Climate Change	Extensive	Highly Likely	Limited	Medium	–
Dam Failure	Extensive	Occasional	Catastrophic	High	Medium
Drought & Water shortage	Extensive	Likely	Critical	High	High
Earthquake	Extensive	Likely /Unlikely	Critical	Medium	Low
Floods: 1%/0.2% annual chance	Extensive	Occasional / Unlikely	Catastrophic	High	Medium
Floods: Localized Stormwater	Significant	Highly Likely	Limited	Medium	Medium
Landslide, Mudslide, and Debris Flow	Limited	Likely	Limited	Medium	Medium
Levee Failure	Extensive	Occasional	Catastrophic	High	Medium
Severe Weather: Extreme Cold and Freeze	Extensive	Highly Likely	Critical	Medium	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium	High
Severe Weather: Heavy Rain and Storms (Wind, Hail, Lightning)	Extensive	Highly Likely	Critical	Medium	Medium
Severe Weather: High Winds and Tornados	Extensive	Highly Likely / Occasional	Limited	Medium	Low
Stream Bank Erosion	Significant	Highly Likely	Limited	Medium	Medium
Subsidence	Limited	Likely	Limited	Medium	Low
Wildfire	Significant	Highly Likely	Critical	High	Medium

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

Risk Assessment Methodology

Calculating Likelihood of Future Occurrence

The frequency of past events is used in this section to gauge the likelihood of future occurrences. Based on historical data, the likelihood of future occurrence is categorized into one of the following classifications:

- **Highly Likely**: Near 100% chance of occurrence in next year, or happens every year.
- **Likely**: Between 10 and 90% 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.

Calculating Vulnerability

Vulnerability is measured in general, qualitative terms, and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential:

- **Extremely Low**: The occurrence and potential cost of damage to life and property is very minimal to non-existent.
- **Low**: Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**: Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**: Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have already occurred in the past.
- **Extremely High**: Very widespread and catastrophic impact.

Defining Significance (Priority) of a Hazard

Defining the significance or priority of a hazard to a community is based on a subjective analysis of several factors. This analysis is used to focus and prioritize hazards and associated mitigation measures for the plan. These factors include the following:

- **Past Occurrences**: Frequency, extent, and magnitude of historic hazard events.
- **Likelihood of Future Occurrences**: Based on past hazard events.
- **Ability to Reduce Losses through Implementation of Mitigation Measures**: This looks at both the ability to mitigate the risk of future occurrences as well as the ability to mitigate the vulnerability of a community to a given hazard event.

Risk Assessment Summary: Colusa County 2024 LHMP

Agricultural Hazard: Severe Weather/Invasive Species

- Most agricultural disasters in Colusa County are associated with severe weather events, including heavy rains, floods, heat, freeze, and drought. Insects and noxious weeds are also a concern.
- 19 USDA disaster declarations from 2012-2023. 14 related to drought; 3 for freezing temperatures, and 2 for severe weather, including rains, high winds, cold temperatures.
- The recent drought noted the following drought related impacts to Ag impacts:
  - ✓ Rice production value dropped 80%
  - ✓ Overall crop values fell by $394,739,000
  - ✓ Over 350,000 acres of farmland fallowed in the Sacramento Valley
  - ✓ Water allocations cut to 18% of contracted amounts
- Record low temperatures for 5 days in February 2022 resulted in 65% overall crop loss to area growers. Extreme late season high temperatures in fall of 2022 impacted the growing season for walnuts, resulting in an unmarketable product.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: High
- Priority Hazard

Climate Change

- The 2023 State of California Hazard Mitigation Plan stated that climate change is clearly affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and both snowmelt and rainwater running off sooner in the year. The number, magnitude, and severity of hazard events and disasters are significantly increasing resulting in catastrophic events. Climate Change has the potential to significantly alter the nature and frequency of most hazards.
- The atmospheric river events of the last couple of years have been significant.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: High
- Priority Hazard

Dam Failure

- Based on DSOD and NID data, there are 6 dams in Colusa County with a potential to impact the Planning Area: East Park (High), Funks (Low), Rainbow Diversion (Low), Rancho Rubini (High), Upper Letts (High), and York Hill (Low).
- 9 additional dams are located in other counties with dam inundation areas in Colusa County: Oroville (Extremely High), Shasta (High), Whiskeytown (High), Black Butte (High), Davis Creek (High), Indian Valley (Extremely High), Lake Almonor (Extremely High), Thermalito (Extremely High). The failure of a dam may affect the dam site, downstream areas, floodwater routing, or all three.

- Past dam events include the Oroville spillway event in 2017. Impacts included evacuees coming in to Colusa. Had the dam failed, Colusa would have seen inundation as well. It was also noted that the County is trying to get the East Park dam (really just a stock pond?) off the official dam list – status?
- Likelihood of Future Occurrence: Occasional
- Vulnerability: Extremely High
- Priority Hazard

Drought and Water Shortage

- The County has been mostly in and out of drought since 2014. Historical drought data for the Colusa County Planning Area and region indicate there have been 5 significant droughts in the last 86 years.
- 2 federal (1977, 2014) disaster declarations for Colusa County since 1950. In addition, there have been 14 USDA drought disaster declarations since 2012. There have been 58 NCDC drought events in Colusa County, almost all related to events in the 2014 to 2023 drought. In addition, the Colusa County EOC was activated 3 times during the most recent drought: 2015, 2017, 2019.
- During periods of drought, wells have gone dry, ag industry has been significantly affected.
- The 2010 General Plan Background Report, and the 2021 Colusa County Groundwater Sustainability Report noted that water supplied to Colusa County comes from two sources: groundwater and surface water. All domestic water systems in the County are supplied with groundwater, while most irrigation systems are supplied with surface water from the Tehama-Colusa or Glenn-Colusa Canals, the Colusa Drain, or the Sacramento River. The surface water supplies available for use in Colusa County are significant.
- Likelihood of Future Occurrence: Drought - Likely/Water supply - Occasional
- Vulnerability: High
- Priority Hazard

Earthquake

- The General Plan Background Report noted that there are no known active faults within the County; however, the area could experience considerable ground shaking generated by faults outside Colusa County. The Great Valley Fault is an inferred fault in the County.
- The USGS National Seismic Hazard Maps provides acceleration and probabilities for various time periods. This data indicates that the expected severity of earthquakes in the region is mostly low to moderate, with areas in the southwest corner of the County in the higher range.
- There have been no disaster declarations in the County. No major earthquakes have been recorded within the County; although the County has felt ground shaking from earthquakes with epicenters located elsewhere.
- Likelihood of Future Occurrence: Unlikely – large, damaging earthquake; Occasional – minor earthquake
- Vulnerability: Extremely High
- Priority Hazard

Flood Hazards

100/500 year

- Historically, portions of Colusa County have always been at risk to flooding because of its annual percentage of rainfall in the winter and the number of watercourses that traverse the County. Flooding

in Colusa County results from prolonged heavy rainfall over tributary areas during the period from November through March. The 2024 FIS noted that as a result of limited channel capacities, agricultural lands along the Colusa Basin Drain have experienced relatively frequent flooding.

- Of the 28 state and 21 federal declarations from 1950-present– 18 state and 17 federal declarations were for heavy rains, storms, and flooding. 4 federal disaster declarations (2 in 2023 and 2 in 2019) have occurred since the previous LHMP. 14 NCDC events related to flood from 1993 to 2023. 6 EOC activations from flood and storms from 2008 to 2023.
- Likelihood of Future Occurrence: 100-Occasional; 500-Unlikely
- Vulnerability: Extremely High
- Priority Hazard

Localized/Stormwater Flooding

- Significant localized flood history in the County – occurs annually
- Need localized flood problem areas identified for each jurisdiction
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Medium
- Priority Hazard

Landslides, Mudslides, and Debris Flows

- The General Plan Background Report noted that the landslide susceptibility in the eastern half of the County is generally low. A north-south band of moderate landslide potential stretches from East Park Reservoir south to the Bear Valley. Only the northwestern portion of the county is within a sub-region of high landslide susceptibility. This area of high susceptibility is almost entirely within the boundaries of the Mendocino National Forest.
- The HMPC noted that many areas in southwest Colusa County are also rated high in their susceptibility to landslide due to erosive soils, and from hydrophobic soils from past wildfire burn scars.
- In Colusa County, landslides generally occur where there is very little population or infrastructure.
- There have been no disaster declarations associated with landslides in Colusa County. The NCDC contains no records of landslides in the County.
- Likelihood of Future Occurrence: Likely
- Vulnerability: Medium
- Priority Hazard

Levee Failure

- Agricultural and flood control levees have been constructed in many areas of Colusa, mostly on the eastern side of the County. Many of the agricultural levees only provide protection from the 5 to 20 year flood events. While flood control levees generally provide greater protection. Multiple agencies have levee ownership and responsibility in the County.
- All levees have been deaccredited as part of the new effective DFIRMs.
- No disaster declarations associated with levee failures; the NCDC does not identify any levee failure events. The previous LHMP noted levee issues during storm events in 2017, 2015, and 1978 floods.
- Likelihood of Future Occurrence: Occasional
- Vulnerability: Extremely High
- Priority Hazard

Severe weather

Extreme Cold and Freeze

- Annual occurrences of cold temperatures. Monthly average minimum temperatures from November through April range from the mid-30s to mid-40s. The lowest recorded daily extreme was 14°F on December 15 and 16, 2022. In a typical year, minimum temperatures fall below 32°F on 25.1 days with no days falling below 0°F.
- The County has had 1 past federal (1991) and 2 past state (1972, 1990) disaster declarations for extreme cold and freeze. NCDC did not identify any extreme cold or freeze events. USDA events include 3 associated with freezing temperatures.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Medium
- Priority Hazard

Extreme Heat

- Annual occurrences of hot temperatures. Monthly average maximum temperatures in the warmest months (May through October) range from the mid-70s to the low 90s. The highest recorded daily extreme was 113°F on August 9, 1978. In a typical year, maximum temperatures exceed 90°F on 88.9 days.
- 38 extreme heat events (NCDC) since 1993. No state or federal disaster declarations.
- From the last LHMP, the HMPC did indicate that between 2014 and 2016, some trees within the County experience Sudden Limb Drop which can occur during hot weather.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Medium
- Priority Hazard

Heavy rains and storms (Hail, Lightning)

- Significant County history: annual occurrences.
- Significant County history: annual occurrences. Average annual precipitation in Colusa County is 16.22 inches per year. The highest recorded annual precipitation is 35.68 inches in 1983; the highest recorded precipitation for a 24-hour period is 3.56 inches on February 2, 1998. The lowest recorded annual precipitation was 4.20 inches in 1976.
- There have been 18 state and 17 federal disaster declarations since 1950 for flooding, including heavy rains and storms.
- The NCDC data recorded 30 hail, heavy rain, and winter weather incidents for Colusa County since 1950. Winter weather events tend to be rain in the lower elevations of the County, while relatively rare, snow can fall in the upper elevations. No incidents of lightning were found in the NCDC database. The USDA had 2 events since 2012 related to heavy rains and storms.
- County EOC activated 5 times for heavy rains and storms and associated flooding: 2008, 2010, 2011, 2012, and 2017.
- Severe storms/heavy rains are the primary cause of most major flooding.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: High
- Priority Hazard

High Winds and Tornadoes

- Annual occurrences.
- No state or federal disaster declarations from high winds or tornadoes.
- The NCDC data recorded 31 high wind and 4 tornado incidents for Colusa County since 1950. All tornado events were EF0 intensities.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: Medium
- Priority Hazard

Stream Bank Erosion

- Stream bank erosion processes are driven by two major components: stream bank characteristics (erodibility) and hydraulic/gravitational forces. Stream bank erosion occurs on rivers, streams, and other moving waterways in the County.
- Likelihood of Future Occurrence: Likely
- Vulnerability: Medium
- Priority Hazard

Subsidence

- Land subsidence is defined as the sinking of the land over man-made or natural underground voids.
- There are two primary causes of subsidence in the County: subsidence from groundwater pumping and the settling of the ground over abandoned mine workings.
- Likelihood of Future Occurrence: Occasional
- Vulnerability: Medium
- Non-Priority Hazard?

Wildfire

- Wildfires occur on an annual basis in the Colusa County Planning Area.
- The General Plan indicates that wildfires are a minor threat to the Colusa County Planning Area, based on historical data, and input from area fire departments.
- Any ignition has the potential to become an out of control wildfire. But, due to terrain, fuels (vast ag land), and location of built environment and populations, wildfire risk had not been a significant concern in the County until more recently.
- 1 state disaster declarations for Wildfire in 1987; 13 NCDC wildfire events.
- Recent fires in affecting Colusa include: 2018 Pawnee Fire (15,197 total acres; 43 acres in Colusa); 2018 Ranch Fire (410,202 total acres; 73,721 acres in Colusa); 2020 Hennessey Fire (305,352 total acres; 1,465 acres in Colusa); 2020 August Complex Fire (1,032,700 acres; 51 acres in Colusa). Smoke and air quality were also issues associated with these and other regional fires.
- Colusa County has their first Community Wildfire Protection Plan (2021 CWPP) and is considering establishing a Fire Safe Council as wildfire becomes more of a concern to the County Planning Area.
- Likelihood of Future Occurrence: Highly Likely
- Vulnerability: High
- Priority Hazard

Data Needs

Review of Key Items to date:

- Hazard-specific data
  - ✓ Hazard ID tables **– due by 12/8/23 (City of Colusa and RD 479 still need to provide Hazard ID table)**
  - ✓ Historic Hazard Worksheets or list of past hazard occurrences and impact to jurisdiction **– due by 12/8/23 (will need to have past occurrences/hazard events in everyone's Annexes for their Priority Hazards)**
- Risk Assessment Worksheets **– due by 3/15/24 (Need for City of Colusa and RD 479 and parts of County, Others?)**

Other Data Items:

- Logos for each participating jurisdiction
- Photos, Photos, Photos

Colusa County Priority Hazards (by Jurisdiction)

Colusa County

Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flow
- Levee Failure
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Stream Bank Erosion
- Subsidence
- Wildfire

Non-Priority Hazards:

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-
-
-

City of Colusa ???

Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flow
- Levee Failure
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Stream Bank Erosion
- Subsidence
- Wildfire

Non-Priority Hazards:

-
-
-
-

City of Williams

Priority Hazards:

- Climate Change
- Drought & Water Shortage
- Earthquake
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Stream Bank Erosion

Non-Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Dam Failure
- Landslide, Mudslide, Debris Flow
- Levee Failure
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: High Winds and Tornadoes
- Subsidence
- Wildfire

Colusa County Resource Conservation District ???

Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Climate Change
- Drought & Water Shortage
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flow
- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Stream Bank Erosion
- Subsidence
- Wildfire

Non-Priority Hazards:

- Dam Failure
- Earthquake
- Flood: 1%/0.2% annual chance
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: High Winds and Tornadoes

Cortina Community Services District

Priority Hazards:

- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flow
- Stream Bank Erosion

Non-Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Levee Failure
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Subsidence
- Wildfire

Kletsel Dehe Wintun Nation

Priority Hazards:

- Climate Change
- Drought & Water Shortage
- Landslide, Mudslide, Debris Flow
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Stream Bank Erosion
- Wildfire

Non-Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Dam Failure
- Earthquake
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Levee Failure
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: High Winds and Tornadoes
- Subsidence

RD 108

Priority Hazards:

- Flood: 1%/0.2% annual chance
- Flood: Localized Stormwater
- Levee Failure

Non-Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Landslide, Mudslide, Debris Flow
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat

- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Stream Bank Erosion
- Subsidence
- Wildfire
-

RD 479 ???

Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flow
- Levee Failure
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Stream Bank Erosion
- Subsidence
- Wildfire

Non-Priority Hazards:

-
-
-
-

Sacramento River West Side Levee District

Priority Hazards:

- Flood: 1%/0.2% annual chance
- Flood: Localized Stormwater
- Levee Failure

Non-Priority Hazards:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Landslide, Mudslide, Debris Flow
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (wind, hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Stream Bank Erosion
- Subsidence
- Wildfire

Mitigation Strategy: Goals

The most important element of the LHMP is the resulting mitigation strategy which serves as the long-term blueprint for reducing the potential losses identified in the risk assessment. The mitigation strategy is comprised of three components:

1. Mitigation Goals
2. Mitigation Actions
3. Mitigation Action (Implementation) Plan

Mitigation Goals

Up to now, the Hazard Mitigation Planning Committee (HMPC) has been involved in collecting and providing data for the 2024 Colusa County Local Hazard Mitigation Plan Update. From this information, a Risk Assessment has been developed that describes the risk and vulnerability of the Colusa County Planning Area to identified hazards and includes an assessment of the area's current capabilities for countering these threats through existing policies, regulations, programs, and projects.

This analysis identifies areas where improvements could or should be made. Formulating Goals will lead to incorporating these improvements into the Mitigation Strategy portion of the LHMP. Our planning goals should provide direction for what risk reduction activities can be undertaken to make the Colusa County Planning Area more disaster resistant.

Mitigation Goals are general guidelines that represent the community's vision for reducing or avoiding losses from identified hazards. Goals are stated without regard for achievement, that is, implementation, cost, schedule, and means are not considered.

Goals are public policy statements that:

- **Represent basic desires of the jurisdiction;**
- **Encompass all aspects of planning area, public and private;**
- **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.**

    - ***While goals are not specific (quantitative), they should not be so general as to be meaningless or unachievable.***

    - ***Goal statements may form the basis for objectives. They should be stated in such a way as to develop one or more objectives related to each goal.***

    - ***The key point in writing goals is to remember that they must deal with results, not the activities that produce those results.***

    - ***Consider other planning area goals from other regional/county/city programs, plans and priorities.***

Types/Sources of other area mitigation plans/ programs include:

- General Plans
- Master Plans
- Stormwater Program and Plans
- Flood/Levee/Watershed Management Plans and Studies
- Drought Plans, Urban/Integrated Regional Water Management Plans
- Earthquake Studies
- Community Wildfire Protection Plans
- Strategic Fire Plans
- Dam Emergency Action Plans
- Emergency Operations Plans
- Climate Plans
- Others?

2018 California State Hazard Mitigation Plan Goals

1. Significantly reduce life loss and injuries.

2. Minimize damage to structures and property, as well as minimizing interruption of essential services and activities.

3. Protect the environment.

4. Promote community resilience through integration of hazard mitigation with public policy and standard business practices.

2023 State Hazard Mitigation Plan Goals

GOAL 1—Significantly reduce risk to life, community lifelines, the environment, property, and infrastructure by planning and implementing whole-community risk reduction and resilience strategies.

GOAL 2—Build capacity and capabilities to increase disaster resilience among historically underserved populations, individuals with access and functional needs, and communities disproportionately impacted by disasters and climate change.

GOAL 3—Incorporate equity metrics, tools, and strategies into all mitigation planning, policy, funding, outreach, and implementation efforts.

GOAL 4—Apply the best available science and authoritative data to design, implement, and prioritize projects that enhance resilience to natural hazards and climate change impacts.

GOAL 5—Integrate mitigation principles into laws, regulations, policies, and guidance to support equitable outcomes to benefit the whole community.

GOAL 6— Significantly reduce barriers to timely, efficient, and effective hazard mitigation planning and action.

Goals from the Colusa County General Plan Safety Element, 2012

Goal SA-1: Ensure the safety of County residents, businesses, and visitors from hazardous conditions, including natural catastrophes and human-caused emergencies.

Objectives:
SA 1-A: Ensure that Colusa County is prepared to provide an organized response to natural and human-caused emergencies
SA 1-B: Ensure that planning and development procedures identify and mitigate potential hazards
SA 1-C: Reduce risks to human life and property from seismic and geologic hazards.
SA 1-D: Take appropriate steps to reduce the risks to life, property, and public services associated with flooding
SA 1-E: Strive to maintain an adequate system of levees that provide flood protection to areas throughout the County
SA 1-F: Reduce risks to life and property from dam inundation
SA 1-G: Minimize risks to human life and property from fire in both developed and undeveloped areas of the County
SA 1-H: Minimize risks to residents and the environment from hazardous materials and waste
SA 1-I: Protect lives and property from hazards associated with airport operations

Goals from the Colusa County Emergency Operations Plan (EOP), 2016

Operational Goals: During the response phase, the agencies that are charged with responsibilities in this plan should focus on the following five goals:

- Mitigate hazards.
- Meet basic human needs.
- Address needs of People with Access and Functional Needs (PAFN).
- Restore essential services.
- Support community and economic recovery.

Operational Priorities: Operational priorities govern resource allocation and the response strategies for the County of Colusa and its political subdivisions during an emergency. Below are operational priorities addressed in this plan:

- **Save Lives** – The preservation of life is the top priority of emergency managers and first responders and takes precedence over all other considerations.
- **Protect Health and Safety** – Measures should be taken to mitigate the emergency's impact on public health and safety.
- **Protect Property** – All feasible efforts must be made to protect public and private property and resources, including critical infrastructure, from damage during and after an emergency.
- **Preserve the Environment** – All possible efforts must be made to preserve California's environment and protect it from damage during an emergency.

2021 Colusa County Community Wildfire Protection Plan (CWPP)

1) reduce the risk of catastrophic wildfire and promote ecosystem health and

2) reduce home losses and provide for the safety of residents and firefighters during wildfire events.

To achieve these equal goals the Colusa County CWPP was developed with the follow objectives in mind:

- Assist stakeholders and communities in identifying and prioritizing areas for hazardous fuel reduction treatments on federal lands and in determining the types and methods of treatment that, if completed, would reduce the risk to the communities.
- Assist stakeholders, communities and landowners in identifying and prioritizing areas for voluntary hazardous fuel reduction treatments on private lands utilizing either public or private project dollars.
- This assistance also includes determining the types and methods of treatment that, if completed, would reduce the risk to the private lands and communities.
- In a collaborative manner and using an array of local stakeholders, execute a Countywide CWPP process that assesses fire related ecosystems and addresses fire related issues and needs on a landscape basis, regardless of political and administrative boundaries.
- Obtain agreement on the contents of the Plan by local and state fire agencies.
- Provide comprehensive wildland fire planning and prioritization of project work that focuses on the protection of at-risk communities and watersheds, or that implement recommendations developed in the planning process and listed in the CWPP.
- Develop a mechanism for federal agencies to provide leadership in the fire planning process that provide meaningful consideration to community priorities, and incorporate these federal efforts in the CWPP.
- Open community debate regarding management options.
- Provide communities with maximum flexibility for determining the substance and detail of their plans.
- Merge the goals and objectives of the landowners with the needs and expectations of the community regarding fire risk reduction.
- Coordinate fire protection strategies across property boundaries.
- Improve the natural environmental systems found in Colusa County that have developed within fire based landscapes, including: improved forage and habitat for wildlife and livestock; increased stream flows and ground water yields; and development of more natural ecosystems containing native plants that have adapted to fire.
- Protection of lands whose primary purpose is for the production of environmental resources, including recreational opportunities.
- Protection of lands whose primary purpose is related to agriculture production.
- Provide funding priority to projects and activities identified in the CWPP and coordinate grant
- funding and federal program budgets necessary to achieve the most effective results utilizing limited funding.
- Assist in the identification and federal listing of newly identified communities at risk of wildfire.
- Identify structures at risk from wildfire.

Colusa County Goals from Previous 2018 LHMP (This is what we are updating)

Goal 1: Minimize risk and vulnerability of Colusa County to hazards and protect lives and prevent losses to property, public health, economy, and the environment

- Provide protection for existing and future development
- Provide protection for critical facilities, infrastructure, and services and minimize disruption

- Prevent repetitive losses and reoccurring damages from happening

Goal 2: Increase community/public outreach, education, and awareness for all hazards to minimize hazard-related losses

- Improve the understanding of Colusa County residents, business owners, and visitors to hazards of concern and how to effectively be prepared and take action to mitigate the impacts of future hazard events

Goal 3: Improve communities' capabilities to prevent/mitigate hazard-related losses and to be prepared for, respond to, and recover from a disaster event

- Continued improvements to emergency services and public safety capabilities
- Increase participation by all County entities and agencies operating in Colusa County in disaster planning activities to improve hazard awareness, intra-and inter-agency communications, mitigation action implementation, and coordinated response and recovery efforts

Goal 4: Improve community resiliency to flooding in Colusa County

- Reduce the flood risk and vulnerability in Colusa County
- Reduce life safety issues, property loss, and damages associated with flooding
- Minimize impact of heavy rains and localized flooding
- Maintain/improve flood protection and control measures, including maintenance and improvements to the levee systems, to minimize future flood related impacts and damages

Goal 5: Continue to protect and promote Colusa County agriculture by ensuring safe and effective farming practices that protect the citizens and environment and that minimize future hazard related losses

- Support water projects that increase available agricultural water during critical times of need for local crops while ensuring a consistent water supply and distribution to County residents.
- Educate County citizens as to how they can help protect Colusa's agriculture from noxious weeds and pests

Other Example Goal Statements

- Minimize risk and vulnerability from natural hazards
- Increase communities' awareness of vulnerability to hazards
- Increase the use of shared resources
- Improve communities' capabilities to mitigate losses
- Maintain coordination of disaster plans with changing DHS/FEMA needs
- Maintain FEMA eligibility/position jurisdictions for grant funding
- Maintain/enhance the flood mitigation program to provide 200/500-year flood protection
- Maintain current service levels
- Provide protection for existing buildings from hazards
- Provide protection for future development from hazards
- Provide protection for natural and cultural resources from hazard impacts
- Provide protection for people's lives from hazards
- Provide protection for public health

- Provide protection for critical services (fire, police, etc.) from hazard impacts
- Provide protection for critical lifeline utilities from hazard impacts
- Reduce exposure to hazard related losses
- Reduce the number of emergency incidents
- Make better use of technology

General Recommendation for Categories of Goals

- Reduce Losses/Protection of Life, Property, Public Health, and the Environment from all Hazards
- Reduce Losses/Protection of Critical Facilities and Infrastructure from all Hazards
- Public Education
- Increase County Capabilities to all Hazards
- Any Hazard-specific goals
- Integrate strategies for the protection of underserved and vulnerable populations

Goals Development

The purpose of goal's development is to reach a consensus on goals for the Colusa County 2024 LHMP. Provided above are example goals for this LHMP. ***You may reword those above or develop your own goals.*** These goal statements should serve as examples. It is vital that our HMPC establish its own goals.

You will each be given 3 sticky notes. On each note you will write what you think the goals for this Colusa County LHMP Update should be. Use one sticky note for each goal.

When done, we will:

- Pin/tape them to the wall/easel-chart and arrange them by category
- Combine and reword them into 3-5 goals for the plan and send them out to the HMPC for further review and refinement.

Mitigation Strategy Meetings
April 24 & 25, 2024
Day 2

Mitigation Strategy Action Development: Ground Rules

Rule 1: Each Participating Jurisdiction MUST have a Mitigation Action/Project to address each of their Priority Hazards (those rated as a high or medium significance in their Hazard Identification table).

Rule 2: Every Mitigation Action/Project MUST be supported by Risk Assessment Data contained within Chap 4 of the Base Plan and/or within jurisdictional annexes. Note: this might necessitate backfilling the hazard risk assessment data.

Rule 3: The Mitigation Actions/Projects for this 2024 LHMP should reflect each Participating Jurisdictions' WISH LIST for mitigation, regardless of funding source.

Rule 4: Any Mitigation Action/Project that might be considered for FEMA mitigation grant funding over the next 5-years covered by this LHMP MUST be included in this 2024 LHMP.

Rule 5: While the updated Mitigation Strategy should include all potential Mitigation Actions/Projects for each Participating Jurisdiction (regardless of funding source), keep in mind that no jurisdiction is obligated to implement ANY of the identified Mitigation Actions/Projects – all are always subject to funding and changing priorities.

Rule 6: Each Mitigation Action/Project to be included in this LHMP MUST have a Mitigation Action Worksheet completed by the owning Department or Agency. This applies to Mitigation Actions/Projects being carried forward from each Jurisdictions' previous LHMPs.

Rule 7: Each Participating Jurisdiction CAN LATER include Mitigation Actions/Projects that might not get identified during this Mitigation Action/Project Prioritization process – the key is to complete a Mitigation Action Worksheet for any project to be included in the LHMP prior to submittal to Cal OES/FEMA.

REMEMBER: Having a FEMA approved LHMP for your Jurisdiction is a prerequisite for being eligible to apply for FEMA pre and post mitigation funding.

Mitigation Strategy: Actions

Mitigation Actions are specific projects and activities that help achieve the goals and accomplish risk reduction in the community.

Categories of Mitigation Actions

PREVENTION: Preventive measures are designed to keep the problem from occurring or getting worse. Their objective is to ensure that future development is not exposed to damage and does not increase damage to other properties.

- Planning
- Zoning
- Open Space Preservation
- Land Development Regulations
  - ✓ Subdivision regulations
  - ✓ Building Codes
    - Fire-Wise Construction
  - ✓ Floodplain development regulations
  - ✓ Geologic Hazard Areas development regulations (for roads too!)
- Storm Water Management
- Fuels Management, Fire-Breaks

EMERGENCY SERVICES: protect people during and after a disaster. A good emergency services program addresses all hazards. Measures include:

- Warning (flooding, tornadoes, winter storms, geologic hazards, fire)
  - ✓ NOAA Weather Radio
  - ✓ Sirens
  - ✓ "Reverse 911" (Emergency Notification System)
- Emergency Response
  - ✓ Evacuation & Sheltering
  - ✓ Communications
  - ✓ Backup power supply/generators
  - ✓ Emergency Planning
    - Activating the EOC (emergency management)
    - Closing streets or bridges (police or public works)
    - Shutting off power to threatened areas (utility company)
    - Holding/releasing children at school (school district)
    - Ordering an evacuation (mayor)
    - Opening emergency shelters (Red Cross)
    - Monitoring water levels (engineering)
    - Security and other protection measures (police)
- Critical Facilities Protection (Buildings or locations vital to the response and recovery effort, such as police/fire stations, hospitals, sewage treatment plants/lift stations, power substations)

- ✓ Buildings or locations that, if damaged, would create secondary disasters, such as hazardous materials facilities and nursing homes
- ✓ Lifeline Utilities Protection

➢ Post-Disaster Mitigation

➢ Building Inspections
- ✓ ID mitigation opportunities & funding before reconstruction

PROPERTY PROTECTION: Property protection measures are used to modify buildings subject to damage rather than to keep the hazard away. A community may find these to be inexpensive measures because often they are implemented by or cost-shared with property owners. Many of the measures do not affect the appearance or use of a building, which makes them particularly appropriate for historical sites and landmarks.

➢ Retrofitting/disaster proofing
- ✓ Floods
  - Wet/Dry floodproofing (barriers, shields, backflow valves)
  - Relocation/Elevation
  - Acquisition
  - Retrofitting
- ✓ High Winds/Tornadoes
  - Safe Rooms
  - Securing roofs and foundations with fasteners and tie-downs
  - Strengthening garage doors and other large openings
- ✓ Winter Storms
  - Immediate snow/ice removal from roofs, tree limbs
  - "Living" snow fences
- ✓ Geologic Hazards (Landslides, earthquakes, sinkholes)
  - Anchoring, bracing, shear walls
  - Dewatering sites, agricultural practices
  - Catch basins
- ✓ Drought
  - Improve water supply (transport/storage/conservation)
  - Remove moisture competitive plants (Tamarisk/Salt Cedar)
  - Water Restrictions/Water Saver Sprinklers/Appliances
  - Grazing on CRP lands (no overgrazing-see Noxious Weeds)
  - Create incentives to consolidate/connect water services
  - Recycled wastewater on golf courses
- ✓ Wildfire, Grassfires
  - Replacing building components with fireproof materials
  - Roofing, screening
  - Create "Defensible Space"
  - Installing spark arrestors
  - Fuels Modification
- ✓ Noxious Weeds/Insects

- Mowing
- Spraying
- Replacement planting
- Stop overgrazing
- Introduce natural predators

- Insurance

NATURAL RESOURCE PROTECTION: Natural resource protection activities are generally aimed at preserving (or in some cases restoring) natural areas. In so doing, these activities enable the natural beneficial functions of floodplains and watersheds to be better realized. These natural and beneficial floodplain functions include the following:

- storage of floodwaters
- absorption of flood energy
- reduction in flood scour
- infiltration that absorbs overland flood flow
- groundwater recharge
- removal/filtering of excess nutrients, pollutants, and sediments from floodwaters
- habitat for flora and fauna
- recreational and aesthetic opportunities

Methods of protecting natural resources include:

- Wetlands Protection
- Riparian Area/Habitat Protection/Threatened-Endangered Species
- Erosion & Sediment Control
- Best Management Practices

Best management practices ("BMPs") are measures that reduce nonpoint source pollutants that enter the waterways. Nonpoint source pollutants come from non-specific locations. Examples of nonpoint source pollutants are lawn fertilizers, pesticides, and other farm chemicals, animal wastes, oils from street surfaces and industrial areas and sediment from agriculture, construction, mining and forestry. These pollutants are washed off the ground's surface by stormwater and flushed into receiving storm sewers, ditches and streams. BMPs can be implemented during construction and as part of a project's design to permanently address nonpoint source pollutants. There are three general categories of BMPs:

4. Avoidance: setting construction projects back from the stream.
5. Reduction: Preventing runoff that conveys sediment and other water-borne pollutants, such as planting proper vegetation and conservation tillage.
6. Cleanse: Stopping pollutants after they are en route to a stream, such as using grass drainageways that filter the water and retention and detention basins that let pollutants settle to the bottom before they are drained:

- Dumping Regulations
- Set-back regulations/buffers
- Fuels Management
- Water Use Restrictions

- Landscape Management
- Weather Modification

STRUCTURAL: Projects that have traditionally been used by communities to control flows and water surface elevations. Structural projects keep flood waters away from an area. They are usually designed by engineers and managed or maintained by public works staff. These measures are popular with many because they "stop" flooding problems. However, structural projects have several important shortcomings that need to be kept in mind when considering them for flood hazard mitigation:

- They are expensive, sometimes requiring capital bond issues and/or cost sharing with Federal agencies, such as the U.S. Army Corps of Engineers or the Natural Resources Conservation Service.
- They disturb the land and disrupt natural water flows, often destroying habitats or requiring Environmental Assessments.
- They are built to a certain flood protection level that can be exceeded by a larger flood, causing extensive damage.
- They can create a false sense of security when people protected by a structure believe that no flood can ever reach them.
- They require regular maintenance to ensure that they continue to provide their design protection level.

Structural measures include:

- Detention/Retention structures
- Erosion and Sediment Control
- Basins/Low-head Weirs
- Channel Modifications
- Culvert resizing/replacement/Maintenance
- Levees and Floodwalls
- Anchoring, grading, debris basins (for landslides)
- Fencing (for snow, sand, wind)
- Drainage System Maintenance
- Reservoirs (for flood control, water storage, recreation, agriculture)
- Diversions
- Storm Sewers

PUBLIC INFORMATION: A successful hazard mitigation program involves both the public and private sectors. Public information activities advise property owners, renters, businesses, and local officials about hazards and ways to protect people and property from these hazards. These activities can motivate people to take protection:

- Hazard Maps and Data
- Outreach Projects (mailings, media, web, speakers, displays)
- Library Resources
- Real Estate Disclosure
- Environmental Education

Mitigation Actions/Projects from 2018 Colusa County LHMP (This is what we are updating)

Action Title	Complete	Ongoing	Not Yet Started	In 2024 Update
Colusa County				
All Hazard Actions				
Action 1.Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Action 2.Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness				
Action 3.Access to Locked Gate on Green Rd.				
Action 4.Backup Generator				
Action 5.Alert and Warning System for Sheriff's Office				
Action 6.Generator Purchases to Enhance Project Power for Colusa County				
Action 7.Hard Road Closure Mechanisms, River Road				
Action 8.Conduct Evacuation and Shelter Planning for All Communities Countywide				
Agricultural Hazards Actions				
Action 9.Domestic Pets and Livestock Plan review and update				
Climate Change Actions				
Action 10. Climate Change Mitigation Activities and Education				
Dam Failure Actions				
Action 11. Ensure Communication about Dam Safety and Awareness Countywide				
Drought & Water Shortage Actions				
Action 12. Drought Tolerance and Resilience Project County-wide, including Public Education				
Earthquake Actions				
Action 13. Earthquake Vulnerability Study and Retrofitting of County Assets				
Flood, Localized Flood, Heavy Rain and Storms Actions				
Action 14. Corbin Road Repair				
Action 15. Seepage Mitigation, East Clay Street, Colusa (between city and county)				
Action 16. Highway 20 Flood Prevention				
Action 17. Repair and Enhance Banks at Indian Creek in Lodoga				
Action 18. Lone Star Road Flood-Prevention				
Action 19. Powell Slough Phase II				
Action 20. Repair and Enhance Banks at Salt Creek in Arbuckle				
Action 21. San Jose Road Elevation Project				
Action 22. Colusa County Storm Water Plan Update				

Action Title	Complete	Ongoing	Not Yet Started	In 2024 Update
Action 23. Lurline Avenue Culvert Replacement Project				
Action 24. Lonestar Road Culvert Project				
Action 25. Sandbagging Training for county and city personnel; purchase Sandbagging Stations				
Action 26. Leesville Road elevation project, Williams				
Action 27. Princeton Drainage Assessment and Revision				
Flooding, Landslide, High Winds Actions				
Action 28. Goat Mountain Road Erosion Control Project				
Action 29. Fouts Springs Road Drainage Modification and Erosion Control Project				
Action 30. Brim Road Drainage Modification and Erosion Control Project				
Action 31. Cook Springs Road Drainage Modification and Erosion Control Project				
Action 32. Sites Lodoga Road Drainage Modification and Erosion Control Project				
Action 33. Lodoga Stonyford Road Drainage Modification and Erosion Control Project				
Action 34. Ground Surface Soil Stabilization, Western Colusa County in Burn Scar Areas				
Hazardous Materials Actions				
Action 35. Hazardous Materials Area Response Plan Evaluation and Update				
Levee Failure, Flood, Localized Flooding, and Streambank Erosion				
Action 36. Flood Risk Reduction Project for the Unincorporated Town of Princeton				
Action 37. Flood Risk Reduction Project for the City of Colusa				
Action 38. Flood Risk Reduction Project for the Unincorporated Town of Grimes				
Action 39. Map and Assess County-wide Vulnerability to Riverbank Erosion				
Action 40. Seepage Mitigation Projects Countywide				
Action 41. Levee Repair- Rip Rap Maintenance				
Levee Failure and Agricultural Pests and Diseases Actions				
Action 42. Public Awareness Campaign and Weed Abatement Patrols for Squirrel Population Management				
Action 43. Public Awareness Campaign and Weed Abatement Patrols for Soil Absorption Effectiveness				
Severe Weather: Extreme Cold and Freeze Actions				
Action 44. Evaluate Extreme Cold Plan (Including Damage Mitigation; Winter Storm, High Wind and Freeze Communication Actions)				

Action Title	Complete	Ongoing	Not Yet Started	In 2024 Update
Subsidence (with Drought and Flood) Actions				
Action 45. Map and Assess Countywide Vulnerability to Subsidence				
Action 46. Surface Water Storage Project Countywide				
Wildfire Actions				
Action 47. Maintain Defensive Space				
Action 48. Fire Fuel Modification and Defensible Space Projects				
Action 49. Wildfire Mitigation				
Wildfire and Drought Actions				
Action 50. 50,000 Gallon Water Tank				
City of Colusa Actions				
All Hazard Actions				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Earthquake Actions				
URM Mapping and Identification				
Flood, Localized Flood, and Heavy Rain and Storms Actions				
Central City Flood Hazard Mitigation Project				
City of Williams Actions				
All Hazard Mitigation Actions				
Action 1. Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Drought and Water Shortage Actions				
Action 2. Develop Drought Program Plan				
Earthquake Actions				
Action 3. EQ Vulnerability Study and Retrofit of City Assets				
Flood: 100/200/500; Localized Flooding; Levee Failure; Stream Bank Erosion, Heavy Rains and Storms Actions				
Action 4. Levee Construction				
Action 5. Hwy 99W and Hwy 20 Flood Wall or Similar Construction				
Action 6. Detention Basin Construction				
Action 7.Improve Stormwater Management Planning				
RD 108 Actions				
All Hazard Actions				
Emergency Generator – District Office				
Drought and Water Shortage Actions				
Groundwater Wells				
Climate Change, Flood, Localized Flood, Dam Failure, Levee Failure, Streambank Erosion, Heavy Rains and Storms, Winds and Tornado Actions				

Action Title	Complete	Ongoing	Not Yet Started	In 2024 Update
Emergency Generator – Pump Stations				
Stabilization of Colusa Basin Drain Levee				
Hardening of Colusa Basin Drain Levee				
Invasive Species Removal in Canals				
Sacramento River West Side Levee District Actions				
Climate Change, Flood, Localized Flood, Dam Failure, Levee Failure, Heavy Rains and Storms, High Winds, Stream Bank Erosion Actions				
Seepage Mitigation of Sacramento River Levee				
Hardening of Sacramento River Levee				

Mitigation Strategy: Action (Implementation) Plan

The mitigation action plan describes how the mitigation actions will be implemented, including how those actions will be prioritized, administered, and incorporated into the community's existing planning mechanism. Each participating jurisdiction must have a mitigation action(s) and an action plan specific to that jurisdiction and its priority hazards and vulnerabilities.

Mitigation Criteria

For use in selecting and prioritizing Proposed Mitigation Measures

1. STAPLEE

Social: Does the measure treat people fairly? (different groups, different generations)

- Community Acceptance
- Effect on Segment of Population
- Social Benefits

Technical: Will it work? (Does it solve the problem? Is it feasible?)

- Technical Feasibility
- Reduce Community Risk
- Long Term Solution/Sustainable
- Secondary Impacts

Administrative: Do you have the capacity to implement & manage project?

- Staffing
- Funding Allocated
- Maintenance/Operations

Political: Who are the stakeholders? Did they get to participate? Is there public support? Is political leadership willing to support?

- Political Support
- Local Champion
- Public Support
- Achieves Multiple Objectives
- Supported by a broad array of Stakeholders

Legal: Does your organization have the authority to implement? Is it legal? Are there liability implications?

- Existing Local Authority
- State Authority
- Potential Legal Challenges

Economic: Is it cost-beneficial? Is there funding? Does it contribute to the local economy or economic development?

- Benefit of Action
- Cost of Action
- Cost Effective/Economic Benefits
- Economically Viable
- Outside Funding Required

Environmental: Does it comply with Environmental regulations?

- Effect on Land/Water
- Effect on Endangered Species
- Effect on Cultural Resources
- Effect on Hazmat sites
- Consistent with Community Environmental Goals
- Consistent with Environmental Laws
- Environmental Benefits

2. SUSTAINABLE DISASTER RECOVERY

- Quality of Life
- Social Equity
- Hazard Mitigation
- Economic Development
- Environmental Protection/Enhancement
- Community Participation

3. SMART GROWTH PRINCIPLES

- Infill versus Sprawl
- Efficient Use of Land Resources
- Full Use of Urban Resources
- Mixed Uses of Land
- Transportation Options
- Detailed, Human-Scale Design

4. OTHER

- Does measure address area with highest risk?
- Does measure protect …
  - ✓ The largest # of people exposed to risk?
  - ✓ The largest # of buildings?
  - ✓ The largest # of jobs?
  - ✓ The largest tax income?
  - ✓ The largest average annual loss potential?
  - ✓ The area impacted most frequently?
  - ✓ Critical Infrastructure (access, power, water, gas, telecommunications)
- Timing of Available funding
- Visibility of Project
- Community Credibility

Mitigation Action Prioritization Instructions

The HMPC's brainstormed list of mitigation actions and projects are organized by hazard and posted on flip-chart paper around the room.

You each have 3 sets of colored dots:

- 3 red dots
- 3 blue dots
- 3 green dots

The red dots are for high priority (5 points each)

The blue dots are for medium priority (3 points each)

The green dots are for low priority (1 point each)

Place your dots on any mitigation action/project, using the different colors to indicate your priority. You may use as many of your dots, of any color, on any mitigation action/project --- or you may spread them out using as few of your dots as you wish. The scored dots will indicate the consensus of the HMPC.

Use the list of mitigation selection criteria (above) to help you make your determinations.

Your votes will indicate the consensus of the team.

After the totals are counted, we will discuss them further to confirm or modify any of the results as necessary to best meet the goals of this LHMP Update.

Colusa County
Mitigation Action Worksheet

Jurisdiction:	
Mitigation Action/Project Title:	
Hazards Addressed:	
Issue/Background:	
Project Description:	
Other Alternatives:	
Existing Planning Mechanism(s) through which Action will be implemented:	
Responsible Office/Partners:	
Cost Estimate:	
Benefits (Losses Avoided):	
Potential Funding:	
Timeline:	
Project Priority (H, M, L):	

Worksheet completed by:	
Name and Title:	
Phone:	

Meetings – Action Prioritization

Actions sorted by Hazard with Prioritization Voting Totals

Agency/ Department	Mitigation Action Title	Hazards Addressed	Votes (Points)
All	1. Enhance Public Education and Outreach program for all hazards (priority and non-priority)/with community preparedness efforts and leveraging of public events	Multi-Hazard	46
	2. Ensure back up power is in place for key critical facilities and infrastructure (e.g.., generators, batteries, solar, etc.)	Multi-Hazard	9
	3. Migrant housing center improvements/updates to accommodate vulnerable populations during disasters	Multi-Hazard	3
	4. Coordinate with MACC and ministerial community within Colusa County to address disasters and vulnerable populations	Multi-Hazard	5
	5. Coordinate with Red Cross for mass care planning	Multi-Hazard	2
	6. Vulnerable population planning	Multi-Hazard	4
	7. Install hard road closure infrastructure	Multi-Hazard	21
	8. Evacuation planning	Multi-Hazard	6
	9. Alert and Warning project, w/technology enhancements	Multi-Hazard	35
	10. Update 211 system	Multi-Hazard	14
	11. Enhance Tribal Coordination for Disasters	Multi-Hazard	15
	12. Technology enhancements to support hazard mitigation planning and project implementation and for use in disaster preparedness, response, and recovery efforts (e.g., GIS application enhancements)	Multi-Hazard	N/A*
County/ Cities	13. EOP Update and Implementation	Multi-Hazard	8
	14. Pests (Rodent) Prevention projects for infrastructure protection	Agricultural Hazards	15
	15. Development of zoning or other ordinance to limit/manage the introduction of pests into Colusa County	Agricultural Hazards	10
	16. Midge Fly infestation mitigation projects (e.g., sewer treatment plants)	Agricultural Hazards	15
County/ Cities	17. Develop Climate Change Adaptation/Action Plans	Climate Change	46
County/ Cities	18. Develop Climate Change Vulnerability Assessments	Climate Change	11
County/ Cities	19. Enhance/Update hydrology parameters to accommodate future conditions	Climate Change	6

Agency/ Department	Mitigation Action Title	Hazards Addressed	Votes (Points)
	20. Sites Reservoir, 1.5 acre feet of storage	Dam Failure	60
	21. Continue coordination efforts with dam owners on EAPs and inundation mapping	Dam Failure	15
	22. Dam failure education and awareness	Dam Failure	1
	23. Drought tolerance and resilience project countywide, including public education	Drought & Water Shortage	5
	24. Activate drought task force	Drought & Water Shortage	4
	25. Recharge project on westside, Arbuckle and surrounding areas	Drought & Water Shortage	13
	26. Sites reservoir project: 1.5 million acre feet storage	Drought & Water Shortage	50
	27. Flood diversion and recharge (advisory board)	Drought & Water Shortage	8
	28. Update and implement emergency household water tank program	Drought & Water Shortage	3
	29. Williams reverse well planning and implementation project	Drought & Water Shortage	6
	30. Implement projects in Groundwater Sustainability Plan	Drought & Water Shortage	24
	31. Public Education/Outreach on water usage (conservation measures, drought resistant landscaping, etc.)	Drought & Water Shortage	13
	32. Implement water projects/recharge opportunities that protect and replenish water supplies	Drought & Water Shortage	NA*
	33. URM inventory and assessment of other EQ vulnerable buildings	Earthquake	10
	34. Assessment and hardening of critical facilities and infrastructure to EQ	Earthquake	2
	35. Colusa County Office of Education building (10th & Fremont) retrofit project	Earthquake	4
	36. Corbin Road Repair	Flood: All	0
	37. Seepage Mitigation, East Clay Street, Colusa (between city and county)	Flood: All	0
	38. Mitigation of Hwy 20 flood issues	Flood: All	30
	39. Lone Star Road flood prevention/mitigation	Flood: All	8
	40. Salt Creek area flood repairs/mitigation	Flood: All	15
	41. Road Elevation projects (San Jose, others?)	Flood: All	11

Agency/ Department	Mitigation Action Title	Hazards Addressed	Votes (Points)
County/ Cities	42. Stormwater master plan update and implementation	Flood: All	3
	43. Storm drain ditch installation (Wildwood, others?)	Flood: All	5
	44. Princeton Stormwater drainage project	Flood: All	3
	45. Mitigation of road erosion issues (Pests, water) (Green Bay Road, Arbuckle; Other areas?)	Flood: All	10
	46. Road drainage projects	Flood: All	12
	47. Pipelines and other underground infrastructure mitigation projects	Flood: All	5
Cortina CSD	48. Stormwater retention pond expansion	Flood: All	5
Williams	49. Salt Creek flood mitigation	Flood: All	10
County/ Cities	50. Flood ordinance updates	Flood: All	4
	51. Upper watershed flood management projects	Flood: All	9
	52. Creek/Drainage clearance projects	Flood: All	0
	53. Updated FIRM rollout/Education	Flood: All	6
	54. Stream bank erosion projects	Flood: All/ Stream Bank Erosion	24
	55. Imp off stream storage projects	Flood: All/ Levee Failure	40
	56. DWR flood fight methods training	Flood: All/ Levee Failure	0
RD 108/ Others?	57. Install emergency generators at pump stations and District office	Levee Failure	9
RD 108/ Others?	58. Hardening and stabilization of Colusa Basin Drain levee	Levee Failure	2
	59. Invasive species, rodent, and other pests removal in drainage areas	Levee Failure	4
	60. Countywide levee rip-rap projects	Levee Failure	5
RD 479/ Others?	61. Bank stabilization projects in Arbuckle and other areas as needed	Levee Failure	11
Sac River/ Others?	62. Sacramento River (and countywide) levee seepage mitigation	Levee Failure	35
Sac River/ Others?	63. Sacramento River levee hardening	Levee Failure	9

Agency/ Department	Mitigation Action Title	Hazards Addressed	Votes (Points)
	64. Landslide mitigation and erosion control of Leesville Road, Stonyford, Ladoga areas	Landslide, Mudslide, Debris Flow	0
	65. Sheltering for unhoused (winter weather, extreme heat)	Severe Weather	10
	66. Update Severe Weather Plan	Severe Weather	4
	67. Mitigation/management of crop damage/ hazardous trees	Severe Weather	16
	68. Implement subsidence mitigation projects from Groundwater Sustainability Plan	Subsidence	39
	69. Update and Implement the projects from the new 2021 CWPP	Wildfire	23
	70. Establish a countywide Fire Safe Council at County	Wildfire	17
	71. Fuels management/modification/reduction projects	Wildfire	20
	72. Defensible space inspection projects	Wildfire	11
	73. Defensible space/Property Hardening Assistance Plan/Education for lower income vulnerable populations	Wildfire	9
	74. Air Curtain Incinerator	Wildfire	24
	75. Wildfire mitigation prevention/restoration program for abandoned agricultural lands	Wildfire	13
	76. Continue to strengthen and enforce vegetation management ordinances	Wildfire	7
	77. Vegetation/tree management/fuel break projects for open space areas and trails	Wildfire	20
	78. Establish/enhance ignition resistant hardening requirements for new development	Wildfire	6
	79. Establish and enforce illegal fireworks ordinance	Wildfire	7