

## Appendix C Mitigation Strategy

### Sacramento County Local Hazard Mitigation Plan Update HMPC Meetings #3 & 4 - Mitigation Strategy Meetings March 24 & 30, 2021

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# AGENDA

Sacramento County  
Local Hazard Mitigation Plan (LHMP) Update  
HMPC Meetings #3 & #4 - Mitigation Strategy Meetings  
March 24 & 30, 2021

*HMPC Meeting #3: (2 hours)*

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

*HMPC Meeting #4: (2 to 2.5 hours)*

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

**Mitigation Strategy Meetings**  
**March 24 & 30, 2021**  
**Day 1**

# Status of the 2021 Sacramento 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 and action plan

### *Phase IV: Adoption and Implementation*

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

## *LHMP Update Project Schedule/Key Dates*

### **2021 LHMP Update Meetings**

- **March 24** (Wednesday) HMPC Meeting #3 (Mitigation Strategy: Goals Development) (1:30-3:30 pm)
- **March 30** (Tuesday) HMPC Meeting #4 (Mitigation Strategy: Actions and Projects) (1:30-4:00 pm)
- **August 3** (Tuesday) Public Meeting #2 (5:30-7:00 pm)
- **August 4** (Wednesday) HMPC Meeting #5 (1:30-4:00 pm)

### **Mitigation Strategy Meetings - Follow up**

- **April 2** (Friday) Mitigation Strategy Actions and Projects processed and voting site launched
- **April 9** (Friday) Voting ends
- **April 13** (Tuesday) Foster Morrison to send Mitigation Action prioritization follow up to HMPC
- **May 7** (Friday) Planning Team Mitigation Action (Project) Worksheets due to Foster Morrison

### **LHMP Document Drafts**

- **March 15 – April 1:** Foster Morrison to send out Jurisdictional Annexes for input
- **May 7:** Jurisdictions to return updated Annexes to Foster Morrison
- **May 21** (Friday): HMPC (First) Draft LHMP to County
- **June 18** (Friday): HMPC comments due on Draft Plan
- **July 2** (Friday): Comments incorporated into Public Review (Second) Draft to County
- **July 12** (Monday): Public Review Draft on County website
- **August 13** (Friday): all Planning Team and Public input to Foster Morrison
- **September:** Public and HMPC comments incorporated and LHMP submittal to Cal OES – September 2021

## Sacramento County Hazard Identification & Profiles

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/Severity	Significance	Climate Change Influence
Climate Change	Extensive	Likely	Limited	Medium	–
Dam Failure	Significant	Occasional	Catastrophic	High	Medium
Drought & Water Shortage	Extensive	Likely	Limited	Medium	High
Earthquake	Extensive	Occasional	Catastrophic	Medium	Low
Earthquake Liquefaction	Limited	Occasional	Critical	Medium	Low
Floods: 1%/0.2% annual chance	Significant	Likely	Catastrophic	High	Medium
Floods: Localized Stormwater	Extensive	Highly Likely	Limited	Medium	Medium
Landslides, Mudslides, and Debris Flow	Limited	Occasional	Limited	Low	Medium
Levee Failure	Extensive	Occasional	Critical	High	Medium
Pandemic	Extensive	Likely	Catastrophic	Medium	Medium
Severe Weather: Extreme Cold and Freeze	Extensive	Highly Likely	Limited	Medium	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Limited	Medium	High
Severe Weather: Heavy Rains and Storms	Extensive	Highly Likely	Limited	Medium	Medium
Severe Weather: Wind and Tornado	Extensive	Highly Likely	Limited	Medium	Low
Subsidence	Significant	Highly Likely	Limited	Medium	Medium
Volcano	Extensive	Unlikely	Negligible	Low	Low
Wildfire	Significant	Highly Likely	Critical	High	High
<b>Geographic Extent</b> Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area		<b>Magnitude/Severity</b> 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			
<b>Likelihood of Future Occurrences</b> 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.		<b>Significance</b> Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact			
		<b>Climate Change Influence</b> 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.

## Sacramento County Priority Hazards

- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Earthquake Liquefaction
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Levee Failure
- Pandemic
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Subsidence
- Wildfire

### *Non-Priority Hazards:*

- Landslide, Mudslide, Debris Flow
- Volcano

*Jurisdiction:* \_\_\_\_\_

### *Priority Hazards???*

- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Earthquake Liquefaction
- Flood: 1%/0.2% annual chance
- Flood: Localized/Stormwater
- Landslide, Mudslide, Debris Flow
- Levee Failure
- Pandemic
- Severe Weather: Extreme Cold and Freez
- Severe Weather: Extreme Heat
- Severe Weather: Heavy Rains and Storms (hail, lightning)
- Severe Weather: High Winds and Tornadoes
- Subsidence
- Volcano
- Wildfire

### *Participating Jurisdictions*

- County
- All 7 incorporated communities
- 14 Flood Control/ Reclamation District Annexes
- 8 other Districts
- **30 Total Participating Jurisdictions**

## Data Needs

### *Review of Key Items to Date*

- Hazard-specific data
  - ✓ Hazard ID tables
  - ✓ Historic Hazard Worksheets or list of past hazard occurrences and impacts to each jurisdiction
    - Old participating jurisdictions – need past occurrences/hazard history since 2016
    - New participating jurisdictions –significant hazard occurrences - back 50 years or so
- Risk Assessment Worksheet (County)
  - ✓ Data on future development areas (County/Cities)
- Status updates to 2016 Mitigation Actions/Projects

### *Other Data Items*

- Photos, Photos, Photos
- Updated Goals Statements **by April 2**
- New/Carry over Mitigation Action Worksheets due **by May 7<sup>h</sup>**
- Jurisdictions to return updated Annexes to Foster Morrison **by May 7<sup>th</sup>**



## 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:

6. Mitigation Goals
7. Mitigation Actions
8. Mitigation Action (Implementation) Plan

### *Mitigation Goals*

Up to now, the HMPC has been involved in collecting and providing data for the Sacramento County Local Hazard Mitigation Plan Update. From this information, a Risk Assessment has been developed that describes the risk and vulnerability of the Sacramento 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 loss reduction activities can be undertaken to make the Planning Area and Participating Jurisdictions 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.***
  - ❖ ***Goals statements will 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
- Stormwater Program and Plans
- Flood/Watershed Management Plans and Studies
- Drought Plans, Urban/Integrated Regional Water Management Plan
- Community Wildfire Protection Plans
- Strategic Fire Plans
- Dam Emergency Action Plans
- Emergency Operations Plans
- Climate Adaptation Plans
- Others?

### *2018 State Plan/2016 Sacramento County LHMP Goals*

#### Goals from the 2018 California State Hazard Mitigation Plan

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.

#### Sacramento County 2016 LHMP Update (This is what we are updating)

*Mission Statement: This Local Hazard Mitigation Plan assesses natural hazards of concern to the Sacramento community; evaluates risk to life safety, public health, property, and the environment; and evaluates mitigation measures to reduce these risks and vulnerabilities, minimize losses, and increases community resilience.*

**GOAL 1: Minimize risk and vulnerability of the Sacramento County community to the impacts of natural hazards and protect lives and reduce damages and losses to property, public health, economy, and the environment.**

#### Objectives:

- Protect, preserve, and promote public health and safety, livability, and the environment
- Assure long term protection and resiliency of existing and future development (including infill areas) from natural hazards
- Protect critical facilities from natural hazards and minimize interruption of essential infrastructure, utilities, and services
- Protect natural resources; Protect and enhance water quality and supply, critical aquatic resources and habitat for beneficial uses.
- Maintain/enhance the flood mitigation program to provide 100/200/500-year flood protection
- Minimize risk of levee breach, overtopping or other failures

- Mitigate Repetitive Loss Properties
- Continued enhancement of CRS programs
- Address localized drainage issues
- Reduce the potential of wildfire in Sacramento County and protect the community from adverse effects of wildfire, including secondary impacts such as air quality
- Protect vulnerable populations from the threat of natural hazards
- Address climate change influence in project design and development
- Promote hazard mitigation as an integrated public policy and as a standard business practice

**GOAL 2: Improve public outreach, awareness, education, and preparedness for all hazards to minimize hazard related losses**

**Objectives:**

- Increase outreach, communication and awareness of natural hazards and reduce exposure to all hazard related losses, including climate change
- Improve the communities’ understanding of natural hazards and how to effectively be prepared and take action to mitigate the impacts of hazard events
- Develop and target outreach and education for each hazard type and risk area
- Increase access to natural hazard information via enhanced web and mobile applications before, during, and after a disaster
- Enhance public outreach programs to target all vulnerable populations, including multi-language communications and multi-mode delivery
- Continued promotion of flood insurance

**GOAL 3: Improve the capabilities of the community to mitigate losses and to be prepared for, respond to, and recover from a disaster event**

**Objectives:**

- Promote interagency coordination of mitigation planning and implementation efforts
- Minimize hazard-related damage in order to maintain current service levels
- Continued enhancements to emergency services capabilities, integrating new technologies to reduce losses and save lives
- Promote intergovernmental and interagency coordination, planning, training, exercising and communication to ensure effective community preparedness, response, and recovery
- Increase the use of coordinated, shared resources between agencies
- Promote public/private partnerships in hazard mitigation and preparedness programs
- Identify, coordinate, and implement countywide evacuation and shelter in place planning for all populations and increase community awareness of these activities

**GOAL 4: Assure conformance to Federal and State Hazard Mitigation Initiatives and Maximize Potential for Mitigation Implementation**

**Objectives:**

- Maintain FEMA Eligibility/Position Jurisdictions for Grant Funding
- Maintain good standing with FEMA and State hazard mitigation programs, regulations and requirements

- Develop an overall mitigation funding strategy to prioritize and pursue mitigation projects in an equitable manner to benefit all populations
- Maximize funding opportunities through identification and tracking of all types of Federal and state grant programs to implement identified mitigation projects

### *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

## *Goals Development*

The purpose of goal's development is to reach a consensus on updated goals for the Sacramento County 2021 LHMP Update. Provided above are example goals for this LHMP and goals from the previous 2016 Sacramento County LHMP. ***You may reword those above or develop your own updated goals.***

***Each person should provide either via chat (on this zoom call) or email to [Jeanine.foster@fostermorrison.com](mailto:Jeanine.foster@fostermorrison.com): Two (2) goals they would like to see included for this 2021 Sacramento County LHMP Update. (Please submit by Friday, April 2)***

When collated, we will combine and rework them into 4-6 goals for this LHMP Update and send them out to the HMPC for further review and refinement.

**Mitigation Strategy Meetings**  
**March 24 & 30, 2021**  
**Day 2**

## Mitigation Strategy Action Development: Ground Rules

**Rule 1:** All Participating Jurisdictions **MUST** have a Mitigation Action/Project to address each of their Priority Hazards (those rated as a high or medium significance in their respective 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 each Participating Jurisdictions' Annexes. **Note:** this might necessitate backfilling the hazard risk assessment data.

**Rule 3:** The Mitigation Actions/Projects for this 2021 LHMP Update 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 2021 LHMP Update.

**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 one 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 Update **MUST** have a Mitigation Action Worksheet completed by each Participating Jurisdiction. This applies to Mitigation Actions/Projects being carried forward from the 2016 LHMP.

**Rule 7:** Participating Jurisdictions **CAN** 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 updated 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 Measures*

**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 naturally 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:

9. Avoidance: setting construction projects back from the stream.
10. Reduction: Preventing runoff that conveys sediment and other water-borne pollutants, such as planting proper vegetation and conservation tillage.
11. 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 Measures from 2016 Sacramento County LHMP (This is what we are updating)***

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
<b>Sacramento County</b>				
<b>Multi-Hazard Actions</b>				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Enhance Public Education and Awareness of Natural Hazards and Public Understanding of Disaster Preparedness				
Increase pedestrian and bicycle evacuation routes by constructing regional bike/pedestrian trail infrastructure, and expanding connection to neighborhoods (particularly in vulnerable areas)				
Community Rating System (CRS) Program for Public Information (PPI)				
Flood Insurance Assessment, Awareness, and Promotion				
Public Outreach Mailers				
Toxic Substance Release				
<b>Climate Change Actions</b>				
Increase average fuel efficiency and reduce GHG emissions from the County Fleet and Fuels				
Reduce Sacramento County's vulnerability to Climate Change by reducing GHG emissions in the commercial and residential sectors by making energy efficiency a priority through building code improvements				
Mitigate Climate Change impacts by integrating climate change research and adaptation planning into County operations and services				
Reduce Sacramento County's vulnerability to extreme heat events and associated hazards by Increase tree planting/canopy preservation/enhancement				
<b>Drought Actions</b>				
Implement Water Supply CIP				
<b>Flood, Levee Failure, and Localized Flood Actions</b>				
Keep the PPI current				
Alder Creek flood control				
Alder Creek flood mitigation (dam)				
Alder Creek miners reservoir, property owned by the City of Folsom				
Delta Small Communities flood protection - structural and nonstructural mitigation				
Gum Ranch flood control - joint use basin				
Implement Storm Drain CIP				

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
Laguna Creek at Triangle Aggregate flood control -joint use basins				
Laguna Creek mitigate flood hazard south of Jackson Highway				
Model Sacramento River levee breach (LAMP) south of Freeport				
Morrison Creek Miners Reach Flood Insurance Study				
Morrison Creek Miners Reach levee improvements				
Outreach stormwatch guide (ALERT, Stormready, weather radio)				
Peak flow floodplain mitigation Arcade Creek near Auburn Blvd				
Risk Map (flood frequency, depth, velocity)				
Elevation & Acquisition Projects (to Mitigate Flood Risk)				
Repetitive Loss Properties (to Mitigate Flood Risk)				
Five-Year Capital Improvement Plan – Drainage Projects				
Arcade Creek Corridor Plan				
Elevate Homes on Long Island (Grand Island Road, Sacramento River)				
Repetitive Loss Church Building on Dry Creek				
South Branch Arcade Creek – Gum Ranch Basin (with Fair Oaks Park District) and Kenneth Avenue Bridge Improvements (with Sacramento County Department of Transportation)				
Dry Creek Flood Hazard Mitigation Acquisitions with County Regional Park Department				
Arcade Creek at Evergreen Estates Floodwall Improvements				
Linda Creek Peak Flow Mitigation				
Flood Preparation in the American River Parkway				
Improve County ALERT (Automated Local Evaluation in Real Time) System of Stream and Rain Gauges				
Update County Hydrology Standards				
Woodside Condominiums Repetitive Flood Loss Property				
Bridge Replacement on Elk Grove Florin Road at Elder Creek				
Michigan Bar Bridge Replacement at the Cosumnes River				
El Camino Avenue Phase 2 Road Improvements				
Improve Flood Protection and/or Evacuation Planning for Mobile Home/RV Park at Manzanita/Auburn. Alternatively, the Park Should Establish Flood Warning and evacuation procedures.				
Hydromodification and Stormwater Quality Countywide				
Evacuation Mapping				
Regional Flood Management Plan Projects				
<b>River/Stream/Creek Bank Erosion</b>				
Erosion Site Repairs				

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
<b>Wildfire Actions</b>				
Wildfire Suppression				
Wildfire Fighting - Support				
Wildfire Suppression – Regional Parks and Open Space (urban interface)				
<b>City of Citrus Heights</b>				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan, as well as other Local Planning Efforts				
Rinconada Flood Wall				
Drainage Project Implementation				
<b>City of Elk Grove</b>				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan, as well as other Local Planning Efforts				
Mutual Aid Agreements				
Elk Grove Green Street Project: Repurposing Urban Runoff with Green Infrastructure Technologies				
Hazard Education and Risk Awareness				
City of Elk Grove’s Storm Drainage Master Plan (SDMP)				
<b>City of Folsom</b>				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan, as well as other Local Planning Efforts				
Stormwater Basin Maintenance and Operation Project				
Alder Creek Watershed Council				
Drainage System Maintenance Tax Assessment				
Floodplain Mapping				
Redevelopment Area Drainage Improvements				
Stormwater Basin Maintenance and Operation Project				
Heating and Cooling Centers				
Public Education/Outreach Extreme Weather				
Weed Abatement Program				
Arson Prevention and Control Outreach				
Wildfire Hazard Identification				
Ignition Resistant Building Construction Upgrades				
Wildfire Prevention Outreach				
<b>City of Galt</b>				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan, as well as other Local Planning Efforts				
Increase Redundancy/Functionality of Water Wells and Sewer Lift Stations				

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
Drain Inlet Retrofit Capital Improvement Plan (CIP)				
Creek/Streams Vegetation Management Plan				
Increase Data Capacity of Emergency Frequencies				
<b>City of Isleton*</b>				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Storm Water Runoff Rehabilitation Project				
Wastewater Treatment Plant Pond Levee Elevation Raise to 200-year Flood Standard				
<b>City of Rancho Cordova</b>				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Sunrise Boulevard Widening Kiefer to Jackson				
City of Rancho Cordova Disaster Debris Management Plan				
Transportation Interconnectivity				
Intergovernmental Agreement between the County of Sacramento and the City of Rancho Cordova				
Land Use (Long range)				
Post disaster training for staff				
Update/Maintain Emergency Operation Plans (EOPs)				
Increase Everbridge Enrollment				
Developing and maintaining a database to track community vulnerability.				
City Website HMP and City Website, Press Notification, and Social Media Emergency Information				
Building & Safety Division Disaster Inspector Training				
Landscape and Irrigation Requirements/Retro				
Landscape Ordinance				
Impervious surface				
Porous pavement and vegetative buffers				
Storm Water Pump Station Infrastructure Upgrades				
SB-5 Urban Level of Flood Protection				
Channel Vegetation Management and Erosion Control				
Adoption of Hydromodification and Low Impact Development (LID) Standards				
Stormwater Capital Improvement Program Master Plan				
Sunrise Blvd. & Monier Circle Drainage Improvements				
Roundabouts				

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
<b>City of Sacramento</b>				
<b>Multi-Hazard Actions</b>				
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan				
Coordination with Relevant Organizations and Agencies to Consider the Impacts of Urbanization and Climate Change on Long-Term Natural Hazard Safety				
Maintain and Identify Changes in Critical Facilities GIS Layer to Support Emergency Management Efforts				
Community Outreach on Multi-Hazard Preparation & Pre-mitigation				
Evaluation and Mitigation of Critical Facilities in Identified Hazard Areas				
Retrofit of Repetitive Loss Properties				
Safeguard Essential Communication Services				
Multi-lingual Disaster Education				
Cal OES Safety Assessment Program Evaluators				
National Flood Insurance Program & Community Rating System Continuation				
Coordinate with Sacramento Area Flood Control Agency on Completion of South Sacramento Streams Group Projects				
Develop a Master Generation Plan for Pump Stations				
Develop a Disaster Housing Plan				
Disaster Resistant Business Program				
Develop Enhanced Emergency Planning for Special Needs Populations in the City of Sacramento Emergency Operations Plan and Other Planning Documents				
Establish a Post-Disaster Action Plan				
Flood Recovery Plan				
Public Information Flood Response Plan				
Construction of a new Emergency Operation Center (EOC)				
Emergency Operation Center (EOC) Expansion and Information Technology Upgrade				
Protection of Transportation Infrastructure				
Public Education Campaign for Everbridge System				
Regional Emergency and Disaster Preparedness Exercises to Test Operational & Emergency Plans				
Special Needs and Critical Facilities Database and Advanced Warning System				
Assets Inventory				
Protection of City Assets from Cyber Terrorism				



Action Title	Complete	Ongoing	Not Started	Project in Plan Update
Protection of City Information Technology Infrastructure				
Cell Booster				
Travel Time Model for Lower American and Sacramento Rivers and their Major Tributaries				
Watershed Spill Contamination to Drinking Water Quality: Preparedness for Events and Recovery				
Purchase Drones for Use in Disaster Preparedness, Mitigation, and Response				
<b>Climate Change Actions</b>				
Map and Assess Vulnerability to Sea Level Rise				
Emission Study of City Sump and Pump Stations				
Climate Change Mitigation Actions/Climate Change Adaptation Plan for Drinking Water Quality				
Harmful Algal Bloom (HAB) Surveillance and Response Planning				
<b>Drought and Water Shortage Actions</b>				
Aquifer Storage				
Perform a Groundwater Recharge Feasibility Study				
<b>Earthquake Actions</b>				
Map and Assess Community Vulnerability to Earthquakes				
Seismic Vulnerability Assessment on Sacramento Levees, Infrastructure & Buildings				
Retrofit Historical Buildings				
<b>Extreme Cold and Heat Actions</b>				
Heating Centers in High Priority Locations				
Cooling Centers in High Priority Locations				
Extreme Weather Outreach Strategy				
Severe Weather Action Plan				
<b>Flood, Localized Flood, and Levee Failure Actions</b>				
Coordinate with Stakeholder on Proposed Flood Control Project on Magpie Creek				
Adopt Additional Floodplain Development Standards				
Drainage Projects for Repetitive Loss Properties				
Emergency Notification and Evacuation Planning				
Historic Magpie Creek				
Natomas Internal Drainage Canals/Levees				
Drainage Projects from the City's Priority Drainage Project List				
Projects Identified in the Combined Sewer System Improvement Plan Update				
Easements for Open Land Along Levees				

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
Emergency Management Planning and Levee Security				
Flood Fighting Equipment				
Flood Management Land Use Planning and Development				
Florin Creek Pump at Pomegranate Avenue				
Internal Drainage System Improvements				
Levee and Structural Flood Management Improvements				
Master planning to identify facilities needed to prevent 10-year event street flooding and 100-year event structure flooding				
Retrofit Pumping Plants with Discharge Monitoring Devices				
Risk Communication and NFIP/CRS Projects				
Steamers and Rio City Café Floodwalls				
Trash Racks and Debris Cages				
Multi-Jurisdictional Modeling for Drainage Watersheds Greater Than 10 Square Miles				
Post-Flood Water Treatment Facility Recovery				
<b>Wind and Tornado Actions</b>				
Tree Trimming & Debris Removal				
Upgrading Overhead Utility Lines & Burying Critical Power Lines				
Install Redundancies and Loop Feeds for Power Lines & Infrastructure				
<b>Erosion Actions</b>				
Stabilization of Erosion Hazard Areas				
<b>Wildfire Actions</b>				
Implement a Fire Education and Information Program				
Fuels Reduction on the American River Parkway				
Outreach on the Effects of Smoke on Air Quality				
<b>Cosumnes Community Services District</b>				
Flood Response Equipment				
Flood Response Training				
<b>Los Rios Community College</b>				
District Wide Roofing Renovations				
ARC Drainage at Arcade Creek				
Protect District Property				
<b>Metro Fire District</b>				
Relocate the essential facilities in the 200-year flood plain				
Perform seismic study of all district facilities and identify those facilities at greatest risk for earthquake damage.				
Implement a Wildland Urban Interface (WUI) Building/Fire Code				

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
Develop and Implement a comprehensive WUI fuels management program.				
Deploy 2 remote automated weather stations (RAWS) in Metro Fire jurisdiction				
Defensible space ordinance				
<b>Brannan Andrus Levee Maintenance District</b>				
Implement Bioengineered Bank Stabilization techniques				
Development of Dredge Stockpile Site				
Georgiana Slough Waterside Erosion Repair				
Hydrographic surveys and data collection				
Mokelumne River Crown Raising				
San Joaquin River Waterside Erosion Repair				
Sevenmile Slough French Drain and Seepage Berm				
<b>Reclamation District #3*</b>				
Levee Improvements				
<b>Reclamation District #341*</b>				
San Joaquin River Setback Levee/Habitat Bench Multi-Benefit Project, Phase 1				
Complete Projects from Regional Flood Management Plan				
<b>Reclamation District #369</b>				
Pump Station Upgrades and Backup Generators				
Levee Maintenance Program Improvements				
<b>RD 551*</b>				
Levee Improvements				
<b>Reclamation District #554*</b>				
Apply for a Letter of Map Revision (LOMR) to bring the District back into Zone X. (outside of the 100-year flood zone)				
Fill Abandoned Slough				
Geotechnical Investigation				
Snodgrass Slough Levee Improvements				
<b>Reclamation District #556*</b>				
Flood Response Activities, Georgiana Slough Weir				
Georgiana Slough Vegetation Management				
Georgiana Slough Waterside Erosion Repair				
Topographic and Hydrographic Surveys and Data Collection				
<b>Reclamation District #563*</b>				
Rock Slope Protection Project				
HMP and PL-8499 Levee Improvement Projects				

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
<b>Reclamation District #800</b>				
Erosion Repair				
Emergency Supplies				
<b>Reclamation District #1000</b>				
River Berm and Levee Erosion				
Erosion Protection Canal Banks				
Implement Security Measures at Key Facilities				
2014 Capital Improvement Plan				
Implement Supervisory Control and Acquisition Data system (SCADA) on District canals and pump stations				
Public Outreach and Education				
Stockpile and pre-stage flood emergency response materials				
Emergency response improvements including radios for communications				
Emergency Back-up Generator for pump stations				
<b>Reclamation District #1002*</b>				
Geotechnical Investigation				
Snodgrass Slough Levee Improvements				
Snodgrass Slough Vegetation Management				
<b>Reclamation District #1601*</b>				
Levee Improvement Project				
<b>Reclamation District #2111*</b>				
Rock Slope Protection Project				
HMP and PL-8499 Levee Improvement Projects				
<b>Sacramento Regional County Sanitation District</b>				
South River Pump Station Flood Protection Project				
Reduction of Fire Hazard SRCSD Bufferlands				
<b>Sacramento Area Sewer District</b>				
MOU for Dedicated Cell Phone Tower and Cell Phone Pack				
<b>Southgate Recreation and Park District</b>				
Drought Mitigation Actions/Drought Contingency Plan				
Flood Mitigation Actions/Land Acquisition				
Conservation Easements				
Multi-jurisdictional Cooperation within Watersheds				
Storm Water Management Practices – Implement Storm Water Management Practices as identified in Stormwater Quality Design Manual				

Action Title	Complete	Ongoing	Not Started	Project in Plan Update
Severe Weather: Heavy Rains and Storms Mitigation Actions/Tree Management				
<b>Twin Rivers School District</b>				
New drainage plans to sites within the flood areas including, site drainage, storm drain upgrades and re-grading fields to shed water (on-site) away from buildings				
Work with City/County/Water departments to create defensible spaces at sites where nearby creeks are prone to flooding. Build-up earthen berms (off-site) to shed water away from critically located schools.				
Working with the Department of the State Architect (DSA) on Earthquake Retrofit Plan on all sites.				
Revise and update district-wide Storm Water Prevention Plan				
Create defensible perimeter space – for fire areas. Trees trimmed and vegetation removed to minimize impact during fire season.				

## 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 (Voting) Instructions

The mitigation actions and projects will be further collated by hazard and will be presented back to the HMPC for prioritization. **An email link to the voting site will be launched Friday April 2<sup>nd</sup>; voting will be open for a week and will close Friday April 9<sup>th</sup>.** The voting website location is <https://fostermorrison.aweeba.com/>.

*Each person will have 9 votes total to vote for their preferred mitigation actions/projects:*

- *3 high priority votes (5 points each)*
- *3 medium priority votes (3 points each)*
- *3 low priority votes (1 point each)*

*Your votes will indicate the consensus of the team.*

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

*After the votes are tabulated, we will send out an email detailing mitigation action prioritization results and next steps.*



## Sacramento County Mitigation Action Worksheet

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

<b>Worksheet completed by:</b>	
<b>Name and Title:</b>	
<b>Phone:</b>	

## Sacramento County 2021 LHMP Update

### Mitigation Strategy Meetings – Action Prioritization

#### 56 Voting Members

#### Actions sorted by Vote Totals

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Evacuation planning - countywide	Multi-Hazard	60
Drainage improvement projects to address localized flooding and runoff, permeable and impermeable surfaces	Flood	43
Implement the actions contained within the Sac County/Cities Climate Adaptation/Action Plans	Climate Change	43
Flood Master Planning – understanding flood impacts and recommendations to mitigate floods through master planning	Flood	39
Integrate Local Hazard Mitigation Plan into Safety Element of General Plan	Multi-Hazard	38
Establish an Operational Area level public education and outreach to provide consistent messaging, coordinating resource delivery, etc.	Multi-Hazard	37
ALL HAZARDS: Enhance public education and awareness of natural hazards and public understanding of disaster preparedness	Multi-Hazard	34
Stream and creek channel and drainageway invasives/overgrowth clearing and maintenance projects	Flood	30
Critical facilities and infrastructure – flood protection projects	Flood	29
Backup power supply for critical facilities and infrastructure/Generator projects	Multi-Hazard	28
Levee improvement projects	Levee Failure	27
Develop/update/implement stormwater master plans	Flood	26
Elevation projects to reduce flood risk	Flood	25
Fuel reduction projects	Wildfire	23
Develop and conduct countywide (operational area) exercises for priority hazards	Multi-Hazard	19
USACE efforts for erosion, seepage, and stability improvements to the American River and Sacramento River levees (2020-2025)	Levee Failure	19
Increase tree plantings around buildings to shade parking lots and along public rights-of-way	Severe Weather: Heat	18
Defensible space and vegetation management projects	Wildfire	16
Flood fighting for Delta legacy communities: Hood, Courtland, Locke, Walnut Grove	Flood	16
Increase use of permeable surfaces and rainwater catchment/retention systems in developed areas to enhance groundwater recharge	Drought & Water Shortage	16
Develop/implement water shortage contingency plan	Drought & Water Shortage	16
Expand broadband/wifi access	Multi-Hazard	15

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Telecommute implementation to reduce emissions/isolate	Climate Change/Pandemic	15
Development of a Climate Adaptation/ Action Plan	Climate Change	15
Carbon Farming Plans, incentives, pilot programs	Climate Change	15
Add more purple air monitors around county for additional localized information on air quality/smoke	Wildfire	15
Completion of Folsom Dam improvements	Dam Failure	14
Mitigation of repetitive loss flood areas and properties	Flood	14
Flood insurance studies (modeling and mapping the special flood hazard area)	Flood	14
Operational protocol updates for American River pump stations that are affected by the reoperation of Folsom Dam to include analysis, modeling and mapping	Flood	13
Develop Urban Forestry Fire Management Plan	Wildfire	13
Fleet electrification charging infrastructure and back up power for fleet resiliency to avoid disruption for providing essential services dependent on e mobility	Climate Change	13
Bridge and road improvement projects	Flood	12
Critical Facilities and other structure hardening projects	Wildfire	12
Maintain and improve Sacramento River levee from south of Freeport to south of Hood, a reach owned and operated by CA DWR Maintenance Area 9	Levee Failure	11
Implement Delta Small Communities (flood risk reduction plan for the communities of Hood, Courtland, Locke, Walnut Grove East, and Walnut Grove West/Ryde)	Flood	11
Water conservation and green infrastructure implementation	Drought & Water Shortage	11
Maintain and improve railroad embankment levee from south of Freeport to south of Hood, a reach owned by CA Parks Department (Railroad Museum)	Levee Failure	11
Delta area jurisdictions – drainage improvement projects to address sea level rise	Climate Change	10
EOP, mass care and shelter plan, logistics support Annex	Multi-Hazard	10
Using cool roofing products that reflect sunlight and heat away from buildings	Severe Weather: Heat	9
Backup power sources	Severe Weather/ Multi-hazard	9
Beach Stone Lakes area flood risk reduction program (reduce flood frequency, increase flood protection, flood insurance)	Flood	9
Building electrification subsidies, battery storage, and other peak demand projects	Climate Change	9
Utilize parks to serve as water collection/permeable surfaces	Flood	9
Aquifer storage and recovery (ASR) projects	Drought & Water Shortage	9
Improve water systems for suppression and resiliency against wildfires	Wildfire	8

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Cooling centers/Ensure that County facilities used as cooling centers are equipped with backup power supplies, including on-site renewable energy generation and energy storage systems as feasible	Severe Weather: Heat	8
Undergrounding of utilities	Severe Weather/ Multi-hazard	8
Park debris clean up	Pandemic	8
Co generation of electric vehicles in order to maintain service in a dark sky event or in the event of grid disruptions	Climate Change	8
Support water forum and water forum 2.0 successor effort	Drought & Water Shortage	8
Enhance/enforce weed abatement ordinance/hazardous vegetation ordinance	Wildfire	8
Storm Ready Outreach (Weather radio, understanding the hazard and risk, high water notices describing the flood depth, brochures, outreach)	Flood	8
Code enhancement/enforcement	Wildfire	7
Update Pandemic Plan(s)	Pandemic	7
Identification and outreach to critical facilities located in the dam inundation areas	Dam Failure	7
Open Space fire prevention & vegetation management prescribed grazing/ goats	Wildfire	7
Erosion repair projects	Levee Failure	6
Microgrid projects	Multi-Hazard	6
Evaluate the need and feasibility of improving fire prevention for the historic business districts	Wildfire	6
Delta RDs – create habitat/wetland areas to assist with flood mitigation	Levee Failure	6
Conduct a Climate Resiliency Study	Climate Change	5
Consider mobile power station rather than generators for essential fleet and facilities	Severe Weather/ Multi-hazard	5
McCormack Williamson flood control weir	Levee Failure	5
Enhanced multi model transportation options	Climate Change	5
HVAC system upgrades	Pandemic/Wildfire (Smoke)	4
Establish warming centers with backup power	Severe Weather: Extreme Cold and Freeze	4
Conduct seismic evaluation and retrofits of public buildings and critical facilities and infrastructure	Earthquake	4
Add more cameras to public property/infrastructure to the Alert Wildfire project to allow better real-time monitoring	Wildfire	4
Additional funding for Everbridge enhancements	Multi-Hazard	4
Update Hydrology Standards (Analyze historic rainfall records, update the statistical analysis/ DDF, consider climate change)	Flood	3
Traffic light replacement to roundabouts – they work during power outages	Severe Weather/ Multi-hazard	3

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Mesh Networks/redundancy	Pandemic	3
Update County GIS aerial photography and LiDAR topography	Flood	3
Community Mobility Resilience Plan, to include projected climate impacts and resilience strategies (air quality benefits)	Climate Change	3
Water bank projects	Drought & Water Shortage	3
Establish system requirements/capabilities to work from home- conferencing capabilities, VPN, etc.	Climate Change/Pandemic	2
Bottle filler stations for public buildings/areas	Pandemic	2
Air filtration system enhancements/ filter replacements	Pandemic/Wildfire (Smoke)	1
Water system intertie projects	Drought & Water Shortage	1
Delta RDs – address internal drainage issues	Levee Failure	1
Floodproofing of nonresidential structures	Flood	1
Acquisition projects of flood prone structures	Flood	1
Dam Safety (Activity 630) - Develop an emergency management and public outreach effort using the Community Rating System Activity 630 as our guide	Dam Failure	1
Additional disinfection/ thermometer stations	Climate Change/Pandemic	0
Severe Weather Annex update and revision	Severe Weather/ Multi-hazard	0
Signal changing technology enhancements	Severe Weather/ Multi-hazard	0
Develop climate change annex to EOP	Climate Change	0
Increase broadband systems and access	Pandemic	0
Hillside Slope Stabilization	Flood/Landslide	0
Flood risk mitigation for mobile home and recreational vehicle parks/ Flood risk reduction, flood warning systems, evacuation procedures	Levee Failure	0
Model Water Efficient Landscape Ordinance (MWELo) implementation	Drought & Water Shortage	0
Add pumping plants	Levee Failure	0
Laguna Creek basin flood control, modeling, and mapping	Flood	0
Water source redundancy and reliability projects	Drought & Water Shortage	0
Arcade Creek flood control implementation (Gum Ranch basin, floodwalls and levees, pump station(s), public information)	Flood	0
Alder Creek flood hazard mitigation	Flood	0
Plan for Public Information (PPI)/CRS program implementation	Flood	0

Mitigation Action Title	Hazards Addressed	Points/ Worksheet Status
Flood Risk Mapping enhancements to include the frequency, depth, and velocity of the water	Flood	0