

4.4 Capability Assessment

Thus far, the planning process has identified the natural hazards posing a threat to the Planning Area and participating jurisdictions described, in general, the vulnerability of the County to these risks. The next step is to assess what loss prevention mechanisms are already in place. This part of the planning process is the mitigation capability assessment. Combining the risk assessment with the mitigation capability assessment results in the County's net vulnerability to disasters, and more accurately focuses the goals, objectives, and proposed actions of this plan.

The HMPC used a two-step approach to conduct this assessment for the County. First, an inventory of common mitigation activities was reviewed. The purpose of this effort was to identify policies and programs that were either in place, needed improvement, or could be undertaken if deemed appropriate. Second, the HMPC conducted an inventory and review of existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses or if they inadvertently contributed to increasing such losses.

This section presents the County's mitigation capabilities and discusses select state and federal mitigation capabilities that are applicable to the County.

Similar to the HMPC's effort to describe hazards, risks, and vulnerability of the County, this mitigation capability assessment describes the County's existing capabilities, programs, and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This assessment is divided into four sections: regulatory mitigation capabilities are discussed in Section 4.4.1; administrative and technical mitigation capabilities are discussed in Section 4.4.2; fiscal mitigation capabilities are discussed in Section 4.4.3; and mitigation education, outreach, and partnerships are discussed in Section 4.4.4. A discussion of other mitigation efforts follows in Section 4.4.5.

4.4.1. Sacramento County's Regulatory Mitigation Capabilities

Table 4-104 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities, and indicates those that are in place in the County. Excerpts from applicable policies, regulations, and plans and program descriptions follow to provide more detail on existing mitigation capabilities.

Table 4-104 Sacramento County Regulatory Mitigation Capabilities

| Plans | Y/N Year | Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions? |
|--|-------------|---|
| Comprehensive/Master Plan | Y 2011 | |
| Capital Improvements Plan | Y | The County has a Five-Year Capital Improvement Plan (CIP) that is prepared by the County Executive Office. The projects contained within the CIP are dependent upon the individual departments. Water Resources has a storm drain system capital improvement plan |
| Economic Development Plan | Y | The Planning and Environmental Review Division maintains the General Plan which has an Economic Development Element, but many of the items identified within the Element are the responsibility of the Office of Economic Development & Marketing. The Element does not address hazards. |
| Local Emergency Operations Plan | Y 2012 | County Emergency Operations |
| Continuity of Operations Plan | | |
| Transportation Plan | Y | The Planning and Environmental Review Division maintains the General Plan which has Circulation Element (including a Transportation Plan), but many of the items identified within the Element are the responsibility of SACDOT. The Element does not address hazards, but does include a policy to reduce the heat island effect. |
| Stormwater Management Plan/Program | Y | Hydrology Standards 1996 Stormwater Guidance Manual |
| Engineering Studies for Streams | Y | |
| Community Wildfire Protection Plan | Y 2014 | Sacramento Metropolitan Fire District Community Wildfire Protection Plan |
| Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation) | Y 2011 | The Climate Action Plan Strategy and Framework Document was adopted with the General Plan update in 2011. Chapter 2 discusses the County’s vulnerability to climate change and identified potential impacts to human, natural and built systems. It also proposed actions to address climate change. Preparation of a Communitywide Climate Action Plan has begun and is expected to be completed in Fall 2017. |
| Building Code, Permitting, and Inspections | | |
| Building Code | Y | Version/Year: 2013 CBC |
| Building Code Effectiveness Grading Schedule (BCEGS) Score | Y | Score: 3/3 |

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| Fire department ISO rating: | Y | Rating: 2/9 Class 2 applies to all risks that are both: I) within 5 road miles of a recognized fire station AND II) within 1000 feet of a recognized fire hydrant. Class 9 would apply to those risks that are: I) within 5 road miles of a recognized fire station, but without a fire hydrant within 1000 feet. |
| Site plan review requirements | Y | The County operates a public counter for review of all development applications. DWR drainage division staff evaluates new development proposals for compliance with County standards, drainage ordinances, and floodplain development policies and provide flood zone information. |
| Is the ordinance an effective measure for reducing hazard impacts? | | |
| Property Use Planning and Ordinances | Y/N | Is the ordinance adequately administered and enforced? |
| Zoning ordinance | Y | Generally, the zoning ordinance separates hazardous land uses from sensitive land uses and addresses risks e.g. flood, erosion and traffic. The zoning ordinance contains a Flood (F) Combining Zoning District and Tributary Standards, and Natural Streams (NS) Combining Zoning District to reduce the impacts of flood hazards. Additionally, the ordinance contains a Parkway Corridor (PC) Combining Zoning District to ensure that bluff development does not create erosion or geologic instability. |
| Subdivision ordinance | Y | County Code Title 22 Land Development is the County's subdivision ordinance. The ordinance does not address hazards. |
| Floodplain ordinance | Y | Minor revisions in 2010 and 2014, major in 2007 reviewed by FEMA Region 9. Additional revisions are forthcoming to comply with Senate Bill (SB) 5 regarding floodplain management. |
| Natural hazard specific ordinance (stormwater, steep slope, wildfire) | Y | Improvement Standards |
| Flood insurance rate maps | Y | County maintains a library of past and current FIRMS. |
| Elevation Certificates | Y | Comprehensive record of elevation certificates |
| Acquisition of land for open space and public recreation uses | Y | Land acquisition is on-going for purposes of flood control, species conservation, open space preservation and recreation. |
| Erosion or sediment control program | Y | County Improvement Standards, 2010 |
| Other | Y | Evacuation Plan, |
| | Y | The South Sacramento Habitat Conservation Plan is a regional approach to addressing issues related to urban development, habitat conservation and agricultural protection. The Plan is still in process and is estimated to be approved in Summer 2017. |
| How can these capabilities be expanded and improved to reduce risk? | | |
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As indicated in the tables above, Sacramento County has several plans and programs that guide the County's mitigation of development of hazard-prone areas. Starting with the Sacramento County General Plan,

which is the most comprehensive of the County’s plans when it comes to mitigation, some of these are described in more detail below.

Sacramento County Plans/Studies

Sacramento County General Plan

The Sacramento County General Plan is a comprehensive, long-term framework for the protection of the County’s agricultural, natural, and cultural resources and for development in the County. Designed to meet state general plan requirements, it outlines policies, standards, and programs and sets out plan proposals to guide day-to-day decisions concerning Sacramento County’s future. It is a legal document that serves as the County’s blueprint for land use and development. It is broken into the following sections:

- Agriculture Element
- Air Quality Element
- Circulation Element
- Conservation Element
- Economic Development
- Energy Element
- Hazardous Materials Element
- Human Services Element
- Land Use Element
- Noise Element
- Open Space Element
- Public Facilities Element
- Safety Element

Goals and policies related to mitigation of natural hazards can be found in the discussion below.

Agriculture Element

The Sacramento County (County) General Plan provides for growth and development in the unincorporated area through the year 2030. Portions of the Plan contain policies for urban development including urban communities and the infrastructure necessary to serve them. Other sections of the Plan describe strategies to recognize and preserve areas of open space and natural resources. As a whole, the Plan reflects a balance between the amount and location of land uses in urban areas and those to remain in a rural or natural setting.

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| GOAL: | Protect important farmlands from conversion and encroachment and conserve agricultural resources. |
| Objective: | Reduce or eliminate groundwater cones of depression in farming areas by encouraging water conservation. |
| Objective: | Reduced soil erosion. |
| Objective: | No increase in the level or intensity of flooding of intensively farmed land. |
| Objective: | Reduced crop and livestock productivity losses resulting from noxious weed infestations and wildfires. |
| Objective: | Reduced cost and difficulty of obtaining permits for construction of accessory farm buildings in floodway fringe areas. |

Conservation Element

The County recognizes the need for effective conservation practices which allow for the maintenance and preservation of its natural environment and efficient use of its resources. The State mandates that the County's General Plan include a Conservation Element which will enable the County to analyze its resources and determine policies for their use and conservation. State law requires that the element address the management and protection of specific resources:

- The Water Resources section addresses the County's objectives with respect to the use of ground, surface, and recycled water for residential, commercial, industrial, agricultural, and recreational purposes. The section assesses how and from where the County intends to secure its future water supply and provides guidelines for the County's policies on water quality, ground and surface water use, and water conservation.
- The Mineral Resources section delineates the County's policies on the protection of mineral resources for economic extraction while providing guidelines on how, when, and where mineral resources can be extracted to avert adverse impacts on the environment.
- The Materials Recycling section specifies the County's plan of reducing the amount of solid waste that is produced. It includes policies and programs which will encourage participation in the recycling of materials and supports a sustainable market for recycled materials.
- The Soil Resources section discusses the management and protection of county soils for purposes of maintaining its resource value and agricultural potential. The section deliberates on the County's future plans in dealing with the loss of agriculturally productive soils and discusses policies and programs which will encourage the utilization of effective soil conservation practices.
- The Vegetation and Wildlife section consist of four main subsections, each of which discusses the preservation and management of biotic resources. The Habitat Protection and Management subsection includes many overarching policies that address habitat mitigation; habitat preserves and management; and habitat protection and project review. The Special Status Species and their Respective Habitats subsection includes policies and measures to protect and manage habitats for the protection of special status species. Aquatic Resources, the third subsection, covers the protection of vernal pools, rivers and streams and fisheries. Lastly, the Terrestrial Resources subsection addresses the protection and preservation of native vegetation, landmark and heritage trees and the urban forest while also promoting new trees in the urban landscape.
- The Cultural Resources section discusses County objectives with respect to the protection and preservation of important cultural resources and plans for increasing public awareness and appreciation of them.

Soil Resources

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| GOAL: | Preserve and protect long-term health and resource value of agricultural soils. |
| Objective: | Agriculturally productive Delta soils protected from the effects of oxidation, shrinkage, and erosion. |
| Objective: | Mining of top soil to have minimal effect on soil productivity. |

Water Resources

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| GOAL: | Preserve and manage natural habitats and their ecological functions throughout Sacramento County. |
| Objective: | Mitigate and restore for natural habitat and special status species loss. |
| Objective: | Establish and manage a preserve system with large core and landscape level preserves connected by wildlife corridors throughout Sacramento County to protect ecological functions and species populations. |
| Objective: | Review development plans and projects to ensure a balance between essential growth needs and the protection and preservation of natural habitats and special status species. |

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| GOAL: | Preserve, enhance and restore special status species habitat in Sacramento County to aid in the recovery of these species. |
| Objective: | Protect and maintain habitat for special status species. |
| Objective: | Manage and maintain special status species and their respective habitat in a manner that resolves conflicts with adjacent privately owned-land and agricultural operations. |

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| GOAL: | Preserve, protect, and manage the health and integrity of aquatic resources in Sacramento County. |
| Objective: | Preserve and enhance self-sustaining vernal pool habitats. |
| Objective: | Establish vernal pool preserves that enhance and protect the ecological integrity of vernal pool resources. |

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| GOAL: | Preserve, protect, and enhance natural open space functions of riparian, stream and river corridors. |
| Objective: | Manage riparian corridors to protect natural, recreational, economic, agricultural and cultural resources as well as water quality, supply and conveyance. |
| Objective: | Maintain the natural character of the 100-year floodplain by limiting fill and excavation. |
| Objective: | Maintain levee protection, riparian vegetation, function and topographic diversity by stream channel and bank stabilization projects. |
| Objective: | Stabilize riverbanks to protect levees, water conveyance and riparian functions. |
| Objective: | Conserve and protect the Sacramento, Cosumnes, Mokelumne and American Rivers to preserve natural habitat and recreational opportunities. |
| Objective: | Protect and restore natural stream functions. |
| Objective: | Land uses within and development adjacent to stream corridors are to be consistent with natural values. |
| Objective: | Properly manage and fund the maintenance of rivers and streams to protect and enhance natural functions. |
| Objective: | Restore concrete sections of rivers and streams to increase natural functions. |

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| GOAL: | Preserve and protect fisheries in County waterways and water bodies. |
| Objective: | Provide and protect high quality in-stream habitat, water quality and water flows to support fisheries propagation, development, and migration. |

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| GOAL: | Sacramento County vegetative habitats preserved, protected, and enhanced. |
| Objective: | Tree and native vegetation management practices to promote regeneration in designated resource conservation areas. |
| Objective: | Heritage and landmark tree resources preserved and protected for their historic, economic, and environmental functions. |
| Objective: | A coordinated, funded Urban Tree Management Plan and program sufficient to achieve a doubling of the County's tree canopy by 2050 and promote trees as economic and environmental resources for the use, education, and enjoyment of current and future generations. |
| Objective: | One million new trees planted within the urban area between now and 2030. |

Cultural Resources

The foundation of a cultural community rests upon the attributes and artifacts of its predecessors. Preserving and understanding these cultural resources needs to be an element of consideration when planning for future growth.

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| GOAL: | Promote the inventory, protection and interpretation of the cultural heritage of Sacramento County, including historical and archaeological settings, sites, buildings, features, artifacts and/or areas of ethnic historical, religious or socioeconomical importance. |
| Objective: | Comprehensive knowledge of archeological and historic site locations. |
| Objective: | Attention and care during project review and construction to ensure that cultural resource sites, either previously known or discovered on the project site, are properly protected with sensitivity to cultural and ethnic values of all affected. |
| Objective: | Preserve structures such as buildings, bridges, or other permanent structures with architectural or historical importance to maintain contributing design elements. |
| Objective: | Protect any known cultural resources from vandalism, unauthorized excavation, or accidental destruction. |
| Objective: | Properly stored and classified artifacts for ongoing study. |
| Objective: | Increase public education, awareness and appreciation of both visible and intangible cultural resources. |

Delta Protection Element

Recognizing the threats to the Primary Zone of the Delta from potential urban and suburban encroachment and the need to protect the area for agriculture, wildlife habitat, and recreation uses, the California Legislature passed and the Governor signed into law on September 23, 1992, the Delta Protection Act of 1992 (SB 1866). The Act directs the Delta Protection Commission to prepare a comprehensive resource management plan for land uses within the Primary Zone of the Delta (Plan).

The planning conducted by the Delta Protection Commission involved preparation and public review of nine background reports: Environment; Utilities and Infrastructure; Land Use and Development; Water; Levees; Agriculture; Recreation and Access; Marine Patrol, Boater Education, and Safety Programs; and Implementation. These reports provided the information base for the Plan findings and policies, as well as

allowing opportunities for public review and comment through circulation and public hearings before the Commission.

Environment

- Goal: Preserve and protect the natural resources of the Delta, including soils. Promote protection of remnants of riparian habitat. Promote seasonal flooding and agriculture practices on agricultural lands to maximize wildlife use of the hundreds of thousands of acres of lands in the Delta. Promote levee maintenance and rehabilitation to preserve the land areas and channel configurations in the Delta.

Utilities and Infrastructure

- Goal: Protect the Delta from excessive construction of utilities and infrastructure facilities, including those that support uses and development outside the Delta. Where construction of new utility and infrastructure facilities is appropriate, ensure the impacts of such new construction on the integrity of levees, wildlife, and agriculture are minimized.

Land Use

- Goal: Protect the unique character and qualities of the Primary Zone by preserving the cultural heritage and strong agricultural base of the Primary Zone. Direct new residential, commercial, and industrial development within the existing communities as currently designated and where appropriate services are available.

Agriculture

- Goal: To support long-term viability of commercial agriculture and to discourage inappropriate development of agricultural lands.

Water

- Goal: Protect long-term water quality in the Delta for agriculture, municipal, industrial, water-contact recreation, and fish and wildlife habitat uses, as well as all other designated beneficial uses.

Recreation and Access

- Goal: To promote continued recreational use of the land and waters of the Delta; to ensure that needed facilities that allow such uses are constructed, maintained, and supervised; to protect landowners from unauthorized recreational uses on private lands; and to maximize dwindling public funds for recreation by promoting public-private partnerships and multiple use of Delta lands.

Levees

- Goal: Support the improvement and long-term maintenance of Delta levees by coordinating permit reviews and guidelines for levee maintenance. Develop a long-term funding program for levee maintenance. Protect levees in emergency situations. Give levee rehabilitation and maintenance the priority over other uses of levee areas.

Land Use Element

The Land Use Element is the central focus of the General Plan. This Element sets policy for land uses in the unincorporated county for the next 25 years, establishing the foundation for future land use and development. The Land Use Element designates the distribution of land uses, such as residential, commercial, industrial, agricultural, open space, recreation and public uses. It also addresses the permitted density and intensity of the various land use designations as reflected on the County’s General Plan Land Use Diagram. The overall goal of the land use element is:

- An orderly pattern of land use that concentrates urban development, enhances community character and identity through the creation and maintenance of neighborhoods, is functionally linked with transit, promotes public health and protects the County’s natural, environmental and agricultural resources.

The County’s land use strategy is illustrated in four sections. Each section contains objectives and policies that are intended to guide the County toward a more compact urban character by concentrating growth within existing urbanized areas and strategically-located new growth areas, thereby utilizing land resources as efficiently as possible.

Section 1: Logical Progression of Urban Development

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| GOAL: | Direct new growth to previously urbanized areas, planned growth areas and strategically located new growth areas to promote efficient use of land, to reduce urban sprawl and its impacts, to preserve valuable environmental resources, and to protect agricultural and rangeland operations. |
| Objective: | Reserve the land supply to amounts that can be systematically provided with urban services and confines the ultimate urban area within limits established by natural resources. |
| Objective: | Coordinated near- and long-term planning efforts for the development of the greater Jackson Highway area that creates cohesive and complete communities while protecting environmental resources. |

Section 2: Growth Accommodation

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| GOAL: | Accommodate projected population and employment growth in areas where the appropriate level of public infrastructure and services are or will be available during the planning period. |
| Objective: | On average, achieve buildout of vacant and underutilized infill parcels at existing zoned densities, while recognizing that individual projects may be approved or denied at higher or lower densities based on their community and site suitability. |
| Objective: | Buildout of planned communities consistent with their approved plans. |
| Objective: | New retail and employment opportunities in targeted corridors to support community economic health and vitality, and additional residential dwelling units to support these stores and jobs. |
| Objective: | New communities that feature a mix of housing, jobs and retail development configured in a compact and transit supportive manner, that incorporate mixed use development (both vertical and horizontal), and that protect environmental resources and preserve open space. |
| Objective: | Historical rate of Agricultural-Residential development accommodated through build-out and limited expansion of existing Agricultural-Residential communities. |

Section 3: Growth Management and Design

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| GOAL: | Land use patterns that maximize the benefits of new and existing development while maintaining the quality, character, and identity of neighborhood and community areas. |
| Objective: | Urban design that is functional, aesthetically pleasing, and distinctive. |
| Objective: | New development that maintains and/or enhances community identity while remaining compatible with existing neighborhoods. |
| Objective: | Neighborhoods with a mix of employment opportunities, commercial amenities, neighborhood services, and a variety of housing types and sizes. |
| Objective: | Compact, mixed use developments concentrated in nodes around transit stops, in community centers, and along commercial and transportation corridors. |
| Objective: | New development in existing communities, in new growth areas and improvements to existing buildings and housing stock that are designed and constructed to be energy efficient and incorporate renewable energy technologies where cost-effective and feasible. |
| Objective: | Reduced levels of light pollution in both new and existing communities. |
| Objective: | A community wide pattern of development with the most intensive land uses in close proximity to transit stops. |
| Objective: | High intensity, mixed use neighborhoods that provide a pedestrian environment and are closely linked to transit. |
| Objective: | Communities, neighborhoods, and single projects that promote pedestrian circulation and safety through amenities, good design, and a mix of different land uses in close proximity. |
| Objective: | A sufficient, yet efficient supply of parking. |
| Objective: | Improved housing affordability for residents earning below median incomes, and a continued supply of affordable housing units. |
| Objective: | Viable commercial services and a diversity of employment opportunities located in proximity to residents. |
| Objective: | Efficient build-out of existing Agricultural-Residential areas within the USB to meet rural residential demand without contaminating or overdrafting groundwater aquifers. |
| Objective: | Coordinate private development with the provision of adequate public facilities and services. |
| Objective: | Limited urban growth in rural towns consistent with infrastructure capacity, natural constraints, and the economic base. |
| Objective: | Limited agricultural-residential land use expansion outside the USB that does not compromise objectives for protecting prime agricultural lands and open space, and avoids groundwater overdraft and contamination. |
| Objective: | Important farmlands protected to ensure the continuation of agricultural production and to preserve open space. |

Section 4: Built Environment Preservation and Enhancement

Sacramento County is unique in being a county that has a large percentage of urbanized and built out land under its jurisdiction, along with vast areas of open space, agriculture and rural development. Urban areas, ranging from new peripheral development to older existing communities, serve as the County’s economic and employment backbone and are home to the majority of residents living in the unincorporated areas.

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| GOAL: | Reinvestment in and revitalization of existing communities through comprehensive and coordinated planning strategies and public participation that addresses housing, economic development, commercial development, employment opportunities, public facilities and infrastructure improvements. |
| Objective: | Revitalized commercial corridors that will enhance community image and stimulate private reinvestment, that support provision of enhanced public transit, and that will encourage new economic and commercial development and improvements to housing and infrastructure. |
| Objective: | Targeted planning efforts that focus on distinct districts within existing communities. |
| Objective: | Maximize compact, mixed use development opportunities along transportation corridors. |
| Objective: | Preserve and enhance the quality and character of the County's unique communities. |
| Objective: | Decentralized municipal services that will improve services, enhance and localize service delivery, and increase public involvement and authority in the planning process. |
| Objective: | Create and maintain a diversity of housing within existing communities, varying in terms of type, cost, design, size and tenure. |
| Objective: | Promote development in established communities that integrates well into the community and minimizes impacts to surrounding neighborhoods. |
| Objective: | Create and enhance dynamic, identifiable places unique to each community. |
| Objective: | Enhance the quality of life and economic vitality of each community area through strategic redevelopment, infill development and revitalization. |
| Objective: | Habitat enhancement, open space protection, and cohesive urban design accomplished by local, state, and federal agency coordination. |
| Objective: | Zoning consistent with the adopted General Plan Land Use Diagram. |
| Objective: | Accommodate land use proposals which are in the interest of the public health, safety, and welfare of the residents of Sacramento County. |

Open Space Element

The Open Space Element is in many ways a plan for implementing other Elements of the General Plan. For example, maintaining intact habitat, productive soils, and mineral resource availability as open space is essential to resource conservation. Keeping floodplains undeveloped is likewise an important way to implement flood protection goals in the Safety Element. And, preserving open space areas within the fabric of urban development can address Land Use Element policies relating to neighborhood identity and land use conflicts. Indeed, the key role that open space plays in synthesizing land use objectives lends it the distinction as the only Element where an action plan is specifically required by state law.

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| GOAL: | Open space lands in Sacramento permanently protected through coordinated use of regulation, education, acquisition, density transfer and incentive programs. |
| Objective: | Effective open space preservation strategy that supports the Open Space Vision Diagram. |
| Objective: | Establishment of trails and greenbelts to provide for recreational opportunities and community separators. |
| Objective: | Appropriate urban and rural development clustered to provide open space resource protection. |

Public Facilities Element

The Water Facilities Section addresses how future water supply facilities might be financed and provided for in an equitable fashion, while minimizing impacts on ground and surface water resources, as well as riverine and wetland environments. These facilities are a vital part of ensuring that enough public water is available to serve both existing residents as well as anticipated growth through 2030. This section describes policies and programs under two objectives:

- Environmentally sensitive and cost efficient placement of water treatment and distribution facilities.
- Timely and equitable financing of new water facilities

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| GOAL: | Efficient and effective fire protection and emergency response serving existing and new development. |
| Objective: | Fire and emergency safety measures integrated into all neighborhood and building design. |
| Objective: | Equitable and adequate funding for new fire protection facilities, equipment and personnel to serve growth. |
| Objective: | Encourage the service utility to develop cogeneration facilities in compliance with land use plans, ordinances, regulations, standards, and zoning restrictions without degrading natural and cultural resources. |
| Objective: | Plan and design electrical transmission facilities to minimize visual impacts, preserve existing land uses, and avoid biological and cultural resources. |
| Objective: | Develop new land uses adjacent to transmission facilities without compromising the safety and health of residents. |

Safety Element

The purpose of the Safety Element is to identify and assess the potential for hazards to occur in Sacramento County and to formulate measures that provide adequate public protection. Sacramento County's physical setting and the projected rate of urban expansion create a potential for the residents of the County to be greatly affected by several hazards. Hazards can result from the action of nature, as in the case of earthquakes and floods; they can be man-made, as in the case of fires caused by arson or through carelessness. They can also originate from a combination of both natural and man-made causes, such as dam failure that results from an earthquake. This element examines both natural and man-made hazards, including seismic events, flooding, and fires. Minimizing and preventing these hazards are the focus of this Element.

Seismic and Geologic Hazards

- Goal: Minimize the loss of life, injury, and property damage due to seismic and geological hazards.

Flooding

- Goal: Minimize the loss of life, injury, and property damage due to flood hazards.

Fire Hazards

- Goal: Minimize the loss of life, injury, and property damage due to fire hazards.

Emergency Response

- Goal: An Emergency Preparedness System that can effectively respond in the event of a natural or manmade disaster.

Repetitive Loss Area Analysis Report (July 2015)

The purpose of this Report is to assist home owners in reducing their flood risk by providing a broader understanding of the potential and existing flooding problems and identifying potential solutions. This is one component of Sacramento County's overall floodplain management program. Due to the number of properties in Sacramento County that meet the National Flood Insurance Program's (NFIP's) definition of Repetitive Loss properties, a Repetitive Loss Area Analysis (RLAA) is required for Sacramento County as a part of its participation in the Community Rating System (CRS) program. This Report contains all twenty-eight (28) designated Repetitive Loss Areas (RLAs) within Sacramento County.

The County followed a process prescribed by the CRS program. An area analyses must have been prepared and adopted for each repetitive loss area in the community. The analyses must meet the following criteria:

- The repetitive loss areas must be mapped.
- A five-step process must be followed. Although all five steps must be completed, steps 2–4 do not have to be done in the order listed. For example, staff may want to contact agencies and organizations to see if they have useful data (Step 2) after the site visit is conducted (Step 3).
- The repetitive loss area analysis report(s) must be submitted to the community's governing body and made available to the media and the public. If private or sensitive information is included in the report, then a summary report may be prepared for the media and the public. The complete repetitive loss area analysis report(s) must be adopted by the community's governing body or by an office that has been delegated approval authority by the community's governing body.
- An annual evaluation report must be done.
- The analysis must be updated in time for each CRS cycle verification visit.

Properties in the RLAs were notified of the analysis and data was collected from various sources to identify the hazard and capabilities to mitigate them.

Sacramento Metropolitan Fire Protection District Community Wildfire Protection Plan (June 2014)

In 2008, a wildfire that injured Sacramento Metropolitan Fire District firefighters in a burnover, a fire in which personnel were overrun by a wildland fire, highlighted the need for Metro Fire to implement additional strategies to prevent and combat wildfire within Metro Fire's jurisdictional boundaries (District). In response to this fire, Metro Fire applied for and successfully obtained a grant from the Assistance to Firefighters Grants Program of the Federal Emergency Management Agency (FEMA) to develop this

community wildfire protection plans (CWPP) and to launch an integrated wildfire prevention program that would reduce wildfire risk and increase community resiliency within district boundaries.

Program for Public Involvement (September 2015)

Communities that participate in the Community Rating System (CRS) of the National Flood Insurance Program (NFIP) receive credit points for developing and implementing a Program for Public Information (PPI.) The PPI is a new approach to identify, prepare, implement, and monitor a range of public information activities tailored to meet community's unique needs for flood preparedness and response. The Sacramento County PPI committee reviewed the history of the Sacramento region's flood risk and defined target areas (specific risk and demographic, that would benefit from outreach projects.

- Target Areas (Specific Risk)
 - ✓ Residents living in Special Flood Hazard Areas (SFHA)s
 - ✓ Residents living in areas that have a non-mapped flood risk
 - ✓ Repetitive Loss Areas
 - ✓ Areas Protected by Levees
 - ✓ Areas Protected by Dams
- Target Audience (Demographics)
 - ✓ All County residents (will benefit from general flood message outreach)
 - ✓ Residents affected by NFIP map/policy change
 - ✓ School aged children
 - ✓ Relators, agents, lenders
 - ✓ Individuals that primarily use social media

There are six mandatory flood awareness and preparedness topics that must be included in the PPI. A community can include up to four additional topics based on the community's public information needs as identified by the PPI Committee. The Committee also determines the goal or desired outcome for each outreach topic. The Sacramento County PPI includes a total of ten outreach topics:

- Mandatory Topics
 - ✓ Know your flood hazard
 - ✓ Insure your property for your hazard
 - ✓ Protect people from the hazard
 - ✓ Protect your property from the flood hazard
 - ✓ Build responsibly
 - ✓ Protect natural floodplain functions
- Community Specific Topics
 - ✓ Check out a low cost Preferred Risk Policy
 - ✓ Call 875-RAIN for flood-related topics
 - ✓ Keep streams and ditches clean
 - ✓ Only rain down the drain (scoop the poop)

Table 4-105 contains initiatives that are in place that support the goal and CRS messages that are conducted by organizations other than Sacramento County. The list was composed by County staff research and PPI Committee members' feedback.

Table 4-105 PPI Outreach Initiatives

| OP# | Organization/Stakeholder | Project | Subject Matter | Frequency | Outreach Classification | Target Audience |
|-----|--|---------------------|---------------------|----------------------|-------------------------|---------------------------|
| 16 | Homeowner's Association | Association meeting | Message: 1-10 | Once a year | General Outreach | All County Residents |
| 17 | SAFCA | website | Message: 1, 2, 4, 6 | Year-round | Informational Material | All County Residents |
| 18 | Sacramento Stormwater Quality Partnership | website | Message: 6, 9, 10 | Year-round | Informational Material | All County Residents |
| | | Events | Message: 6, 9, 10 | Year-round | General Outreach | All County Residents |
| 19 | Department of Water Resources' (DWR) FloodSAFE California Initiative | Levee Mailer | Message: 1, 2, 3, 5 | Fall | Targeted Outreach | Areas Protected by Levees |
| 20 | Sacramento Association of Realtors | member newsletter | Message: 1,2,7 | Year-round | Informational Material | All County Residents |
| 21 | Sacramento Area Creeks Council | Creek Week | Message: 9 | April | General Outreach | All County Residents |
| | | Tours | Message: 6 | multiple | General Outreach | School-Aged Children |
| | | Website | Message: 9 | Year-round | Informational Material | All County Residents |
| 22 | U.S. Fish & Wildlife Service (Stone Lakes National Wildlife Refuge) | Website | Message: 6 | Year-round | Informational Material | All County Residents |
| | | Tours | | All County Residents | Tours | General Outreach |
| 23 | Sacramento County Parks and Recreation District | Scoop the Poop | Message: 10 | Year-round | General Outreach | All County Residents |
| 24 | Sacramento Valley Conservancy (Deer Creek Hills) | Website | Message: 6 | Year-round | Informational Material | All County Residents |
| | | tours | | | General Outreach | All County Residents |
| 25 | Cosumnes River Preserve | Website | Message: 6 | Year-round | Informational Material | All County Residents |
| | | Tours | | | General Outreach | All County Residents |
| 26 | Sacramento Splash | Website | Message: 6 | Year-round | Informational Material | All County Residents |
| | | tours | | | General Outreach | School-Aged Children |

| OP# | Organization/Stakeholder | Project | Subject Matter | Frequency | Outreach Classification | Target Audience |
|-----|--|---|---------------------|------------|-------------------------|-------------------------------------|
| 27 | American River Flood Control District | levee maintenance | Message: 1, 2, 4, 6 | Year-round | Informational Material | SFHA residents along American River |
| 28 | Water Education Foundation | tours, lectures | Message: 1, 4, 5, 6 | Year-round | Informational Material | School-Aged Children |
| 29 | Sacramento Regional County Sanitation District | Environmental Protection | Message: 6, 9, 10 | Year-round | General Outreach | All County Residents |
| | | Walk on the Wild Side | Message: 6 | May | General Outreach | All County Residents |
| 30 | American Red Cross Sierra-Delta Chapter | trainings, community events, social media messaging, website, telephone/tablet applications | Message: 1,2, 3 | Year-round | General Outreach | All County Residents |

Sacramento County Stormwater Management Program

The County of Sacramento, along with the cities of Sacramento, Citrus Heights, Galt, Elk Grove, Folsom and Rancho Cordova (collectively known as the Sacramento Stormwater Quality Partnership), is subject to Waste Discharge Requirements Order No. R5-2008-0142 (National Pollutant Discharge Elimination System (NPDES) Permit No. CAS082597) (Municipal Stormwater Permit) issued by the Central Valley Regional Water Quality Control Board (Regional Water Board). This comprehensive plan is designed to ultimately reduce pollution in stormwater runoff in compliance with the County’s National Pollutant Discharge Elimination System (NPDES) stormwater permit within Sacramento County. The plan includes processes for accomplishing the goals of minimizing construction site runoff as well as post-construction stormwater management in newly developed and redeveloped areas.

Sacramento County Watershed Management Plan (2009)

A watershed management plan is a document that guides efforts to control pollution, manage stormwater, and protect and improve local streams and the uplands that surround them. These plans also provide collaborative agreement among government, other local stakeholders, and citizens during the planning process. Sacramento County has been involved in the development of a comprehensive watershed management plan. This watershed plan guides the County and other stakeholders in protecting, managing, and improving environmental resources and habitat.

Sacramento and San Joaquin River Basins Comprehensive Study (2002)

This study was a joint effort by the State of California Reclamation Board and the U.S. Army Corps of Engineers (USACE) in coordination with Federal, State and local agencies. It provides a Comprehensive

Plan for Flood Damage Reduction and Ecosystem Restoration within the two river basins, and a strategy for implementation. Numerous technical analyses were performed for this study using computer modeling tools developed by the USACE and DWR to simulate the hydrology, hydraulics, ecosystem function, flood risk and associated economic damages in the Sacramento and San Joaquin river systems. DWR, USACE, and others will use these models in developing future flood management and environmental improvement projects in the Sacramento and San Joaquin river basins.

Community Plans

Sacramento County includes 25 mapped communities, some of which are incorporated cities that are not within County jurisdiction. In some cases, the communities within the unincorporated County have adopted Community or Specific Plans. Community Plans and Specific Plans provide direction for entire communities or other defined new geographic areas. These plans will take different forms depending on the specific needs of our communities. They typically set forth policy and implementation strategies for such items as land use, transportation, urban design, parks, school facilities and public services. A Community Plan for a developed, mature area would focus on neighborhood enhancement and commercial revitalization goals and action items; whereas a Specific Plan or Community Plan for an area that is newly developing would focus more on new development needs, location of new public facilities and infrastructure financing. These plans help implement the County General Plan on area-specific basis. In addition, the County has initiated and implemented special planning programs for projects that are unique and controversial in nature.

A Community Plan includes goals and policies specific to each individual community, and is accompanied by a Community Land Use Plan map. Status of these plans can be found in Table 4-106.

Table 4-106 Community Plans in Sacramento County

| Community Plan | Last Adopted |
|--------------------------------|---------------------------------------|
| Antelope | 1985 |
| Arden Arcade | 1980 (currently being updated) |
| Carmichael | 1975 (update process will begin soon) |
| Citrus Heights | 1978 |
| Cordova | 1978 (currently being updated) |
| Delta | 1983 |
| Elk Grove | 1978* |
| Fair Oaks | 1975 |
| Florin-Vineyard | 1985 |
| Laguna | 1978* |
| North Highlands/Foothill Farms | 1974 |
| Orangevale | 1976 |
| Rio Linda/Elverta | 1998 |
| Southeast | 1976 (map only) |

| Community Plan | Last Adopted |
|------------------|--------------|
| South Sacramento | 1978 |

*These plans are no longer relevant as a result of the incorporation of the City of Elk Grove.

There are five specific plans adopted within Sacramento County. The plans are:

- Easton Project
- East Antelope
- Elverta
- Mather Field
- North Vineyard Station

Sacramento County Emergency Operations Plan (2012, 2016 in-process)

The Sacramento County Office of Emergency Services coordinates planning, preparedness, response, and recovery efforts for disasters in unincorporated Sacramento County. The Sacramento County Emergency Operations Plan addresses the County’s planned response to emergency situations associated with natural disasters, technological incidents and national security emergencies in or affecting Sacramento County. Response issues and responsibilities contained in an EOP include:

- Emergency public information and warning
- Situation survey and analysis
- Allocation and mobilization of response resources
- Implementation of health and safety measures
- Enforcement of police powers
- Access control and movement
- Evacuation and rescue
- Care and treatment of casualties
- Control and allocation of vital resources and supplies
- Protection and restoration of facilities and systems
- Mass care for displaced individuals and families
- Collection, identification and disposal of the deceased

Sacramento County Warning and Evacuation Procedures

Sacramento County and its incorporated communities have a variety of systems and procedures established to protect its residents and visitors to plan for, avoid, and respond to a hazard event including those associated with floods and other natural disasters. This includes Pre-Disaster Public Awareness and Education information which is major component in successfully reducing loss of life and property in a community when faced with a potentially catastrophic incident. Much of this information is not specific to a given hazard event and is always accessible to the public on local County and City websites, while other information is incident-specific. A general overview of specific warning and evacuation systems and procedures are summarized further below.

Monitoring for Alerts, Watches and Warnings

Emergency officials constantly monitor events and the environment to identify specific threats that may affect their jurisdiction and increase awareness levels of emergency personnel and the community when a threat is approaching or imminent.

The National Weather Service (NWS), a part of the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), is the prime agency for detecting meteorological threats, such as floods and severe weather. Severe weather warnings are transmitted through NOAA's Weather Radio System, considered by the federal government as the official source for weather information. Federal agencies can only look at the large scale, (e.g., whether conditions are appropriate for the formation of a thunderstorm.) Local emergency managers can provide more site-specific and timely recognition by sending out NWS trained spotters to watch the skies when the Weather Service issues a watch or a warning. The NWS page for Sacramento County is accessible through the Sacramento County website and at the following: <http://forecast.weather.gov/MapClick.php?zoneid=CAZ017>

A flood threat recognition system predicts the time and height of a flood crest. This can be done by measuring rainfall, soil moisture, and stream flows upstream of the community and calculating the subsequent flood levels.

On larger rivers, this measuring and calculating is performed by the NWS. Support for NOAA's efforts is provided by cooperating partners from state and local agencies. Forecasts of expected river stages are made through the Advanced Hydrologic Prediction Service (AHPS) of the NWS. Flood threat predictions are disseminated on the NOAA Weather Wire or NOAA Weather Radio.

On smaller rivers, locally established rainfall and river gauges are needed to establish a flood threat recognition system. The NWS may issue a "flash flood watch." This is issued to indicate current or developing hydrologic conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain nor imminent. These events are so localized and so rapid that a "flash flood warning" may not be issued, especially if no remote threat recognition equipment is available. In the absence of a gauging system on small streams, the best threat recognition system is to have local personnel monitor rainfall and stream conditions. While specific flood crests and times will not be predicted, this approach will provide advance notice of potential local or flash flooding.

The County and City EOPs include procedures for threat identification. The City and County work closely with the NWS for issuing an Emergency Alert System (EAS). Additional Sacramento County's threat identification mechanisms include:

California Data Exchange Center (CDEC). The CDEC provides information for flood forecasting information at <http://cdec.water.ca.gov/>. The CDEC installs, maintains, and operates an extensive hydrologic data collection network including automatic snow reporting gages for the Cooperative Snow Surveys Program and precipitation and river stage sensors for flood forecasting.

Automated Local Evaluation in Real Time (ALERT) System. ALERT was created by the NWS to provide continuous and automatic reports from river levels and rainfall gauges detect impending high water levels. ALERT information includes:

- Rainfall Summary
- Stage Summary
- Storm Ready
- Sandbag Information
- Detailed Forecast
- Quantitative Precipitation Forecasts (QPF)
- NWS River Forecasts

The Sacramento County’s ALERT system consists of 2 base stations, and 50 gaging stations. The purpose of the County’s ALERT website is to provide real time monitoring information to stage and rainfall information during storm events, which assist in informing the activation of additional warning and potential evacuation of affected areas. This information which can be accessed through the Sacramento County website includes information for: Stream Level Summaries and Maps; and Rainfall Summaries and Maps. See <https://www.sacflood.org/home.php>.

Dam Protocols. Should an event trigger the activation of an Emergency Action Plan (EAP) for a potential dam failure, County OES receives this information via direct phone calls from the originating source/agency or from Sacramento County Dispatch and/or Cal OES. County OES then follows the notification and evacuation procedures called for in the EOP.

Notifications and Warning Systems

Once a disaster is imminent, action is taken to control the situation, save lives, protect property, and minimize the effects of the disaster. During this phase, warning systems are activated; resources and first responders notified and mobilized; and evacuations begin.

After a threat recognition system tells the emergency services office that a flood, severe weather or other hazard is coming, the next step is to notify the public and staff of other agencies and critical facilities. Providing adequate and timely notification to the public is the greatest challenge, especially with sudden or no-notice events. The earlier and more specific the warning, the greater the number of people that can implement protection measures.

As previously described, the NWS issues notices to the public using two levels of notification:

- **Watch.** Conditions are right for flooding, thunderstorms, or other hazard event.
- **Warning.** A flood or other event has started or been observed.

In coordination with established public safety warning protocols, the activated EOC will manage the dissemination of timely and adequate warnings to threatened populations in the most direct and effective means possible. Depending upon the threat and time availability, the County and City EOCs will initiate alerts and warnings utilizing any of the following methods:

- Activation of the Emergency Alert System (EAS)
- Activation of the Telephonic Alert and Warning System (Everbridge and Reverse 911)
- Activation of the Emergency Digital Information System (EDIS)
- Activation of the California Law Enforcement Mutual Aid Radio System (CLEMARS)
- Media broadcast alerts.
- Commercial or public radio or TV stations

- ✓ Radio: KFBK 1530 am, KSTE 650, KGBY, 92.5 FM
- ✓ TV: KCRA Channel 3, www.KCRA.com; KXTV Channel 10; KOVR Channel 13; KTXL Channel 40
- NOAA Weather Radio
- www.saccounty.net; SacramentoReady.org websites
- 211/311 Sacramento
- CalTrans 511
- Telephone trees/mass telephone notifications
- Tone activated receivers in key facilities
- Fire and Law enforcement loudspeakers
- Outdoor warning sirens
- Mobile public address sirens/systems
- Door-to-door contact
- Vulnerable population databases
- Email notifications

Multiple or redundant systems are most effective – if people do not hear one warning, they may still get the message from another part of the system. Just as important as issuing a warning is telling people what to do in case of an emergency. A warning program should have a public information aspect that details appropriate warnings and responses.

Sacramento ALERT

The Sacramento County OES, in partnership with Yolo and Placer emergency agencies, use a state-of-the-art emergency alert system known as Sacramento Alert. The system provides information to residents about emergency events quickly and through a variety of communication methods.

The alert system currently includes all listed and unlisted landline telephone numbers in Yolo, Placer, and Sacramento counties that are serviced by AT&T and Verizon.

To ensure emergency notices are received quickly both at work and home, residents are encouraged to log onto the Sacramento Alert Self- Registration Portal and provide phone numbers for both home and work, including land and cell phone numbers, email addresses, TTY device information and instant messaging information.

Residents will only receive alerts that are critical and time-sensitive, including: flooding, levee failures, severe weather, disaster events, unexpected road closures, missing persons, and evacuations of buildings or neighborhoods in specific geographic locations.

The system, which uses Everbridge Alert and Notifications System, was made possible for all three counties by a grant from CAL OES and supported by CA Department of Water Resources, Flood Operations Center through the Sacramento County OES.

StormReady

The NWS established the StormReady program to help local governments improve the timeliness and effectiveness of hazardous weather related warnings for the public. Both Sacramento County and the City

of Sacramento are StormReady certified. StormReady communities are better prepared to save lives from the onslaught of severe weather through advanced planning, education, and awareness. Being designated a StormReady community by the NWS is a good measure of a community's emergency warning program for weather hazards.

Evacuation and Shelter-in-Place

The principle of evacuation is to move citizens from a place of relative danger to a place of relative safety, via a route that does not pose significant danger. There are six key components to a successful evacuation:

- Adequate warning
- Adequate routes
- Proper timing to ensure the routes are clear
- Traffic control
- Knowledgeable travelers
- Care for special populations (e.g., disabled, hospital patients, school children)

Evacuation planning also considers sheltering options for those that cannot get out of harm's way. Shelters can also serve as a temporary place after the storm for those who have lost their homes.

The County and City both maintain Evacuation Plans that outline strategies and protocols for medium to high-level (catastrophic) evacuation events in the County. These plans also include procedures for sheltering to provide people affected by a disaster with a safe, temporary place to be housed during or immediately after a disaster until they can either return to their homes or be relocated to other housing facilities. Highlights of these County/City plans are detailed below.

Sacramento County Evacuation Plan (2008 Annex to EOP)

Sacramento County's Evacuation Plan, 2008, is an annex to the County EOP. An update to the 2008 Evacuation Plan is scheduled for 2016. The purpose of the Evacuation Plan is to document agreed upon strategy for the County's response to emergencies that involve the evacuation of persons from an impacted area to a safe area. This involves coordination and support for the safe and effective evacuation of the general population and for those who need additional support to evacuate, such as health care facilities and schools. This plan also includes considerations for shelter-in-place options, in circumstances where evacuation may be a higher risk option. All evacuation and sheltering-in-place for medium and high level catastrophic incidents will be coordinated through Sacramento County EOC. Low level incidents will be handled at a more local level, such as through local fire departments. Care and sheltering of evacuees will be handled through Sacramento County's Department of Human Assistance (DHA), with support from Red Cross. The County's Evacuation Plan identifies criteria and triggers for determining what level of evacuation is warranted; information on transportation and evacuation movement control; and roles and responsibilities of agencies/organizations supporting the evacuation.

Information about flood depth maps and evacuation plan maps can be found online by accessing <http://www.msa.saccounty.net/waterresources/stormready/default.asp?page=maps>.

The Evacuation Plan is broken down into the following sections:

- Section 1—Introduction
- Section 2—Concept of Operations
- Section 3—Levels of Activation and Evacuation Triggers
- Section 4— Emergency Communication—Public Warning and Alerts
- Section 5—Transportation and Evacuation Movement Control
- Section 6—Care and Shelter
- Section 7—Roles and Responsibilities

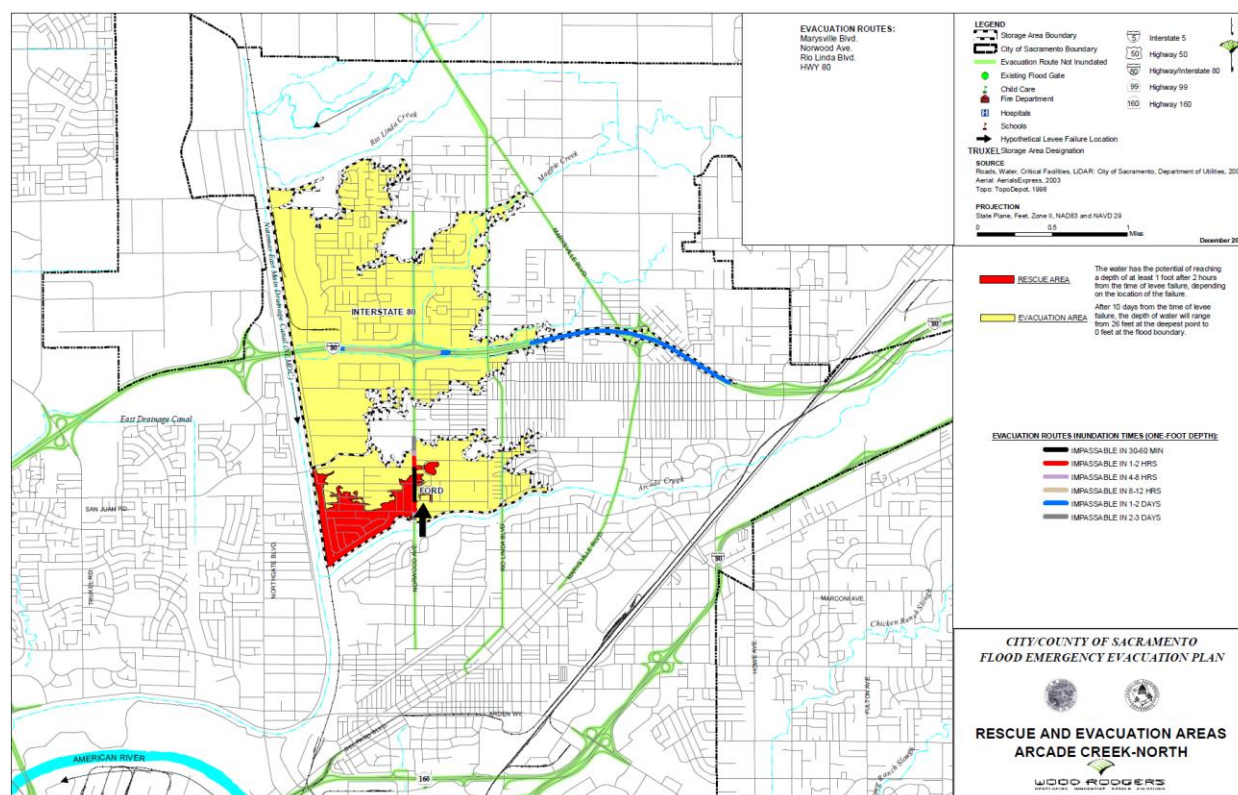
The overall objectives of emergency evacuation actions include:

- Alert and warning of the public to the threat and need to evacuate, and the establishment of the Joint Information Center (JIC) for information coordination.
- Movement and control of the general population out of the threatened area, including traffic control and directions.
- Transportation support of vulnerable populations (people with disabilities, elderly, persons without vehicles, et al.) out of the threatened area.
- Establishment of Evacuation Transfer Points.
- Provision of shelters for care of the county’s population and animals.
- Access control into the hazard area.
- Assure safe and orderly re-entry to evacuated persons, with clear instructions.

A key evacuation and safety concern is when roads and bridges go under water. Generally, the larger the road, the less likely it is to flood, but this is not always the case. In addition, a bridge does not have to be under water to be damaged or to cut off an evacuation route. In some cases the bridge is high, but the access road may be flooded. In other cases, the bridge or culvert can be washed out. This is especially dangerous if a person drives on a flooded road and assumes that the bridge is still there.

Residents and visitors within Sacramento County should be made aware of evacuation routes. It is important that the County work with both public and private entities to ensure that everyone knows which roads and thoroughfares are designated for evacuation. Figure 4-98 is an example map that indicates the designated evacuation routes for a portion of Sacramento County. Additional evacuation maps can be found at www.stormready.org.

Figure 4-98 Arcade Creek Area Evacuation Plan Map



Source: Sacramento County Evacuation Plan

More information on the importance of including evacuation procedures and maps as part of a sound mitigation strategy can be found in Appendix C to this plan. In addition, Appendix C contains information on post mitigation policies and procedures. More information specific to the County can be found in their various response and recovery plans.

Sacramento County Post Disaster Mitigation Policies and Procedure

The Sacramento County EOP, and its annexes, is intended to facilitate multi-agency and multi-jurisdictional coordination during emergencies including hazard events. Through its policies and procedures it seeks to mitigate the effects of hazards, prepare for measures to be taken which will preserve life and minimize damage, enhance response during emergencies and provide necessary assistance, and establish a recovery system in order to return the community to their normal state of affairs.

The goal of the recovery phase of an emergency incident or natural disaster is to return the residents, public services and private sector in an impacted area to their pre-disaster state, and through implementation of hazard mitigation measures, seek to prevent, as much as possible, similar damage, destruction or chaos after incidents and disasters in the future. Sacramento policies include objectives, responsibilities and procedures for restoration of services and returning of the affected area to its pre-emergency condition. Mitigation is emphasized as a major component of recovery efforts.

Post-disaster recovery activities are designed to protect public health and safety and facilitate recovery. Appropriate measures include:

- Patrolling evacuated areas to prevent looting
- Providing safe drinking water
- Monitoring for diseases
- Vaccinating residents for tetanus and other diseases
- Clearing streets
- Cleaning up debris and garbage

As the initial and sustained operational priorities are met, emergency management officials consider the recovery phase needs. Short-term and long-term recovery is covered in the EOP. Short-term recovery operations begin during the response phase and include rapid debris removal and cleanup and restoration of essential services to minimum operating standards. Long-term recovery operations work to restore the community to pre-disaster conditions and include hazard mitigation activities, restoration and reconstruction of public facilities, and disaster response cost recovery. Local Assistance Centers and/or Disaster Recovery Centers are opened and damages assessed. Elements of recovery include:

- Windshield survey and documentation of flood impacts
- Safety assessment
- Damage assessments
- Determination of substantially damaged structures
- Engineering assessments
- Post-flood building entry
- High water marks
- Risk communication/Public Information
- Code enforcement/triage process
- Permitting process
- Integration of mitigation/loss reduction activities into recovery
- Temporary housing
- After action reporting

Regulating Reconstruction

Requiring permits for building repairs and conducting inspections are vital activities to ensure that damaged structures are safe for people to reenter and repair. The NFIP requires that local officials enforce the substantial damage regulations. These rules require that if the cost to repair a building in the mapped floodplain equals or exceeds 50% of the building's market value, the building must be retrofitted to meet the standards of a new building in the floodplain. In most cases, this means that a substantially damaged building must be elevated above the base flood elevation.

Mitigation

Mitigation measures to reduce the risk and vulnerability of a community to future disaster losses can be implemented in advance of a disaster event and also as part of post-disaster recovery efforts. Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. Effective mitigation can break the cycle of disaster damage, reconstruction, and repeated damage. Categories of mitigation measures

include prevention, emergency services, property protection, natural resource protection, structural, and public information, many of which are discussed throughout this document.

Additional mitigation elements specific to the Sacramento area are discussed further below.

LHMP

The Federal Disaster Mitigation Act (DMA) of 2000 requires communities to develop an approved Local Hazard Mitigation Plan (LHMP) to remain eligible to apply for certain FEMA Hazard Mitigation Assistance (HMA) grants. Applications submitted for funding from the FEMA HMA grant programs must “be consistent with” the mitigation strategy outlined in the LHMP. Sacramento County and the City of Sacramento are in process with the update of their 2016 LHMP Update. Once complete and adopted, this LHMP update will provide continued eligibility for all participating jurisdictions for FEMA pre- and post-disaster mitigation funding.

Grant Funding

An understanding of the various funding streams and opportunities will enable the communities to match up identified flood mitigation projects with the grant programs that are most likely to fund them. Additionally, some of the funding opportunities can be utilized together. Mitigation grant funding opportunities available pre- and post- disaster include the following:

- FEMA Hazard Mitigation Assistance (HMA) Grants (Pre-disaster Mitigation (PDM), Flood Mitigation Assistance (FMA), and Hazard Mitigation Grant Program (HMGP))
- FEMA Public Assistance Section 406 Mitigation
- Community Development Block Grants
- Small Business Loans
- Increased Cost of Compliance

Other Key Sacramento Area Emergency Plans

- Mass Care and Sheltering Plan, 2012 Annex to the EOP
- People with Access and Functional Needs, 2012 Annex to the Mass Care and Sheltering Plan
- Sheltering the Medically Fragile, 2012 Annex to the Mass Care and Sheltering Plan
- Severe Weather Guidance, 2012 Annex to the EOP
- Animal Care and Shelter, 2012 Annex to the EOP
- Continuity of Governmental Operations Functional Annex and departmental COOP plans, 2011
- Local Hazard Mitigation Plan, Update 2011; 2016 Update in process

South Sacramento Habitat Conservation Plan

The South Sacramento Habitat Conservation Plan (SSHCP) is a regional approach to addressing issues related to urban development, habitat conservation and agricultural protection. As of the writing of this plan, the SSHCP was undergoing environmental review. The SSHCP will consolidate environmental efforts to protect and enhance wetlands (primarily vernal pools) and upland habitats to provide ecologically viable conservation areas. It will also minimize regulatory hurdles and streamline the permitting process

for development projects. The SSHCP will cover 40 different species of plants and wildlife including 10 that are state or federally listed as threatened or endangered. The SSHCP will be an agreement between state/federal wildlife and wetland regulators and local jurisdictions, which will allow land owners to engage in the “incidental take” of listed species (i.e., to destroy or degrade habitat) in return for conservation commitments from local jurisdictions.

The options for securing these commitments are currently being developed and will be identified prior to the adoption of the SSHCP. The geographic scope of the SSHCP includes U.S. Highway 50 to the north, Interstate 5 to the west, the Sacramento County line with El Dorado and Amador Counties to the east, and San Joaquin County to the south. The Study Area excludes the City of Sacramento, the City of Folsom and Folsom’s Sphere of Influence, the Sacramento-San Joaquin Delta, and the Sacramento County community of Rancho Murieta. Sacramento County is partnering with the incorporated cities of Rancho Cordova, Galt, and Elk Grove as well as the Sacramento Regional County Sanitation District and Sacramento County Water Agency to further advance the regional planning goals of the SSHCP.

SSHCP Goals and Objectives

Key Principles - Develop a Habitat Conservation Plan through a process that:

- Involves all stakeholders in the study area including developers, environmentalists, agriculturists and government agencies.
- Educates stakeholders regarding the importance of the plan, its components and its significance to them.
- Progresses in an efficient and expeditious manner through consensus building.

Stakeholder Goals - Create a Habitat Conservation Plan that:

- Ensures long-term viability to aid and enhance recovery of sensitive species in the study area by protecting an adequate quality and quantity of habitat in an integrated manner.
- Accommodates development in appropriate sites with fair and reasonable mitigation cost structure.
- Protects agricultural lands and operations from constraints associated with the plan’s implementation.
- Gains the trust of all stakeholders in the permitting process by providing certainty that their interests will be considered in a fair and predictable process.
- Relies on voluntary participation through incentives that make the HCP process preferable to the existing process.
- Provides a streamlined permitting process that reduces permitting cost to developers and taxpayers.
- Provides a comprehensive framework for use in linking plant and animal conservation with local land use programs, consistent with Sacramento County General Plan goals and policies.

Emergency Safety Plans (2016)

Sacramento County received a grant from the California Department of Water Resources to prepare a series of Flood Emergency Safety Plans in accordance with the state and federal laws and regulations. The ESP is intended to improve the local flood emergency preparedness and response to satisfy the requirements of the Central Valley Flood Protection Act of 2008 and California Water Code Section 9650 (AB156). Each plan will help the County and its regional partners in the Delta to efficiently respond to emergencies and fulfill their missions to protect life and property. This plan is to facilitate a multi-agency alliance between

the County OES and LMAs, to update the emergency action plans for all the LMAs, and to further create an integrated regional master plan with maps for possible evacuation. As of fall 2016, this process was in progress.

Sacramento County Ordinances

The Sacramento County General Plan provides policy direction for land use, development, open space protection, and environmental quality; however, this policy direction must be carried out through numerous ordinances, programs, and agreements. The following ordinances are among the most important tools for implementing the General Plan and/or are critical to the mitigation of hazards identified in this plan.

Emergency Organization (Sacramento County Code Title 2, Chapter 2.46)

The purposes of this chapter are to provide for the preparation, unification and carrying out of plans for the protection of persons and property within the incorporated and unincorporated areas of the County in the event of an emergency; to provide for the direction of the emergency management organization and the coordination of the emergency functions of the County with all other political subdivisions, emergency services agencies both public and private, corporations, organizations and affected persons within the County.

Mosquito Ordinance (Sacramento County Code Title 6, Chapter 24)

The purpose of this ordinance is to control the mosquito population and breeding grounds in the County. The natural presence of mosquito larvae in any such water shall be deemed conclusive evidence of mosquito breeding and of the existence of a public nuisance, provided such water, receptacle, container or mosquito breeding occurs within two thousand (2000) feet of any occupied dwelling house. The health officer of the County is tasked with the eradication of the mosquito population.

Sacramento County Building Code (Sacramento County Code Title 16, Chapter 4)

The purpose of this Code is to provide minimum standards to safeguard life, limb, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, use, occupancy, location and of all buildings and structures within this jurisdiction, and certain equipment specifically regulated herein.

The 2013 California Building Code, Title 24, Part 2 of the California Code of Regulations, a portion of the California Building Standards Code as defined in the California State Health and Safety Code Sections 17922 and 18901 et seq., (hereinafter referred to as the “Building Code”) and Building Code Appendix C (Group U Agricultural Buildings) and any rules and regulations promulgated pursuant thereto are hereby adopted and incorporated by reference herein. Except as otherwise provided by this chapter, Chapters 16.02 and 16.10 of the Sacramento County Code, all construction, alteration, moving, demolition, repair and use of any building or structure within this jurisdiction shall be made in conformance with the Building Code and any rules and regulations promulgated pursuant thereto.

Sacramento County Land Grading and Erosion Control Ordinance (Sacramento County Code Title 16, Chapter 44).

The ordinance was established to minimize damage to surrounding properties and public rights-of-way; limit degradation to the water quality of watercourses; and curb the disruption of drainage system flow caused by the activities of clearing, grubbing, grading, filling, and excavating land. The ordinance establishes administrative procedures, minimum standards of review, and implementation and enforcement procedures for the control of erosion and sedimentation that are directly related to land grading activities.

Sacramento County Fire Code (Sacramento County Code Title 17, Chapter 4)

There is hereby adopted by the Board of Supervisors of the County of Sacramento for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion, that certain code known as the California Fire Code, Title 24, California Code of Regulations, Part 9, incorporating the International Fire Code published by the International Code Council, being particularly the 2012 Edition, including the appendices thereof, and the International Fire Code Standards published by the International Code Council, being particularly the 2012 Edition, and the wholes thereof, save and except such portions as hereinafter deleted, modified or amended herein. Not less than one copy of such code has been and now is filed with the Clerk of the Board of Supervisors. From the effective date of the ordinance codified in this chapter, the provisions thereof shall be controlling within the limits of Sacramento County except that any inconsistent regulations and ordinances adopted pursuant to applicable law by a fire protection district or a community service district having a fire department within the County shall be controlling within that district's jurisdictional areas.

Sacramento County Weed Control Ordinance (Sacramento County Code Title 17, Chapter 12)

This ordinance establishes that the uncontrolled growth or accumulation of grass, weeds or other materials or obstructions on sidewalks, streets, and on lands or lots is dangerous or injurious to neighboring property and the health or welfare of residents of the vicinity and is a public nuisance in that it creates a condition that reduces the value of private property, promotes blight and deterioration, invites plundering, creates fire hazards, constitutes an attractive nuisance creating a hazard to the health and safety of minors, creates a harbor for rodents and insects and is injurious to the health, safety and general welfare. This ordinance tasks the Chief of any County Fire Department with the authority to enforce the ordinance.

Zoning and Subdivision Ordinance (Sacramento County Code Title 22)

The Sacramento County Zoning Code has been adopted by the Board of Supervisors and is used to encourage the most appropriate use of land; to conserve, protect and stabilize the value of property; to provide adequate open space for light and air; to prevent undue concentration of population; to lessen congestion on the streets; to facilitate adequate provisions for community utilities such as transportation, water, sewerage, schools, parks and other publicly owned facilities; and to promote the public health, safety and general welfare.

Sacramento County's subdivision ordinance regulates the design and improvement of land divisions and the dedication of public improvements needed in connection with land divisions.

Generally, Sacramento County's zoning ordinance separates hazardous land uses from sensitive land uses and addresses risks e.g. flood, erosion and traffic. The zoning ordinance contains a Flood (F) Combining Zoning District and Tributary Standards, and Natural Streams (NS) Combining Zoning District to reduce the impacts of flood hazards. Additionally, the ordinance contains a Parkway Corridor (PC) Combining Zoning District to ensure that bluff development does not create erosion or geologic instability.

Stormwater Management Ordinance

Sacramento County's Stormwater Management Ordinance authorizes the County to exercise its police power to protect and promote the public health, safety and general welfare. The purpose of this chapter is to protect and enhance the watercourses within the unincorporated area of the County, by controlling the contribution of urban pollutants to stormwater runoff which enters the County storm drain system in a manner consistent with the Federal Clean Water Act, the Porter-Cologne Water Quality Control Act and Municipal discharge Permit No. CAS082597, and by controlling pollutants that are discharged directly to natural surface waters. The County's Stormwater Program also uses its Land Grading and Erosion Control Ordinance to minimize damage to surrounding properties and public rights-of-way, the degradation of the water quality of watercourses, and the disruption of natural or County authorized drainage flows caused by the activities of clearing and grubbing, grading, filling and excavating of land, and sediment and pollutant runoff from other construction related activities, and to comply with the provisions of the County's NPDES Permit Number, CA0082597, issued by the California Regional Water Quality Control Board (Regional Board). These goals will be achieved by establishing administrative procedures, minimum standards of review, and implementation and enforcement procedures for controlling erosion, sedimentation and other pollutant runoff, including construction debris and hazardous substances used on construction sites, and the disruption of existing drainage and related environmental damage caused by the aforementioned activities.

Floodplain Management Ordinance (Ordinance No. SZC-2014-0007)

Sacramento County has a Floodplain Management Ordinance (2014) that exceeds minimum NFIP standards and includes some higher regulatory standards. The County is in the process of updating their General Plan and Floodplain Management Ordinance to incorporate the 200-year flood standard of protection in urban or urbanizing areas (i.e., ULOP). The County's regulations are designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding;
- Minimize business interruptions;
- Minimize damage to public facilities, including streets, sewers, bridges, and utilities;

The County and City's regulations include methods and provisions for:

- Restricting or prohibiting development which are dangerous to health, safety, and property due to flood hazards, or which result in damaging increase in flood heights or velocities;
- Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
- Controlling fill, grading, dredging, and other development which may increase flood damage; and

- Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

In addition, all new construction or substantial improvements shall be:

- Designed or modified and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy
- Constructed in ways that minimize flood damage
- Constructed with materials resistant to flood damage
- Constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities designed or located so as to prevent water from entering or accumulating within components during flooding

Future flood losses should be reduced by enforcement of current floodplain regulations that regulate development within flood hazard areas. For new residential construction or substantial improvements, Sacramento County requires that either the lowest finished floor be elevated at least 1.5 feet above the base flood elevation. For nonresidential construction or substantial improvements, Sacramento County requires that either the lowest finished floor be elevated at least 1.5 feet above the base flood elevation or that below the base flood level the structure is dry flood-proofed and watertight, with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

County Departments/Agencies

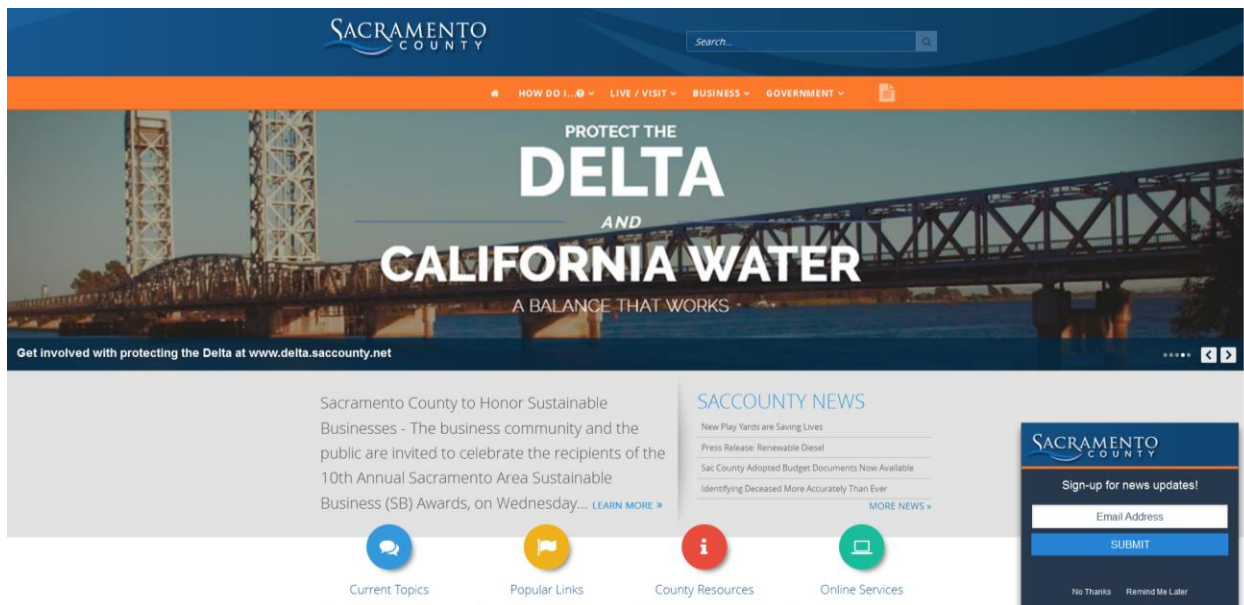
Sacramento County has structured its governmental organization to mitigate and respond to natural hazards. The discussion below highlights offices that have either direct or indirect responsibility for planning for or responding to natural hazards.

Office of Emergency Services

The Sacramento County Office of Emergency Services (OES) is the emergency management agency for Sacramento County. Sacramento County OES is headquartered in the City of Sacramento, the County seat. The office provides service countywide, in cooperation with cities and special districts, such as the fire department and law agencies.

OES also provides updated emergency-related information to the public on their website, SacramentoReady.org (shown in Figure 4-99). This site provides weather and flooding information, which includes guidance on protecting your home from winter storms, where to get sandbags, preparation for what to do before, during and after floods, etc. Also provided are links to national, state, and local information on fires, earthquakes, highway and road information, and general federal and state emergency information.

Figure 4-99 SacramentoReady.org Website



Source: www.sacramentoready.org

Agricultural Commission & Weights and Measures

The Agricultural Commissioner/Director of Weights and Measures monitors agriculture related commodities entering and exiting Sacramento County. The agricultural division:

- Protects the public by enforcing pesticide laws and regulations, monitors applications for safety and environmental compliance, investigates pesticide related illnesses and complaints, and provides education to industry and the public on lawful pesticide usage.
- Monitors pest conditions and provides for the safe and efficacious control of those pests through issuance of restricted pesticide materials permits or alternative management methods.
- Monitors and facilitates the eradication of exotic pests harmful to California agriculture, including inspection of wholesale nursery stock and all plant material shipped to Sacramento through the postal, express and freight systems.
- Inspects plant products for export to a wide variety of foreign ports and issues export certificates required by importing countries.
- Collects and compiles crop and livestock statistics and prepares reports on crop damage and crop production.
- Manages the orderly burning of agricultural crop residues in an effort to allow the use of this important tool while minimizing the impact on urban areas, and works with producers to find alternative methods of agricultural waste removal.
- Administers the hazardous material storage inventory and carries out inspections of those facilities related to agricultural operations

County Engineering Department

Working with contractors, developers and homeowners we ensure safe and reliable construction projects, handle surveying for County projects and provide a call center that provides information to the community

about utilities and general service referral and takes reports of problems and routes them to the appropriate department. The Department of County Engineering includes the following divisions related to mitigation:

Building Inspection

The Building Inspection Department issues building permits and provides plan review and field inspection services for all private development building projects within unincorporated Sacramento County. Excluded are the cities of Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova and Sacramento.

Infill Development Program

Infill development is the re-use of land or existing developed sites within an urban/suburban area. Infill development promotes better use of sites through reuse and repositioning of obsolete or underutilized buildings. Infill uses vital land left vacant during early development and contributes to community revitalization. Infill is representative of smart growth.

Infill development is valuable not only for the environmental benefits of using land more efficiently and directing growth into existing urbanized areas, but also the benefit that quality projects bring to neighborhoods and communities. Good infill conserves open space, helps to energize communities and contributes to jobs, housing and area sustainability.

The County of Sacramento joined the City of Sacramento in an Infill Home Plan Program in 2010. Established by the City of Sacramento, this program was developed to streamline the process for development of high quality single family homes in older neighborhoods and redevelopment areas.

Planning and Community Development

The Department of Planning and Community Development administers the County's land use and planning programs in the unincorporated area, including:

- County-wide, specific and community planning
- Specific and community planning
- Current Planning and zoning
- Community Planning Advisory Councils
- Planning Review

Water Resources

The Department of Water Resources provides drainage, flood control, water supply, rain and creek level information, regulation and permits, flood insurance program and stormwater management services to various service areas of unincorporated Sacramento County and the Cities of Citrus Heights, Elk Grove and Rancho Cordova.

Drought Capabilities

In September 2014, Governor Edmund G. Brown Jr. signed a three-bill package known as the Sustainable Groundwater Management Act. The legislation allows local agencies to customize groundwater sustainability plans to their regional economic and environmental needs. SGMA creates a framework for sustainable, local groundwater management for the first time in California history.

The three bills that make up SGMA are AB 1739 by Assembly Member Roger Dickinson, and SB 1319 and SB 1168 by Senator Fran Pavley.

In September 2015, Governor Brown signed SB 13, by Senator Fran Pavley. The Bill makes various technical, clarifying changes to SGMA including requirements for groundwater sustainability agency formation, the process for State Water Board intervention if no responsible agency is specified for a basin, guidelines for high- and medium-priority basins, and participation of mutual water companies in a groundwater sustainability agency.

“A central feature of these bills is the recognition that groundwater management in California is best accomplished locally. Local agencies will now have the power to assess the conditions of their local groundwater basins and take the necessary steps to bring those basins in a state of chronic long-term overdraft into balance.” –Governor Edmund G. Brown Jr.

The Sustainable Groundwater Management Act:

- Provides for sustainable management of groundwater basins
- Enhances local management of groundwater consistent with rights to use or store groundwater
- Establishes minimum standards for effective, continuous management of groundwater
- Provides local groundwater agencies with the authority, technical, and financial assistance needed to maintain groundwater supplies
- Avoids or minimizes impacts for land subsidence
- Improves data collection and understanding of groundwater resources and management
- Increases groundwater storage and removes impediments to recharge
- Empowers local agencies to manage groundwater basins, while minimizing state intervention

SGMA requires local agencies to establish a new governance structure, known as Groundwater Sustainability Agencies, prior to developing groundwater sustainability plans for groundwater basins or sub-basins that are designated as medium or high priority.

Flood Capabilities

FloodSAFE California

FloodSAFE is a multifaceted and collaborative statewide initiative to improve public safety through integrated flood management. A long-term initiative, FloodSAFE is focused on the following goals: 1) Reduce the chance of flooding, 2) Reduce the consequences of flooding, 3) Sustain economic growth, 4) Protect and enhance the ecosystems, and 5) Promote sustainability. FloodSAFE will accomplish these

goals through four types of activities: 1) improving emergency response, improving flood management systems, improving operations and maintenance, and informing and assisting the public.

Central Valley Flood Protection Plan

The Central Valley Flood Management (CVFMP) Program is one of several programs managed by DWR under FloodSAFE California (FloodSAFE), a multifaceted initiative launched in 2006 to improve integrated flood management in the State of California. The CVFMP Program addresses flood management planning activities within the Central Valley that require State leadership and participation.

The Central Valley of California has experienced some of the State's largest and most damaging floods. The existing flood management system, consisting of a number of projects (e.g., dams, reservoirs, weirs, levees, channels, bypasses and other features) individually constructed over the last 150 years, provides varying levels of flood protection. However, this legacy system is now characterized by aging infrastructure constructed using outdated techniques. This system is now relied on to provide benefits and levels of protection that were not envisioned when its elements were first constructed. As currently configured, the system is prone to erosive river forces, is easily distressed from high water, and does not support healthy ecosystem functions and natural floodplain habitats. Further, funding and other constraints have made it difficult to carry out adequate maintenance programs. At the same time, escalating development in the Central Valley floodplains has increased the population at risk and the potential for flood damages to homes, businesses, communities and critical statewide infrastructure. This increased vulnerability of the Central Valley to catastrophic floods threatens the life safety, property and the financial stability of the State. As a result, in 2008, the DWR embarked on the CVFMP Program, a long-term planning effort to improve integrated flood management within the Central Valley.

The 2012 CVRPP will have three primary elements: vision for flood management in the Central Valley, a framework for implementing future projects to achieve this vision, and initial recommendations for improvements. (Source: Central Valley Flood Protection Plan, Progress Report, January 2011)

Delta Planning Initiatives

The Sacramento-San Joaquin River Delta (Delta) and Suisun Marsh, collectively referred to as the Delta Region, is the largest estuary in the western United States. The Delta Region is home to numerous plant and animal species and is also the hub of California's water supply system. Key transportation, transmission and communication lines cross the region. The region also supports a highly productive farming industry.

A complex system of over 1,330 miles of levees in the Delta Region protects property, infrastructure and people. Levees also protect the region's water supply and ecosystem functions. According to the Delta Risk Management Strategy Plan, the Delta Region levees and the areas and resources they protect are not sustainable under business-as-usual practices.

To address these concerns, numerous initiatives are ongoing that focus on long-term management strategies for the region, including various actions for reducing the risks and consequences of levee failure in the region.

A summary of Delta Planning Initiatives are:

- Conveyance and Flood Risk Reduction
 - ✓ 1.1 Improved Delta Levee Maintenance
 - ✓ 1.2 Upgraded Delta Levees
 - ✓ 1.3 Enhanced Emergency Preparedness/Response
 - ✓ 1.4 Pre-Flooding of Selected Islands
 - ✓ 1.5 Land Use Changes to Reduce Island Subsidence
 - ✓ 1.6 Armored Pathway Through Delta Conveyance (modified PPIC “Armored Island” Concept)
 - ✓ 1.7 Isolated Conveyance Facility Alternatives
 - ✓ 1.8a San Joaquin Bypass
 - ✓ 1.8b San Joaquin River Widening

- Infrastructure Risk Reduction
 - ✓ 2.1 Raise State Highways and Place on Piers (similar to I-80 across Yolo Bypass)
 - ✓ 2.2 Construct Armored Infrastructure Corridor Across Central Delta

- Environmental Risk Mitigation
 - ✓ 3.1. Suisun Marsh Tidal Wetland Restoration
 - ✓ 3.2 Tidal Marsh Cache Slough Restoration
 - ✓ 3.3 Install Fish Screens
 - ✓ 3.4 Setback Levees to Restore Shaded Riverine Habitat
 - ✓ 3.5 Reduce water exports from the Delta

Table 4-107, prepared by the Sacramento County Department of Water Resources, summarizes Delta projects and plans to mitigate natural hazards in the Delta.

Table 4-107 Sacramento County Delta-centric Projects/Plans

| Project Name | Responsible Agency/Department | Project Description/Intent | Target Due Dates |
|------------------------------------|---|--|--|
| Bay Delta Conservation Plan (BDCP) | California Natural Resources Agency/State Department of Water Resources | The BDCP is being developed in compliance with the Federal Endangered Species Act (ESA) and the California Natural Communities Conservation Planning Act (NCCPA). When completed, the BDCP will provide the basis for the issuance of endangered species permits for the operation of state and federal water projects. The plan would be implemented over the next 50 years. BDCP staff now proposing a re-tooled public/stakeholder input process, lead by a "Management Committee" and augmented by 13 separate working groups (e.g., Governance, Levee Maintenance, BDCP Compatibility w/Agriculture, Stone Lakes National Wildlife Refuge, Conveyance Facility - size and configuration & Financing). | <ul style="list-style-type: none"> • May 18, 2011: 1st Management Committee convenes. Committee will meet every 2 weeks. • June 9, 2011: 1st Governance workgroup convenes. • 2013: Completion of the Plan still 2 years (approx) away. Monitor the revised schedule/workplan on the BDCP website. |
| The Delta Plan | 7-Member Delta Stewardship Council (DSC) | The DSC must adopt and implement a comprehensive management plan for the Sacramento-San Joaquin Delta by January 1, 2012. This Delta Plan is intended to guide state and local agencies to help achieve the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The Delta Plan will also guide protection and enhancement of the unique resources, culture, and values of the Delta as an evolving place. | <ul style="list-style-type: none"> • Feb 14, 2010: Draft #1 released. • March 18, 2011: Draft #2 released. Sac Co. submitted written comments on April 15th. • April 22, 2011: Draft #3 released. Sac Co. submitted comments on May 6th. • June 13, 2011: Draft #4 released. Comments due to DSC by June 20th. • August 2011: Release of EIR for 45-day comment. • October 2011: Final draft of DP submitted to the Office of Administrative Law (OAL). • November 18, 2011: DSC will certify EIR and adopt the DP. • January 1, 2012: Delta Plan becomes law. |

| Project Name | Responsible Agency/Department | Project Description/Intent | Target Due Dates |
|--|-----------------------------------|--|--|
| The Delta Economic Sustainability Plan | Delta Protection Commission (DPC) | The Sacramento-San Joaquin Delta Reform Act of 2009 (SB7X 1) requires the DPC to develop an Economic Sustainability Plan (ESP) to be completed by July 1, 2011. The Plan will include, but not be limited to the following: (1) Public safety recommendations, such as flood protection recommendations; (2) A summation of economic goals, policies, and objectives consistent with local general plans and other local economic efforts, including recommendations on continued socioeconomic sustainability of agriculture and its infrastructure and legacy communities in the Delta; (3) Comments and recommendations to the Department of Water Resources concerning its periodic update of the flood management plan for the Delta; and (4) Identification of ways to encourage recreational investment along the key river corridors, as appropriate | <ul style="list-style-type: none"> • December 6, 2010: Report on Phase I (ESP Framework Study) presented to the DPC. • May 26, 2011: Status of Phase II (preparation of the Plan) presented to the DPC. • August 2011: Final ESP to be adopted. |
| The Primary Zone (PZ) Study | Delta Protection Commission (DPC) | The Sacramento-San Joaquin Delta Reform Act of 2009 (SB7X 1) requires the DPC to prepare and submit recommendations to the legislature regarding the expansion or change of/to the Delta Primary Zone (PZ). The key purpose of the PZ study is to define those areas of the Delta that contain viable agricultural, recreational, wildlife, and cultural resources that can be sustained into the future. Defining these unique Delta-related resources will be a key factor in the DPC's recommendations to the legislature. The 6 areas identified in the Reform Act include: Rio Vista, Isleton, Bethel Island, Brannan-Andrus Island, Cosumnes/Mokelumne floodway, and the San Joaquin /South Delta Lowlands. | <ul style="list-style-type: none"> • December 16, 2010: Consultant's recommendations presented to the DPC. DPC membership opted to defer/incorporate final recommendations into the forthcoming ESP. • January 14, 2011: DPC sent update/status letter to the Legislature. |

| Project Name | Responsible Agency/Department | Project Description/Intent | Target Due Dates |
|--|---|---|--|
| National Heritage Area (NHA) Establishment | Delta Protection Commission and Federal Legislation | Concurrent processes are occurring at the state and federal levels. The Delta Protection Commission as provided for in the Delta Reform Act (Water Code Section 85301(b)(1)) is using the services of a consultant to craft the basic framework of an NHA and requisite management plan. The initial stages of this process include a comprehensive public outreach and education component. At the federal level, Senator Feinstein's office is drafting legislation to "establish" NHA boundaries that will cover the legal Delta, the Suisun Marsh and the Yolo Wildlife Area/Bypass. The Delta NHA will be the first of its kind in California and will provide \$10 million over 20 years to fund Delta enhancement projects/programs. The NHA designation will not affect water rights or usurp local land use authority | <ul style="list-style-type: none"> • Federal authorization (via legislation): Nothing pending. • DPC's consultant continues to work on feasibility study as called for in the Delta Reform Act (WC Section 85301(b)(1)). • December 2011: Consultant's findings presented to DPC. |
| The Delta Strategic Plan | Delta Conservancy Board (DCB) | Per the Delta Reform Act, the DCB must prepare and adopt a strategic plan to achieve the goals of the conservancy. The plan will describe its interaction with local, regional, state, and federal land use, recreation, water and flood management, and habitat conservation and protection efforts within and adjacent to the Delta. The strategic plan must also establish priorities and criteria for projects and programs, based upon an assessment of program requirements, institutional capabilities, and funding needs throughout the Delta. The strategic plan must be consistent with the Delta Plan, the Delta Protection Commission's resources management plan, the Central Valley Flood Protection Plan, the Suisun Marsh Preservation Act of 1977, and the Habitat Management, Preservation and Restoration Plan for the Suisun Marsh. | <ul style="list-style-type: none"> • March 7, 2011: ExO, Campbell Ingram, hired. • March 16, 2011: Interim Strategic Plan (SP) adopted. • June 2011: Request for participation on five 5 SP workgroups (see DCB website). • December 2011: Adoption of final SP. |

| Project Name | Responsible Agency/Department | Project Description/Intent | Target Due Dates |
|--------------------------------------|---|--|--|
| FEMA Mapping | County Water Resources | <p>In 2006 FEMA began a nationwide process to update all Flood Insurance Rate Maps(FIRMs) including review of all levees which were previously certified to provide 100-year protection. Intent is to verify that original levee certification is valid and document basis of certification. Levee maintaining agencies were required to provide the original levee certification documentation, or new engineering analysis, to recertify the levees. Agencies providing sufficient initial information on maintenance could receive provisional accreditation. Ultimately, all levee maintaining agencies must provide sufficient information to fully certify their levees. Otherwise, these levees are to be decertified by FEMA and areas behind those levees will be mapped in the 100-year floodplain. The maps are scheduled to become effective in February 2012 (+/-) depending on public comments, which are due in August 201</p> | <ul style="list-style-type: none"> • September 2010: FEMA released Preliminary Draft Flood Maps • October 2010: County staff meeting with FEMA to identify major issues/comment • Dec 2010/Jan 2011: FEMA to hold final public meeting • Jun-Aug 2011: 90 day public appeal period/public meetings in affected communities • March 2012: Final adoption of new FEMA maps. |
| Central Valley Flood Protection Plan | CVFPP 200 year Floodplain Standard; State Department of Water Resources | <p>The Central Valley Flood Protection Plan (CVFPP) is part of a larger Central Valley Flood Management Planning Program intended to develop a sustainable, integrated flood management plan for areas protected by facilities of the State-Federal flood protection system in the Central Valley. State legislation in 2007 (SB5, SB17, AB5, AB70, AB156) aimed at addressing the problems of flood protection and liability and helping direct use of bond funds also set strict regulation on cities and county to assure that homes are not being built at risk of flooding in the 200-year flood. These regulations take effect 24 months after the Central Valley Flood Protection Plan is adopted. At this time the engineers are working on the 200-year maps and the regulations. A public outreach meeting is scheduled for June 21, 2011 to discuss "FloodSafe" building standards. The CVFPP is scheduled to be published in December 2011, with adoption for follow in June 2012.</p> | <ul style="list-style-type: none"> • July 1, 2012: CVFPP plan is to be adopted with 200-year flood maps scheduled to be published. • July 1, 2014: County General Plan must be updated to reflect new 200-year standard. • July 1, 2015: County Zoning Code must be updated to reflect 200-year standard. New 200-year standard becomes effective. |

Source: Sacramento County Department of Water Resources

Levee and Streambank Erosion Capabilities

Throughout the Central Valley, levees provide essential protection for both urban and rural lands, preventing possible catastrophic flooding and loss of life. On February 24, 2006, following sustained heavy rainfall and runoff, Governor Arnold Schwarzenegger declared a State of Emergency for California's levee system, commissioning up to \$500 million of state funds (AB142) to repair and evaluate State/federal project levees. This declaration was a necessary step in preventing possible catastrophic consequences of hurricane Katrina-like proportion.

Following the emergency declaration, Governor Schwarzenegger directed the California Department of Water Resources (DWR) to secure the necessary means to fast-track repairs of critical erosion sites. In addition, California's lengthy environmental permitting process was streamlined without compromising the protection of the important aquatic and terrestrial species inhabiting the river's ecosystem.

Repairs to State/Federal project levees are being conducted under the Levee Repairs Program funded by Section 821 of the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E).

To date, nearly 300 levee repair sites, many of which are in Sacramento County, have been identified, with more than 100 of the most critical sites having already been completed with AB142 funds. Repairs to others are either in progress or scheduled to be completed in the near future, and still more repair sites are in the process of being identified, planned, and prioritized.

California Levee Database

California has over 13,000 miles of levees that protect residential and agricultural lands. The levee failures resulting from hurricane Katrina prompted the State and the Department of Water Resources (DWR) to initiate development of a state-of-the-art California Levee Database (CLD) for the purpose of better understanding and managing levees in California. The CLD is an efficient tool for assessing levee reliability risk factors using a GIS-enabled geospatial database.

Starting in 2005, partnering with the Federal Emergency Management Agency (FEMA) under the auspices of FEMA's Map Modernization Management Support program, the Department has started assembling critically needed levee information on ownership, location, and risk assessment factors for all the levees in California. Recognizing that other agencies are engaged in similar efforts, DWR is actively participating on national committees organized by FEMA and the U.S. Army Corps of Engineers (USACE) to ensure compatibility and coordination with other national efforts.

Currently, the California Levee Database has location information for more than 10,000 miles of levees and flood control structures throughout California. Major features of the CLD include

- Levee centerlines for both State-Federal project levees and non-project levees. The project levees use surveyed levee centerlines from USACE's National Levee Database.
- Boundaries, such as those of levee districts, state levee maintenance area, cities, federal congressional districts, state assembly districts, and hydrologic sub-basins.
- Feature locations, such as those of boreholes, burrow sites, cross sections, encroachments, high water marks, levee stress, levee failures, and levee relief wells.

These features are continuously refined and populated for all identified levees in California. Additionally, web-based levee profile viewer, levee information viewer, and technical resources viewer will be developed and released to public in the near future.

Natomas Levee Improvement Project

In December 2008, Natomas was mapped into the FEMA 100-year floodplain. SAFCA's efforts have been to restore at a minimum a 100-year level of protection, while working toward 200-year level of protection. SAFCA, in partnership with DWR and the CVFPB, began constructing levee improvements in 2007 in advance of the full authorization of the federal project, with the expectation of receiving credit for such work towards the non-federal share of the authorized project. SAFCA's work included levee improvements along the Natomas Cross Canal and the upper reaches of the Sacramento River levees in Natomas. With passage of the Water Resources Reform and Development Act of 2014, USACE is taking the lead on completion of the remaining components of the NLIP. USACE' FY 2014 Work Plan includes \$1.0 million for preconstruction engineering and design work for the Natomas Common Features. USACE will commence construction of levee improvements along the southern and eastern portions of the Natomas Basin leading to 100-year and 200-year levels of flood protection over time. This estimated authorized project cost is approximately \$1.1 billion.

American River Common Features

Currently, SAFCA and its partners are studying what improvements are needed to meet a 200-year standard of protection for Sacramento's levee system. These improvements will be identified in a report to be produced by USACE called the Common Features General Re-evaluation Report (GRR). This GRR will identify future improvements to the levee system to meet the goal of 200-year level flood protection and address erosion protection, vegetation, seepage, and access requirements. The levee systems being reviewed are the American River levees, the Sacramento River levees downstream of the American River, and the north area streams (Natomas East Main Drain Canal, Magpie Creek Diversion Channel, and Arcade Creek).

SAFCA expects the final report to be complete in late 2015. Until the report is complete, USACE will continue to strengthen various portions of the American River levee system over the next year, work that should be completed by the time the GRR is completed. Current authorization is \$280 million. After the study, it is expected that the authorization project will cost over \$1.5 billion.

Folsom Dam Modifications/Joint Federal Project (JFP)

This joint federal project consists of a six-gated control structure, a 2,100-foot auxiliary spillway with a stilling basin, and an approach channel in the reservoir leading to the control structure. The auxiliary spillway design can be used for flood control as well as ensuring dam safety. As a result of its joint purpose, portions of these improvements were being constructed by the Bureau, which has completed Phase 1 and Phase 2. The two phases of work almost finished the spillway. USACE in 2010 awarded Phase 3 (construction of the control structure itself) with approximate cost of \$220 million. Work on Phase 3 was completed in 2015. Phase 4 (the last part needed for flood control) was awarded in 2013 with a completion of all flood control features to be done in late 2016. Total project cost is estimated at \$810 million.

Folsom Dam Raise Project

The Folsom Dam Raise project will raise the height of the dikes around Folsom Lake by about 3.5 feet. Construction on this project will begin sometime around 2017 based on the progress of the JFP. The implementation of the JFP and the Dam Raise, along with downstream levee improvements, will give the City greater than 200-year level of flood protection along the American River. The Raise project should be complete in 2021/2022. The estimated project cost is \$122 million.

South Sacramento Streams Group

This project is complete downstream of Franklin Boulevard. The Union Pacific Railroad embankment was completed at the end 2012. The Florin Creek Channel Project and Florin Creek Multi-Use Basin Project are expected to begin in 2016 to provide channel improvements and construct a detention basin. These projects will allow the 100-year flood event to be non-damaging to surrounding properties.

Sacramento River Bank Protection Program (Sac Bank)

USACE receives yearly appropriations to implement the Sac Bank program, which addresses erosion issues. As a result, erosion repair work occurs yearly along the river system. Over the last several years, the Sacramento area has had an average of three to four sites a year repaired, averaging over \$2 million per year.

Regional Planning

DWR launched the Regional Flood Management Plan (RFMP) effort to assist local agencies to develop long-term regional flood management plans that address local needs, articulate local and regional flood management priorities, and establish the common vision of regional partners. DWR is currently providing the funding and resource support to help develop phase 2 of the regional plans consistent with the 2012 CVFPP. There are six regions; and when the regional plans are completed, DWR will incorporate feasible components of the regional plans in the 2017 CVFPP update.

The County Department of Water Resources – Drainage Department tracks areas of erosion troubles and mitigates, to the extent possible, the root causes of erosion. These are shown on Table 4-108.

Table 4-108 Unincorporated Sacramento County Erosion Areas and Responses

| Address | City/Area | Work Requested |
|----------------------------|------------|--|
| 6809 Thunderhead Cir | Orangevale | "Remove (7) trees from the south side of Arcade Creek 11H12. - One down tree, 30" diameter, obstructing flow. - Six trees, <4" DBH, accelerating erosion and reducing channel capacity. Trees reside on Orangevale Park District's property (APN 259-0310-024-0000). Note: Work request originated from service request call from 8094 Chipwood Way, with the homeowner complaining about erosion beneath his deck." |

| Address | City/Area | Work Requested |
|--------------------------|----------------|---|
| 4843 Holyoke Way | Sacramento | "Remove tree obstructing outfall 360-185-C13. Tree permit 9144-11 attached. Tree can be left onsite for tenant use (at 4970 Walnut Ave). Redefine channel extending from outfall 360-185-C13 to west fence of 4843 Holyoke Way. Place riprap (4" angular) from outfall to approximately 5 feet beyond west fence. Riprap shall be underlain with geotextile fabric. Channel dimension should be approx. 3 feet wide and 1 foot deep. Weld two rebar grates with vertical bars spaced at 4 - 6 inches for allowing the flow to pas beneath the fences, attach to fence or anchor in soil. " |
| 11917 Pyxis Cir | Rancho Cordova | "Place erosion control at outfall 316-218-C01 consisting of quarry rock 12-18 inches in diameter. Rock shall be underlain with a non-woven geotextile fabric. Erosion control shall be approximately 8 feet wide, extending 10 feet from the spillway structure. Down trees can remain, however, trees should be moved outside of stabilized area and left as wildlife habitat. " |
| 4970 Walnut Ave | Sacramento | "Place and install riprap from outfall 360-185-C15 to 15' downstream of pipe. Rock should be 4"" angular quarry and underlain with geotextile fabric. Excavate soil to retain original channel capacity. Channel dimensions should be approximately 3' wide and 1' deep. NOTE: Originated from service request concerning runoff from Walnut Ave." |
| 4632 Teal Bay Ct | Antelope | "Please clear and remove the vegetation and debris from the flowline of Sierra Creek 55P17. Find and expose outfall 378-182-C07 (12"" RCP). Place 4"" angular quarry rock from outfall and extend rock 3' out. Clear vegetation surrounding 378-182-436 (12"" CMP, open-end pipe), and install flared end. Note: This work request originated from a service request concerning street flooding and ditch maintenance." |
| 5420 Marmith Ave | Sacramento | "Place riprap on the west side of Arcade Creek segment 11C01 to re-establish the slope toe near the southeast corner of 5420 Marmith Ave. Place 12""-14"" diameter angular quarry rock along slope toe. Rock should be underlain with a few layers of 2""-3"" diameter angular drain rock atop a geotextile fabric. Riprap should cover an area of 30' along creek alignment and 2' up slope. Approximately 5 cubic yards of rock will be required. Note: Work request originated from service request concerning erosion near corner of residence." |
| 7445 20 th St | Rio Linda | "Remove channel obstructions consisting of woody vegetation, down trees up to 2' in diameter, and shrubby snags from flowline of 27C08. Property owner is experiencing increased erosion as a result of the channel obstructions. Currently, material in the flowline forms an approximately 3' high dam which will impede flows and accelerate erosion. Mr. Kenning and Ablang met with property owner on 3/1/13. This request originated from Mr. S. Pedretti." |
| 500 Ethan Way | Sacramento | "Near D-05 Howe Ave Pump Station. Place and install riprap from newly constructed berm to approximately 30' northwest (to the point where the ditch meets and levels out into the basin). Rock should be 4" - 6" angular quarry rock and underlain with geotextile fabric. Excavate soil to retain original ditch capacity. Maintain current grade. Facility map, aerial, and photos are attached. Note: The recent JOC project at D-05 constructed a concrete berm on the west side of the channel. This work request will help protect the existing ditch adjacent to this new berm." |

| Address | City/Area | Work Requested |
|---------------------------|------------|--|
| 2230 Arden Way | Sacramento | "Please remove the existing failed concrete panel sections (two locations, east and south of 2230 Arden Wy). Excavate and remove loose soil and vegetation from behind and near failed concrete sections. Exposed areas should be seeded and finished with high-quality turf reinforcement mat (Western Excelsior's Excel PP5-12 Permanent Turf Reinforcement Mat) and long-term synthetic wattle at toe. Secure Excel PP5-12 mat in place per manufacturer's specifications. Gaps between remaining panels and slope should be closed with concrete to prevent further undermining and erosion. Use BMPs (including sandbags), as necessary, to mitigate environmental impact. Facility map, photos, VRF, and Western Excelsior Erosion Control Blanket installation instructions are attached. " |
| 9373 Winding Oak Dr | Fair Oaks | "Please re-build and widen the access road to allow for vehicular access and install riprap on the west side of Fair Oaks Stream Group 25MM1 to prevent further erosion. Work extents should be limited to 50' in length. Location is near the tennis courts, see attached aerial photo. Excavate soil along eroded area until firm and suitable soil is reached. Dig a trench at the toe to key-in the riprap. The key at the toe should be at least 2' deep. Cut benches angled slightly into the slope prior to placement. Benches should roughly parallel slope contours. Place 12"-14" diameter angular quarry rock, underlain with 2"-3" diameter angular quarry rock atop a geotextile fabric. Material should be placed in lifts not exceeding 12". See attached photos, facility map, VRF documentation, and easement information. NOTE: Work request originated from Park request concerning erosion and loss of their access road towards the north portion of the parcel. This work request will help alleviate concerns with the lack of access in regards to our drainage maintenance, Park's maintenance activities, fire abatement, and firefighter access." |
| 5543 Locust Ave | Carmichael | "Install approximately 30LF of riprap to the north side of Arcade Creek 11N05, immediately downstream of outfall 356-188-C10, to mitigate undercutting at the creek toe. Rock should be 8"-12" diameter angular quarry rock, and underlain with a few layers of 2"-3" diameter angular gravel atop a geotextile fabric. Rock will need to cover an area approximately 30' L x 2' H x 2' W. See attached facility map, photos, Right-of-Entry, and VRF documentation. Take post-construction photos. NOTE: This work request originated with the homeowner's concerns regarding erosion along this creek stretch and drainage maintenance responsibilities. Homeowner has aggressively been pushing County to perform maintenance work." |
| 10345 Peter A McCuen Blvd | Mather | "Please install rip-rap erosion protection from outfall 326-197-C12 extending to Morrison Creek 13QQ1. Excavate to suitable soil, and re-compact. Geotextile fabric shall be placed over soil prior to rip-rap placement. Rip-rap placement should be balanced equally on both sides of pipe. Utilize 6"-10" diameter angular quarry rock, underlain with a few layers of 2"-3" diameter angular drain rock. NOTE: Originated from grizzly investigations." |
| 9160 Madison Ave | Fair Oaks | "Install approximately 50LF of riprap to the south side of Fair Oaks Stream Group 25MM2, alongside parking lot adjacent to tennis courts. Rock should be 8"-12" diameter angular quarry rock, and underlain with a few layers of 2"-3" diameter angular gravel atop a geotextile fabric. Rock will need to cover an area approximately 50' L x 4' H x 3' W. See attached facility map, photos, and VRF documentation. Also, please remove two palm trees from flow line. NOTE: This work request originated with Rollingwood Commons' concern with erosion potentially compromising their parking lot." |
| 4647 Winding Way | Sacramento | "Please backfill & compact eroded soil areas underneath and around existing concrete panel erosion protection at outfall 356-182-C03. Seal newly backfilled & compacted soil with additional new concrete. Placement of new concrete should overlap 12" on existing concrete, cover new soil, and extend 12" beyond to cover existing stable non-eroded soil. Note: This issue was identified during routine outfall grizzly inspection." |

| Address | City/Area | Work Requested |
|----------------------------|------------|--|
| 9160 Madison (B) Ave | Fair Oaks | "Repair existing headwall by placing Class B-2 concrete in voids on upstream and downstream sides of headwall. Also, place concrete in void under the headwall through a hole in the outfall pipe. Install 8-12" quarry rock underlain with a few layers of 2-3" diameter angular gravel atop a geotextile fabric. Rip rap should extend 5' upstream and downstream of headwall. Smooth transition to natural side slopes. |
| 6809 Thunderhead Cir | Orangevale | "Please reset undermined and disconnected 10" outfall pipe 372-212-C12. Trim vegetation overgrowth to allow for access to pipe, and also to clear flowpath from outfall pipe to main invert of Arcade Creek. Install rip-rap erosion protection at outfall pipe. This land is owned by Orangevale Recreation & Park District (OVRPD). Access to this work location shall be made on foot only (no motorized vehicles) via open land adjacent to 6809 Thunderhead Circle. Trimmings shall be removed from OVRPD property. Note: This issue was discovered during routine grizzly inspection." |
| 5432 Olympic Way | Sacramento | "Please provide erosion control surrounding outfall 370-188-C42 and inlet structure 370-188-R04. Remove existing debris and unsuitable soil, and compact native material. Place 8-12" angular rock underlain with a few layers of 2-3" diameter angular rock atop a geotextile fabric. At R04, work shall extend approximately 6' on both sides of the pipe and 3-4' into the creek. At C42, work shall extend throughout the undermining areas below the outfall. |
| 4336 Poseidon Ln | Sacramento | "Perform erosion control along southerly bank nearest the west corner of the house. Remove unsuitable soil, backfill, and compact to create a 1:1 slope. Place 8-12" angular rock underlain with a few layers of 2-3" diameter gravel atop a geotextile fabric for approximately 25'-30'. During construction, please make efforts to streamline the top and toe of bank upstream and downstream of the erosion. Please remove silt bars on the northerly bank of the creek to help minimize future erosion. |
| 5151 Myrtle Ave | Sacramento | "Please perform the following work: 1. Reset disconnected outfall pipe at 360-185-C09 (24" RCP). 2. Install rip-rap around outfall pipe C09 to prevent erosion from causing pipe to disconnect again. 3. Clear and remove heavy vegetation D/S of outfall pipe C09 in short tributary creek segment 11RR1. Access to C09 can be made via apartment complex parking lot at 5151 Myrtle Ave. Note: This issue was discovered routine grizzly inspection." |
| 4990 Walnut Ave | Sacramento | "Perform erosion control along westerly bank on the north side of the property at the bend about 150' downstream of the box culvert. Remove unsuitable soil, backfill, and compact to create a 1:1 slope. Place 8-12" angular rock underlain with a few layers of 2-3" diameter gravel, 1 1/2" gravel could also suffice, atop a geotextile fabric for approximately 20'. During construction, please make efforts to streamline the top and toe of bank upstream and downstream of the erosion. |
| 4513 North Ave | Sacramento | "Fill void at outfall 348-182-C03 with concrete. Note: SR#24463 P.O. is concerned about erosion under outfall. Soukup reported small void about 6 ft deep under structure, see picture." |
| 4904 Manzanita Ave | Carmichael | "Please repair undermining and erosion around outfall pipe 360-191-C03. Access to work location can be made via 2214 padlock & chain on temporary fencing adjacent to outfall pipe. Since the property is undeveloped, the PO (Rev. Sands; Church of the Holy Trinity) does not need to be notified prior to performing repairs. Note: This issue was discovered during routine grizzly inspection duty by DME staff." |
| 9411 Wiltshire Way | Orangevale | "Please install erosion protection at the outfall to Linda Creek from the detention basin located at Wiltshire Wy and Main Ave. Please repair an 8' by 8' area at the end of the concrete channel by removing all unsuitable soil, backfilling and compacting with native soil, and then placing 4-6" angular rock atop a geotextile fabric." |

| Address | City/Area | Work Requested |
|------------------|------------|--|
| 7231 Lincoln Ave | Carmichael | "Please remove debris, vegetation, and CMP culverts within flowline of creek segment 63F21 (see attached photos and facility map). In addition, please correct grade of creek by re-establishing flow line and stabilize bank erosion using native material and angular rock. Work should be completed after bird nesting season, and can be performed between, 9/15/16 - 10/15/16. Equipment access via 4310 Hussey Dr. Please see attached facility map, ROEs, photos and VRF. NOTE: Work request originated from owner concern of bank erosion encroaching on day care playground." |
| 4310 Hussey Dr | Carmichael | "Please place angular rock along bank (approx. 25 sqft) to mitigate for erosion encroaching on homeowner's patio. Also remove downed tree and existing tree near creek bank. Existing tree could potentially fall causing further erosion. Please complete work in conjunction with 7231 Lincoln Ave work request. Note: Work Request originated from owners concern of bank erosion encroaching on patio." |

4.4.2. Sacramento County's Administrative/Technical Mitigation Capabilities

Table 4-109 identifies the County personnel responsible for activities related to mitigation and loss prevention in the County.

Table 4-109 Sacramento County Administrative/Technical Mitigation Capabilities

| Administration | Y/N | Describe capability Is coordination effective? |
|--|---------|--|
| Planning Commission | N | |
| Mitigation Planning Committee | Y | Every five years hazards are reviewed by committee of officials from Countywide departments Planning, Stormwater, Agriculture, Transportation and more. Mitigation is planned and recorded. |
| Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems) | Y | Drainages throughout the County are cleared during routine maintenance, and inspected and cleared immediately before storms. Fire fuel (vegetative litter) is cleared through a grant funded program to prevent wildfires. |
| Mutual aid agreements | N | |
| Other | | |
| | | Is staffing adequate to enforce regulations? |
| | Y/N | Is staff trained on hazards and mitigation? |
| Staff | FT/PT | Is coordination between agencies and staff effective? |
| Chief Building Official | Y FT | |
| Floodplain Administrator | Y FT | There are five CFM in DWR and all staff are knowledgeable with the Floodplain Ordinance. Coordination between departments is effective and is ongoing for all permitted uses in the floodplain. |
| Emergency Manager | Y FT | |

| | | |
|--|---------|--|
| Community Planner | Y FT | |
| Civil Engineer | Y FT | County DWR –drainage unit has six staff that are licensed Civil Engineers whom are all educated in hazards & mitigation. Staffing is adequate. |
| GIS Coordinator | Y FT | |
| Other | | |
| Describe capability Has capability been used to assess/mitigate risk in the past? | | |
| Technical | Y/N | |
| Warning systems/services (Reverse 911, outdoor warning signals) | | |
| Hazard data and information | Y FT | |
| Grant writing | Y FT | |
| Hazus analysis | | |
| Other | Y | Dam Failure |
| How can these capabilities be expanded and improved to reduce risk? | | |
| | | |

4.4.3. Sacramento County’s Fiscal Mitigation Capabilities

Table 4-110 identifies financial tools or resources that the County could potentially use to help fund mitigation activities.

Table 4-110 Sacramento County Fiscal Mitigation Capabilities

| Funding Resource | Access/ Eligibility (Y/N) | Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions? |
|--|---------------------------------|---|
| Capital improvements project funding | Y | Sacramento County has a Storm Water Utility that serves to make improvements to the existing storm drainage systems. The Sacramento County Water Agency has trunk drainage developer impact fee programs that fund installation of drainage systems serving 30(+) acre watershed. |
| Authority to levy taxes for specific purposes | Y | |
| Fees for water, sewer, gas, or electric services | Y | |
| Impact fees for new development | Y | |
| Storm water utility fee | | |

| Funding Resource | Access/ Eligibility (Y/N) | Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions? |
|--|--|--|
| Incur debt through general obligation bonds and/or special tax bonds | Y | |
| Incur debt through private activities | Y | |
| Community Development Block Grant | Y | |
| Other federal funding programs | Y | DMA, have been used to mitigate flood risk through home elevations and acquisitions. These programs have been successful and will be applied in the future when available. |
| State funding programs | | |
| Other | | |
| How can these capabilities be expanded and improved to reduce risk? | | |
| | | |

4.4.4. Mitigation Education, Outreach, and Partnerships

Table 4-111 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Table 4-111 Sacramento County Mitigation Education, Outreach, and Partnerships

| Program/Organization | Yes/No | Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities? |
|---|---------------|---|
| Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. | Yes | Non-profits such as La Familia, WIC (Dept of Public Health) and food programs exist that could be used to implement mitigation activities or communicate hazard information. They currently are not being used in this capacity. Other groups such as the Environmental Justice Coalition for Water could assist. |
| Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | Yes. | Non-profit organizations and government agencies Countywide do ongoing public education for preparedness on the topics of fire, flood and water use. |
| Natural disaster or safety related school programs | | |
| StormReady certification | Yes | The County maintains a StormReady program and does public outreach regularly through radio, website, local events and the County's public counter. |
| Firewise Communities certification | | |

| Program/Organization | Yes/No | Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities? |
|---|--------|--|
| Public-private partnership initiatives addressing disaster-related issues | Yes | Capital Region Climate Readiness Collaborative could be used to inform mitigation activities and communicate hazard-related information. |
| Other | | |
| How can these capabilities be expanded and improved to reduce risk? | | |
| <p>Social media to connect with most vulnerable populations in various languages (some rural areas don't have broadband, many do not watch tv/cable to get messages)</p> <p>Coordinate with public and mental health departments, service providers and organizations in providing information and utilizing their communication tools to connect with clients</p> <p>2-1-1 is an effective resource in some areas but not all. Need to make it more robust so people know to use it and that it has reliable and timely information.</p> <p>Utilize neighborhood associations, schools, community watch groups to distribute information.</p> <p>Utilize "NextDoor" site to convey information</p> | | |

Sacramento County works cooperatively and has many mutual aid agreements in place with various federal, state, and local agencies, groups, and districts. Examples include the U.S. Forest Service, Cal Fire, the California Department of Water Resources, Bureau of Reclamation, National Weather Service, the State Regional Board, CALFED, and the Delta Planning Commission.

Delta Planning Commission

The Delta Planning Commission is charged with the protection of the Delta, both in areas inside and outside of Sacramento County. The mission of the Delta Protection Commission is to adaptively protect, maintain, and where possible, enhance and restore the overall quality of the Delta environment consistent with the Delta Protection Act, and the Land Use and Resource Management Plan for the Primary Zone. This includes, but is not limited to, agriculture, wildlife habitat, and recreational activities. The goal of the Commission is to ensure orderly, balanced conservation and development of Delta land resources and improved flood protection.

The Planning Commission has released many studies and plans related to protecting the people and property in the Delta. Examples of these include:

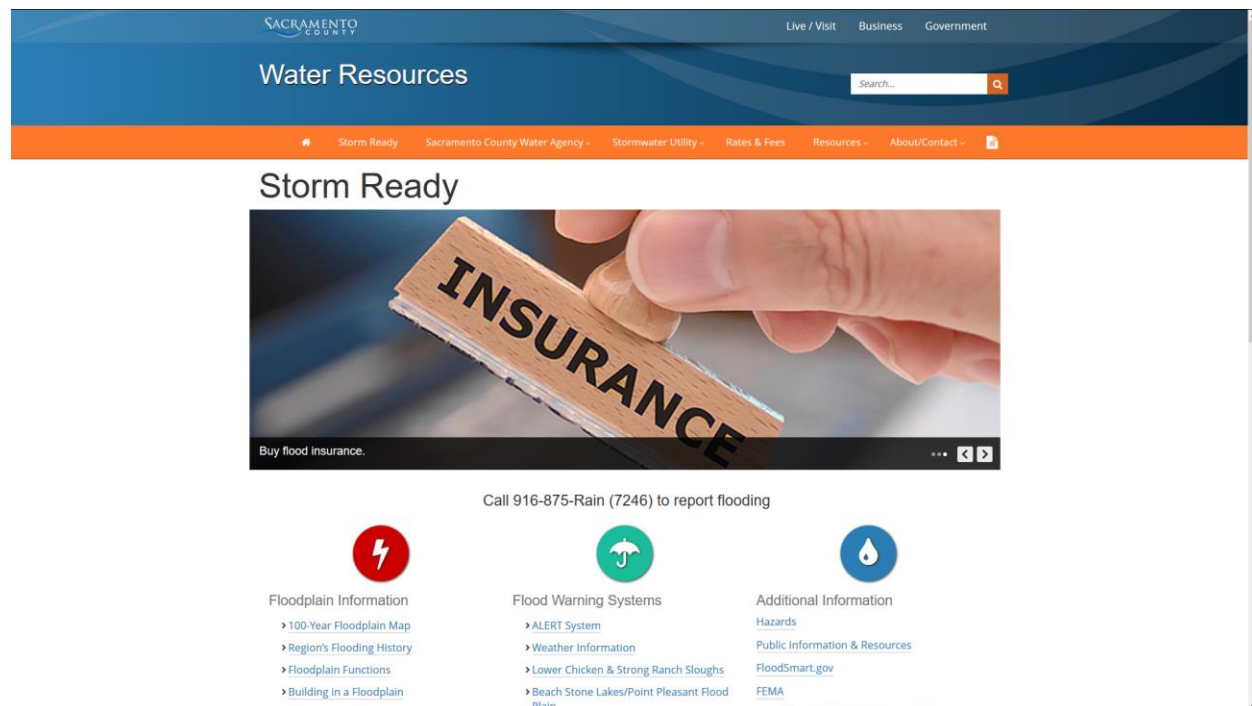
- The Economic Sustainability Plan
- Primary Zone Study
- Land Use and Resource Management for the Primary Zone of the Delta
- Strategic Plan 2006-2011
- Strategic Plan 2008-2009 Tasks
- Annual Reports

StormReady

Overview

Sacramento County Department of Water Resources' annual outreach program informs and educates residents within the unincorporated county and Rancho Cordova about being storm-ready. The homepage is shown in Figure 4-100.

Figure 4-100 StormReady Website



Source: <http://www.msa.saccounty.net/waterresources/stormready/>

Flood Maps

The County of Sacramento and the City of Sacramento have prepared various detailed maps showing hypothetical levee breaks, inundation levels and the time it would take for waters to rise in affected neighborhoods, and rescue and evacuation zones. The maps come in pairs.

- Flood Depth Maps: show where the water would flow over time and how deep it would get given the hypothetical flooding scenario.
- Rescue and Evacuation Route Maps: show rescue areas, evacuation areas, and potential evacuation routes.

In addition to augmenting the evacuation plan, the StormReady website shows evacuation and flood maps by area. Example maps are shown in Figure 4-101 and Figure 4-102. There are 18 areas in the County for which flood depth and evacuation maps are available:

- Arcade Creek 1

- Arcade Creek 2
- Arden
- Campus Commons 1
- Campus Commons 2
- CSU Sacramento
- Downtown 1
- Downtown 2
- Goethe
- Mayhew
- Natomas 1
- Natomas 2
- Natomas 3
- Natomas 4
- Natomas 5
- Pocket
- River Park
- South Sacramento

Figure 4-101 Arcade Creek 1 Flood Depth Map

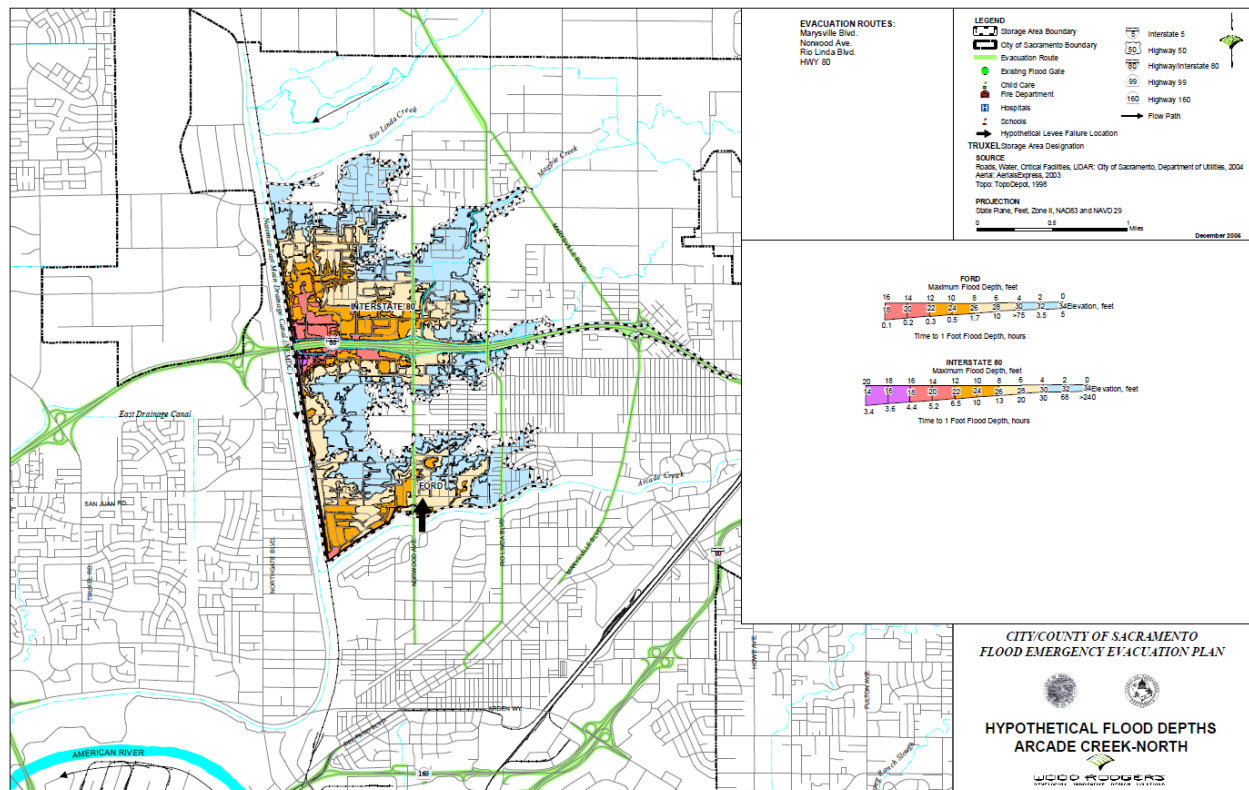
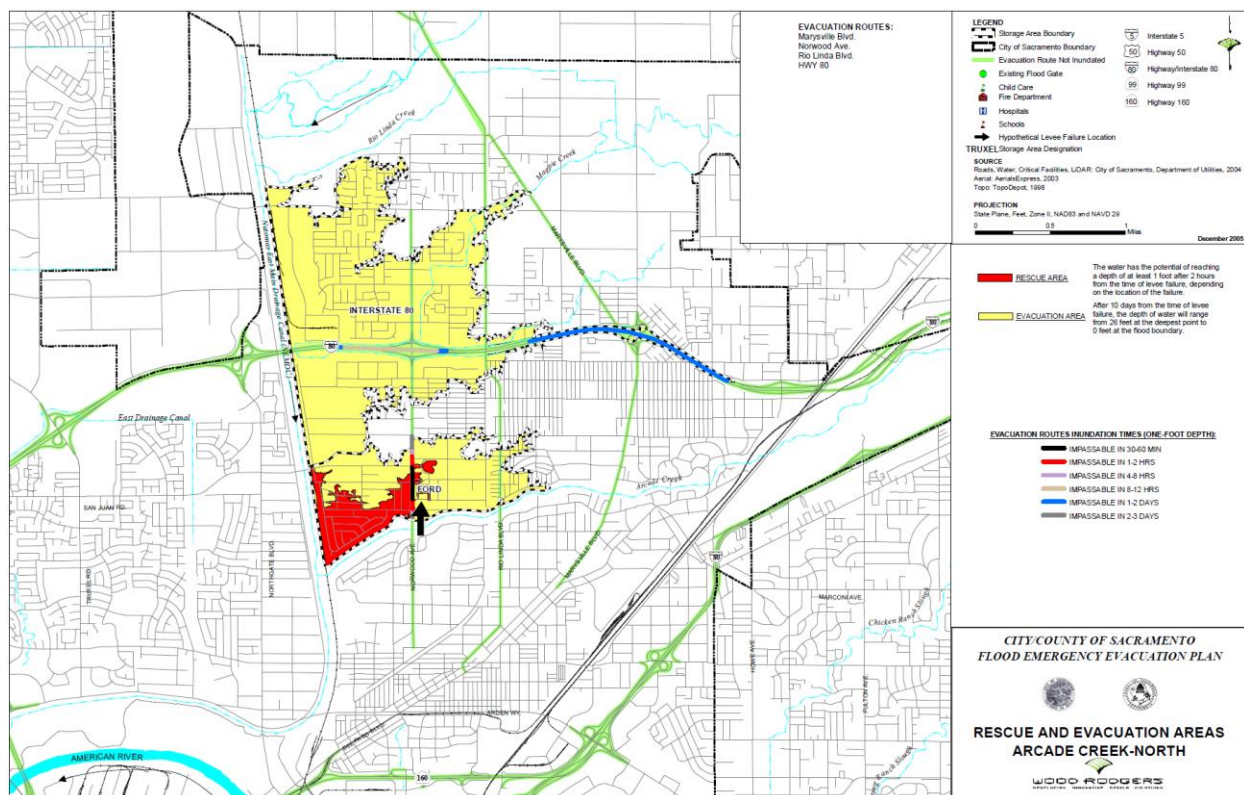


Figure 4-102 Arcade Creek 1 Flood Evacuation Map



4.4.5. Other Mitigation Efforts

Section 2 What's New details mitigation projects implemented since the 2011 plan. The County also has many planned and ongoing projects focused on minimizing future losses associated with identified hazards. Many of these projects are sponsored and implemented by one or more County departments and/or other state and local agencies and organizations. Current projects include those listed below in this section.

The County noted some flooding projects that have been completed since 2010:

- Bridge replacement on Vineyard Road at Laguna Creek – the bridge was raised by several feet over the creek.
- First phase of road improvements on El Camino Avenue – added larger storm drain pipes and extended drain inlets to better pick up neighborhood storm drain run off.
- Freedom Park Drive – this roadway reconstruction added drainage swales to absorb storm runoff into landscaped area before going into storm drain pipes with the goals of filtering waters to do run to creeks and reducing flows into creeks. The reduced runoff lessens flooding concerns.

Future County projects planned to improve flooding issues include:

- Bridge replacement on Elk Grove-Florin Road at Elder Creek – the bridge will be raised by several feet over the creek.

- Michigan Bar Bridge replacement at the Consumnes River – the bridge will be raised by about a foot over the river.
- Second phase of road improvements on El Camino Avenue – will add larger storm drain pipes and extended drain inlets to better pick up neighborhood storm drain run off.

SAFCA and the Sacramento County Airport System drained rice fields next to the Sacramento Airport. This was done to reduce the population of migrating waterfowl near the airport runways and in the Airport Runway Protection Zones.

The Bureau of Reclamation, in cooperation with California State Parks, the Sacramento Metropolitan Fire District and the Sacramento Regional Conservation Corps (SRCC), recently began implementing a fire fuels reduction project along Lake Natoma’s shoreline and adjacent to private property on Monday, May 23, 2011. The work is expected to continue through mid-June. The purpose of the project was to reduce flammable vegetation along Lake Natoma’s boundary to help mitigate the risk of wildfire. The work will be accomplished by SRCC crews and was made possible by grant funding obtained by the SRCC. Crews removed dead vegetation and excessive foliage within 50 to 100 feet of property boundaries. The amount of vegetation removed varied based on its density in different areas. In some locations, minimal work was needed, while other areas will require the removal of a noticeable amount of foliage. The project minimized the removal of mature native trees focused on removing non-native trees and shrubs.

The State of California has mitigation effort and actions undertaken as part of the California State Hazard Mitigation Plan that have direct impacts on mitigation efforts in Sacramento County. These programs include:

- The Delta Risk Management Strategy document
- Levee Evaluation and Repair (along the Sacramento and San Joaquin River valleys and the Delta)
- Initiation of the California Levee Database
- An Aerial Levee Survey Project
- Levee Flood Protection Zones (see Figure 4-47)

ALERT Gages–Sacramento County Department of Water Resources maintains many ALERT gages throughout the County. There are 50 stream gages and 59 rainfall gages that monitor flooding and potential flooding conditions throughout the County. These are shown on Figure 4-103.

Figure 4-103 Sacramento County ALERT Gage Locations

