

# **Solano County Emergency Operations Plan**

## **Flood and Tsunami Annex**



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# **Section 1. Introduction**

## **1.1 Purpose**

This annex is intended to provide flood hazard specific information for the planning and response needs generated by the flood and tsunami hazards in Solano County, including the regulatory response details that apply to flooding. It is designed as a guide for a coordinated community-wide process to facilitate mitigation, preparedness, response and recovery to flooding and tsunamis for County departments and agencies in cooperation with cities, businesses, non-governmental organizations and citizens.

## **1.2 Scope**

Flood hazard emergency planning involves preparing for realistic flood hazards and is based upon an operational picture that includes historic information, relevant hydrologic considerations, planned engineering events, and resource availability. This annex has been developed to address the needs of unincorporated Solano County regarding the issues of flooding and coordination linkages with cities in the Solano County Operational Area.

According to the California Office of Emergency Services (Cal OES), there is minimal tsunami hazard in Solano County. Any tsunami preparedness and response efforts can utilize preparedness and response efforts for flood hazards, including public education programs, warning, evacuation and other measures. According to information developed by the Association of Bay Area Governments (ABAG) developed in 2010, there are 10 Health Care facilities, 22 Schools, 53 Critical Facilities and 87 Bridges and Interchanges in either the 500-yr Flood Plain or Other Concern (Zone X500) or the 100-yr Flood Plain (Zone V or Zone A). There are no Health Care Facilities, Schools, Critical Facilities or Bridges and Interchanges in the Tsunami Hazard Zone in the County.

This annex provides the following information:

- Specific Solano County agency responsibilities
- Operational concepts for warning and emergency response
- General information about flood control and flood fighting in Solano County.

## **1.3 Quick Reaction Guide**

See the quick reaction checklist under separate cover.

## **1.4 Policy**

It is the policy of the County to develop plans and procedures to address flood hazards that affect the citizens in the unincorporated areas of Solano County, as well as Solano County facilities and infrastructure. It is further the policy of the County to cooperate with the cities in the Solano County Operational Area to reduce the threat of flooding and flood damages to public and private property, and to prepare for flood response and recovery operations if needed.



## **Section 2. Authorities and References**

### **2.1 Federal**

- Public Law 93-288 (The Stafford Act)
- Public Law 84-99 (U.S. Army Corps of Engineers-flood fighting)
- Public Law 108-361 (Bureau of Reclamation)
- Public Law 107-310 (National Dam Safety and Security Act of 2002)
- National Incident Management System (NIMS)

### **2.2 California**

- California Emergency Services Act, California Gov. Code, Sections 8550-8668
- State of California Emergency Plan
- Standardized Emergency Management System (SEMS)
- California Natural Disaster Assistance Act. Section 128, California Water Code (California Department of Water Resources - flood fighting)
- California Dam Safety Act-Division 3 of the Water Code
- State, Title 19, Public Safety, Division 2 (Office of Emergency Services), Chapter 2 (Emergencies and Major Disaster), Subchapter 4 (Dam Inundation Mapping Procedures) of the California Code of Regulations
- California State Building Code-California Code of Regulations, Title 24
- California Water Code, Section 8370
- California Public Resources Code, Section 21060.3

### **2.3 Solano County**

- Solano County Emergency Operations Plan (EOP)
- Solano County Hazard Mitigation Plan 2010 Update
- Association of Bay Area Governments (ABAG), Solano County Water Agency Annex & Solano Irrigation District Annex
- San Francisco Bay Area, Regional Emergency Coordination Plan
- Solano County Land Use Planning Regulations
- RD MOAs for flood and levee emergency response
- Solano County Water Agency (SCWA) Flood Hazard Information
- SCWA Integrated Regional Water Management Plan (IRWMP)





## Section 3. Assumptions and Considerations

### 3.1 Planning Assumptions

Certain assumptions can be made for the County flooding risk and hazards. These assumptions lay the foundation for this Annex and the *Solano County Emergency Operations Plan* associated with conducting emergency management operations in preparation for, response to and recovery from major flood emergencies:

- Flood emergencies or disasters are most likely to occur in the fall, winter and spring due to heavy rains, melting snow and spring run-off.
- Major flood emergencies or disasters may pose serious threats to public health, property, the environment, and the local economy.
- Flood warning is provided through a variety of means, such as National Weather Service (NWS) announcements, National Oceanic & Atmospheric Administration (NOAA) radio, standard radio and television Emergency Alert System (EAS) bulletins. These actions help inform citizens about flood threats or actual flooding conditions.
- Flood warning is provided by Solano County Water Agency.
- Major flood emergencies or disasters may require a multi-jurisdictional response with cities in the Solano County Operational Area and neighboring counties.
- In flood emergencies or disasters, the Standardized Emergency Management System (SEMS) and National Incident Management System (NIMS) will be implemented by responding agencies, and expanded as necessary.
- Solano County is primarily responsible for emergency actions in the County unincorporated area and will commit all available resources to save lives, minimize injury to persons and minimize property damage.
- Major flood emergencies or disasters may overburden local resources and necessitate mutual aid from neighboring jurisdictions.
- Major flood emergencies or disasters may generate widespread public and media interest. Working relations with the media should be maintained to facilitate emergency public information and warning.
- A major flood emergency or disaster may require extended commitments of the County personnel and resources; subsequently, Continuity of Operations of County services must be maintained.
- Solano County supports the National Flood Insurance Program (NFIP) as directed by the Federal Emergency Management Agency (FEMA)

### 3.2 Flood Planning Considerations

This Annex addresses the following flood planning considerations:

- Loss of life, injury and property damage from flooding can be reduced by timely warning and appropriate reaction by emergency response agencies.
- Solano County may request a State of Emergency in order to apply for funds under California's Natural Disaster Assistance Act (NDAA) program.
- Large-scale flooding may qualify for proclamation of a Local Emergency and a State of Emergency proclamation. Such flooding may also qualify for a Presidential Federal Emergency declaration.



## **Section 4. Roles and Responsibilities**

### **4.1 Overview**

Flooding presents a threat to not only people and property in designated floodplains, but also to the overall economy and quality of life in the County. Listed below are County departments and entities that have a role during a flood response.

### **4.2 Solano County**

#### **4.2.1 Resource Management Department, Public Works Division**

The Resource Management Department is responsible for flood plain management activities in Solano County. Their Public Works Division provides flood-fighting assistance, such as sandbagging, and river, creek, or stream bed debris clearance.

#### **4.2.2 Solano County Water Agency**

The Solano County Water Agency (SCWA) is a wholesale water agency serving all of Solano County. The agency receives its water from the Solano Project (Lake Berryessa) and the Solano Water Project (SWP). Member agencies of SCWA include the cities of Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo. Solano Irrigation District (SID), Maine Prairie Water District, and Reclamation District No. 2068 are also members. The boundary of SCWA does not always follow watershed boundaries. For example, the watershed of Lake Berryessa is in Napa County, with a small section in Solano, and the dam in Yolo, Solano and Napa Counties.

For flood management purposes, there are areas in Napa County that drain into Solano County, such as Putah Creek.<sup>1</sup> The agency has a flood control function and through its website provides information concerning water supply and flood control in Solano County.

SCWA has a flood warning system in place for the creeks and tributaries. It also has a dam inundation warning coordinated with the Federal Bureau of Reclamation (Reclamation). SCWA joins in with a host of Federal Agencies (e.g., National Weather Service and National Oceanic and Atmospheric Administration), State and Local (e.g., Solano OES) in providing flood and tsunami warnings.

#### **4.2.3 Levee Maintaining Agencies**

Local Levee Maintaining Agencies (LMAs) such as such as Reclamation District 2068 have the primary day-to-day responsibility for the integrity, improvement, operations, and maintenance of their flood control infrastructure, such as levees and water supply facilities in the County. During flood emergencies, a RD is generally the organizer of levee patrols in high-hazard situations and may have material and some equipment available for conducting flood fights and established communications protocols for informing the Solano County OES.

#### **4.2.4 Department of General Services**

The Department of General Services (DGS) is responsible for managing County buildings and overseeing utility usage in the County. During a major flood response and recovery, DGS will be needed to bring vital utilities such as sewer, water and

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<sup>1</sup> California Delta Levee Emergency Management Phase One Report

power back online. A representative from DGS will have a seat in the EOC in the Public Works Unit within the Engineering Branch in the Operations Section. County utility representative will work with the private utility companies to coordinate restoration efforts.

#### **4.2.5 Office of Emergency Services**

The County Office of Emergency Services (OES) will take the lead role in flood operations to support the Incident Commander and field operations by managing the EOC.

### **4.3 Non-Government/Non-Profit/Voluntary Organizations**

The County EOC will coordinate the needs for voluntary organizations through the Solano County Voluntary Organizations Active in Disasters (VOAD). A representative from the Solano County VOAD (typically American Red Cross) will have a seat in the County EOC and will be the point of contact to communicate with a large array of voluntary organizations.

**American Red Cross.** The American Red Cross (ARC) is a volunteer-led, humanitarian organization that provides emergency assistance, disaster relief, and education worldwide. Officially sanctioned by the U.S. Congress under Title 36 of the United States Code, Section 30013, ARC provides disaster relief focused on victims and immediate emergency needs and provides shelter, food, and health and mental health services. As an emergency support agency, ARC does not engage in these first responder activities; however, ARC feeds emergency workers, such as flood fight responders, and handles inquiries from victims outside the disaster area.<sup>2</sup> The ARC, Solano County Chapter will be responsible for the sheltering and feeding of any evacuees or homeless due to flooding. An ARC representative in the EOC will have a seat in the Care and Shelter Unit within the Operations Section of the EOC to provide a point of contact for shelter operations.

### **4.4 State and Federal Entities**

#### **4.4.1 California Office of Emergency Services**

The California Office of Emergency Services' (Cal OES) mission is to oversee the State's ability to respond to emergencies that threaten lives, property, and the environment. Government Code § 8587, gives them the authority to coordinate the emergency activities of State agencies and to delegate power for response once local resources are exhausted. Cal OES supports local emergency operations through the respective Cal OES Regions. The County reports to the Region II Coastal. A local emergency proclamation must be declared by the Solano Operational Area and its members to request assistance from the State. Once assistance is requested, a Cal OES representative will support the County from their position in the Regional EOC (REOC). The REOC in turn will coordinate with the State Operations Center as needed.

#### **4.4.2 California Department of Water Resources – Flood Management**

The California Department of Water Resources (DWR) Division of Flood Management's mission is to prevent the loss of life and reduce property damage caused by floods. DWR has been developing detailed topographic data for a very large portion of the Central Valley including portions of the County for floodplain mapping purposes. To coordinate response efforts, DWR has established the *Enhanced Delta Emergency Preparedness and Response Program*. The program incorporates

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<sup>2</sup> Ibid.

existing assets and develops new capabilities to form a more comprehensive and effective emergency response plan in the Delta. As part of the response program, DWR has initiated the following activities:

- Preparing Emergency Operations Plans and Public Outreach Plans
- Establishing program updates for internal and external partner facilities
- Developing plans and building flood fight material for transfer areas
- Purchasing and pre-deploying flood response materials
- Providing flood fight training and multi-agency disaster exercises.<sup>3</sup>

#### **4.4.3 Federal Emergency Management Agency**

The primary purpose of FEMA is to coordinate the response to a disaster that has overwhelmed the resources of local and State authorities. The Governor of California must proclaim a state of emergency and formally request FEMA and Federal government assistance to respond to disaster in the Delta from the President. FEMA's Region IX, Operations Section in Oakland, CA works closely with Cal OES to deliver Federal assistance in support of local and State response efforts.

#### **4.4.4 U.S. Army Corps of Engineers**

The U.S. Army Corps of Engineers (USACE) flood disaster assistance program supplements and supports State and local interests upon their request for assistance to the Federal Government. USACE is authorized to provide flood emergency response assistance relative to:

- Emergency Operations, Flood Fight Assistance (Technical and Direct Assistance)
- Rehabilitation of Damaged Flood Control Projects
- Advance Measures (Technical and Direct Assistance)

When flood conditions exceed, or are predicted to exceed, the response capability of levee maintaining and/or reclamation districts and local and State governments, USACE has the authority under Public Law (P.L.) 84-99 to provide emergency flood response assistance without further specific authorization of Congress. USACE can furnish assistance for flood emergency preparation, flood fighting, and the repair or rehabilitation of flood control works threatened or destroyed by flood. USACE assistance may also include providing flood fight personnel for technical advice and equipment, such as sandbags, plastic sheeting, pumps, or other materials. In the event of imminent threat of catastrophic flooding, USACE may provide equipment to protect against substantial loss of life and property.<sup>4</sup>

#### **4.4.5 U.S. Coast Guard**

The Captain of the Port (COTP) for U.S. Coast Guard's (USCG's) Sector San Francisco oversees marine activities in an Area of Responsibility (AOR) that covers most of Northern California. Within this AOR, the COTP is responsible for the maritime safety of its navigable waters, the maintenance of the aids to navigation within them, and the prevention of marine pollution. The latter is part of the USCG's marine environmental protection mission. During incidents that impact these waters, including the entire San Francisco Bay, the Delta region including Solano County and its major navigable tributaries the COTP serves as the Federal On-Scene Coordinator. USCG can provide search and rescue (SAR) capabilities and spill response for oil and hazardous material throughout the Delta region as part of its response efforts.

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<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

## **4.5 Private Sector- Construction/Equipment Companies**

Construction and/or large equipment companies may be needed during flood response and recovery efforts. Every effort should be taken to secure Memorandums of Understanding (MOUs) to have pre-arranged agreements with equipment companies to provide resources during a disaster response. Any established MOUs are maintained by Resource Management. A list of some levee repair contractors is found in Appendix B.

## 4.6 Role and Responsibility Reference Matrix

Table 4-1: Roles and Responsibilities Table in Support of Flood and Tsunami Operations

*P= Primary*

*S= Secondary*

Cooperating Agency	Planning and Preparedness	Public Information and Outreach	Monitoring and Situational Awareness	Alerting and Warning	Activation of DOCs	Flood Plain Management	Levee Patrols	Flood Fight Operations	Evacuations	Care and Shelter	Critical Infrastructure Protection	Recovery	After Action Reporting
Office of Emergency Services	P	P	P	P	S	S			S	S	S	S	P
Sheriff's Office	S								S		S	S	S
General Services	S								P			S	S
Resource Management	P	P				P				S	S	S	S
Public Works Division	S							P			S	S	S
American Red Cross	S									P		S	S
Solano County Water Agency	P	P	P	P							S	S	S
Levee Maintaining Agencies	S						P	P			P	S	S

Table 4-1 shows the various flood operations functions and the departments or organizations with a primary role or supporting role.





## Section 5. Concept of Operations

### 5.1 Preparedness

Significant, damaging flood events occur in portions of the County approximately every five to ten years. Warnings are usually given several hours to a few days before such floods. Prevention efforts, such as evacuation and last minute sandbagging then lessens the flood's impact. There are dams in the County which, if breached, may cause flooding in the County. These susceptible dams include the dams at Lake Madigan, Lake Curry, and Lake Frey.

Projected inundation areas and the severity of inundation are shown on maps maintained by the California DWR. Flood Insurance Rate Maps, compiled by and maintained by FEMA. Some insurance programs are private, and some, such as the Federal flood insurance program, are government funded. Insurance programs may have construction standards that must be met before insurance is sold. Flood preparedness is one of the specific hazards in Solano County that is emphasized throughout the calendar year.

#### 5.1.1 Planning

The County Office of Emergency Services (OES) coordinates emergency planning efforts through development and maintenance of the *Solano County Emergency Operations Plan* and supporting annexes, procedures and appendices. OES has identified a Core Planning Team of senior leadership and agency representatives to coordinate planning efforts.

#### 5.1.2 Training and Exercises

The County OES coordinates all hazards training and exercises on an ongoing basis to test and validate emergency policy plans and procedures. At least once a year such training and exercises shall focus on flood hazards and flooding.

### 5.2 Response

#### 5.2.1 Response Considerations

To make sound flood fight decisions during a flood event, decision makers should have a clear operational picture of flood control infrastructure and the effects of flood fight decisions on a local and regional scale. The operational picture includes:

- Hydraulic features, such as dams, lakes, rivers, sloughs, and deep-water channels
- Flood control infrastructure, such as levees, pump stations, diversion points, and return drains
- Flood history, historic flood elevations, and historic levee breaches
- Points of vulnerability in flood control infrastructure
- Topography and elevation of critical infrastructure
- Threat recognition based upon high-water marks and water velocity

The amount of water flowing through the hydraulic system in the Delta as well as Solano County is determined by environmental conditions, natural events, and manmade infrastructure. An extensive system of dams, levees, overflow weirs, pumping plants, and flood control bypass channels strategically located on the Sacramento and San Joaquin rivers has been established to protect the Delta region and the County from flooding. These facilities control floodwaters by regulating the amount of water passing through a particular reach of each river. It is import for the local emergency managers to have both an understanding of standard emergency management procedures and in-depth knowledge of the Delta's conveyance system, especially the levee infrastructure. The County maintains or has access to several drainage

pump stations, at least one land-based emergency berm, and one levee gravity drain<sup>5</sup>. SCWA has developed a Strategic Plan in the event of a flood emergency in Solano County. The plan is a subset of the Integrated Regional Water Management Plan (IRWMP).

### 5.2.2 Flooding Notification Strategies for the Public

**National Weather Service (NWS).** The NWS provides notification releases to media outlets and to public agencies. They use standard terminology for watches and warnings:

- **Flash Flood Watch** means it is possible that rain will cause flash flooding in specified areas.
- **Flash Flood Warning** means flash flooding is either imminent or is occurring.
- **Flood Watch** means long term flooding is possible in specified areas.
- **Flood Warning** means long term flooding is either imminent or is occurring.

**Solano County Water Agency.** The SCWA has a flood warning system in place for Solano County creeks and tributaries, and a dam inundation warning coordinated with the Bureau of Reclamation. Initial information concerning flooding may contain only limited details, requiring close coordination between OES and the SCWA for updated information as it becomes available. The level of response and activation will depend upon the likely severity of the flood. Precautionary activations of a DOC or the EOC may be necessary if detailed information is not available.

The SCWA posts information on their web site [www.scwa2.com](http://www.scwa2.com), and provides a 24-hour a day recorded telephone message [707.455.1115] with current information concerning flood and flood possibilities. They also put out a press release in coordination with the County OES in preparation for, or in the event of a major storm. OES can in turn release directed warning to people in the potential flood risk area using the reverse 9-1-1 notification system.

### 5.2.3 Tsunami Notification Strategies for the Public

There are four levels of tsunami alerts that are issued by the West Coast/Alaska Tsunami Warning Center:

- **Tsunami Warning** means a potential tsunami with significant widespread inundation is imminent or expected.
- **Tsunami Advisory** means there is the threat of a potential tsunami which may produce strong currents or waves dangerous to those in or near the water.
- **Tsunami Watch** is issued to alert emergency management officials and the public of an event which may later impact the watch area.
- **Tsunami Information Statement** is issued to inform emergency management officials and the public that an earthquake has occurred, or that a tsunami warning, watch or advisory has been issued for another section of the ocean.

Tsunami preparedness and response efforts can utilize preparedness and response efforts for flood hazards, including public education programs, warning, evacuation and other measures.

## 5.3 Dam Safety

Dam owners and operators are responsible for notifying downstream communities at risk. The County is responsible for evacuation warnings in unincorporated areas and cities have the responsibility for evacuation of the public within their boundaries. The owner/operators of dams that impact Solano County are listed in Sections 5.3.1 and 5.3.2.

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<sup>5</sup> Ibid.

### 5.3.1 Solano County Dams

The dams listed in Table 5-1 are referenced in the National Inventory of Dams.

Table 5-1: Solano County Dams

<b>Solano County Dams</b> Hazard Category designations are as follows: H: High, S: Significant and L: Low.				
Name	Community	River	Owner	Hazard Category
<b>Fleming Hill No. 2</b>	Vallejo	Napa River Tributary	City Of Vallejo	H
<b>Lake Chabot</b>	Vallejo	Blue Rock Springs Creek	City Of Vallejo	H
<b>Lake Herman</b>	Benicia	Sulphur Springs Creek	City Of Benicia	H
<b>Lake Frey</b>	Cordelia	Wild Horse Creek	City Of Vallejo	H
<b>Lake Madigan</b>	Cordelia	Wild Horse Creek	City Of Vallejo	H
<b>Summit Reservoir</b>	Vallejo	Off Stream	City Of Vallejo	H
<b>Swanzy Lake</b>	Vallejo	Carquinez Strait Tributary	City Of Vallejo	H
<b>Terminal</b>		Green Valley Os	Bureau of Reclamation	H
<b>Bascherini</b>	Vacaville	Ulati Creek Tributary	Solano Irrigation District	S
<b>Detention Pond A</b>		Off Stream	City Of Dixon	S
<b>Giles</b>	Allendale	Sweeney Creek Tributary	Robert & Jean Brown	S
<b>Green Valley Lake</b>	Rockville	Dug Road Gulch	John Newmeyer & Green Val Ranch	S
<b>Lagoon Valley Park</b>	Vacaville	Laguna Creek Tributary	City Of Vacaville	S
<b>Lynch Canyon</b>	Cordelia	North Fork Lynch Creek	Solano Land Trust	S
<b>Montezuma</b>			Montezuma Wetlands	S

## Solano County Dams

Hazard Category designations are as follows: H: High, S: Significant and L: Low.

Name	Community	River	Owner	Hazard Category
<b>Municipal</b>	Mankas Corner	Suisun Creek	City Of Suisun	S
<b>Pennsylvania Creek</b>	Fairfield	Pennsylvania Creek	City Of Fairfield	S
<b>Pond 2B</b>	Benicia	Suisun Bay Tributary	International Technology Corp	S
<b>Dickson Hill</b>	Fairfield	Off stream	City Of Fairfield	L
<b>Maine Prairie 3</b>		Ulati Creek	Maine Prairie Water District	L
<b>Putah Diversion</b>	Winters	Putah Creek	Bureau of Reclamation	L
<b>Terminal South Dike</b>		Green Valley Os	Bureau of Reclamation	L

### 5.3.2 Dams Located Outside Solano County That Have Potential Inundation Impacts

The dams listed in Table 5-2 are referenced in the National Inventory of Dams.

Table 5-2: Dams Located Outside Solano County That Have Potential Inundation Impacts

Dams Located Outside Solano County That Have Potential Inundation Impacts					
Name	County	Community	River	Owner	Hazard Category
<b>Folsom</b>	Sacramento	Folsom	American River	Bureau of Reclamation	H
<b>Lake Curry</b>	Napa	Fairfield	Gordon Valley Creek	City Of Vallejo	H
<b>Monticello</b>	Yolo	Sacramento	Putah Creek	Bureau of Reclamation	H
<b>New Melones</b>	Calaveras/ Tuolumne	Knights Ferry	Stanislaus River	Bureau of Reclamation	H
<b>Nimbus</b>	Sacramento	Fair Oaks	American River	Bureau of Reclamation	H
<b>Olson</b>	Napa	Palo Cedro	Ledgewood Creek	Robert Egan	S

## 5.4 Flood Threat Operations

### 5.4.1 Phases of Operations

Considering that flood events can usually be predicted and advanced warning can be given, this annex may be implemented in phases as outlined below:

#### 5.4.1.1 Normal Preparedness

County Departments having emergency responsibilities assigned in this Annex prepare their own operating procedures and checklists for a flood emergency that include coordination strategies with other departments and jurisdictions.

#### 5.4.1.2 Increased Readiness

When conditions exist which could result in an "emergency," the County OES will evaluate information, decide upon necessary action and initiate appropriate response including but not limited to alerting key personnel, assuring readiness of resources, and preparing to move resources to the threatened area.

#### **5.4.1.3 Emergency Preparedness**

When a potential flood situation is a matter of "when" rather than "if," the County OES will implement the following actions:

1. Provide public warning or notification as is required.
2. Open the County EOC as necessary.
3. Provide information to County Departments as to the threat, potential severity and areas affected.
4. Advise Departments to report action being planned or taken, and anticipated deficiencies in critical emergency resources.
5. Prepare to receive or render mutual aid.
6. Keep Departments are promptly notified of any changes.

#### **5.4.1.4 Emergency Phase**

When flooding occurs, the County emergency organization will be mobilized as required to cope with the specific situation with operations focused on the following priorities:

1. Develop Situational Awareness
2. Activate the EOC
3. Mobilize, allocate, and position personnel and materials
4. Protect, control, and allocate vital resources
5. Restore or activate essential facilities and systems

The California DWR and Levee Maintaining Agency response are important functions that will be coordinated through the County EOC. When local resources are committed to the maximum and additional materials and/or personnel are required to control or alleviate the emergency, a request of mutual aid will be initiated through the EOC.

### **5.4.2 Flood Damage/Safety Assessment**

Flood Damage/Safety Assessment is the basis for determining the need to request State and/or Federal operational and financial assistance. Under the Solano Operational Area Emergency Operations Center's Standard Operating Procedures, an Initial Damage Estimate is developed during the emergency response phase to support a request for a Governor's proclamation and for the State to request a presidential declaration.

For the County, the detailed damage/safety assessment will be completed by the Solano County Department of Resource Management, building officials in coordination with the County OES, and other applicable County Departments.

The Engineering Branch/Department of each jurisdiction in the Operational Area will complete a damage assessment. The administrative and operational divisions of special districts will, in most cases, complete the damage assessment for their respective areas of responsibility.

#### **5.4.3 Documentation**

Documentation is the key to recovering eligible emergency response and recovery costs. Damage assessment documentation will be critical in establishing the basis for eligibility of disaster assistance programs. Under the State Natural Disaster Assistance Act (NDAA), documentation is required for any flood damage sustained to the following:

- Public buildings
- Levees
- Flood control works
- Irrigation works
- County roads
- City streets
- Bridges
- Other public works

Under Federal disaster assistance programs, documentation must be obtained regarding flood damages sustained to:

- Roads
- Water control facilities
- Public buildings and related equipment
- Public utilities
- Facilities under construction
- Recreational and park facilities
- Educational institutions
- Certain private non-profit facilities

Flood debris removal and flood emergency response costs incurred by the affected entities should also be documented. It will be the responsibility of the County, jurisdictions, and special districts to collect documentation of these damages and submit them to the Recovery Manager for their jurisdiction. Special districts not within a city, should submit documentation to the County Recovery Manager.

The documenting information should include the location and extent of damage, and estimates of costs for: debris removal, emergency work, and repairing or replacing damaged facilities to a non-vulnerable and mitigated condition. The cost of compliance with building codes for new construction, repair, and restoration will also be documented. The cost of improving facilities may be provided under Federal mitigation programs.

## 5.5 Recovery

Governmental assistance could be required and may be needed for an extended period. Recovery activities would include:

- Removal of debris.
- Clearance of roadways.
- Demolition of unsafe structures.
- Re-establishment of public services and utilities.
- Provision of care and welfare for the affected population including, as required, temporary housing for displaced persons.
- Care of animals and disposal of carcasses.

Each Department will take actions to address identified recovery needs. The Recovery Stage has three major objectives:

- Reinstatement of family autonomy and the provision of essential public services.
- Completion of permanent restoration of public property, along with reinstatement of public services.
- Performance of research to uncover residual hazards, to advance knowledge of disaster phenomena, and to provide information to improve future emergency operations.

These objectives may be overlapping but the needs will be treated in the following priorities:

- Alleviation - Reestablish essential public utility services, sewage, drainage, and drinking water and reestablishing basic services to include roads, utilities, schools, and medical facilities.
- Rehabilitation - Start full restoration of public facilities. Work with the USACE and FEMA as appropriate in damage survey reports and recovery activities.



## Appendix A      Acronyms

Table A-1: Acronyms

<b>ABAG</b>	<b>Association of Bay Area Governments</b>
<b>AOR</b>	Area of Responsibility
<b>ARC</b>	American Red Cross
<b>Cal OES</b>	California Office of Emergency Services
<b>COTP</b>	Captain of the Port
<b>DGS</b>	Department of General Services
<b>DOC</b>	Department Operations Center
<b>DWR</b>	Department of Water Resources (California)
<b>EAS</b>	Emergency Alert System
<b>EOC</b>	Emergency Operations Center
<b>EOP</b>	Emergency Operations Plan
<b>FEMA</b>	Federal Emergency Management Agency
<b>FIRM</b>	Flood Insurance Rate Map
<b>IRWMP</b>	Integrated Regional Water Management Plan
<b>MAA</b>	Mutual Aid Agreement
<b>MOU</b>	Memorandum of Understanding
<b>NDAA</b>	Natural Disaster Assistance Act
<b>NFIP</b>	National Flood Insurance Program
<b>NIMS</b>	National Incident Management System
<b>NOAA</b>	National Oceanographic and Atmospheric Administration
<b>NWS</b>	National Weather Service
<b>OES</b>	Office of Emergency Services
<b>PIO</b>	Public Information Office
<b>RD</b>	Reclamation District
<b>REOC</b>	Regional Emergency Operations Center (Coastal Region)
<b>RRCC</b>	Regional Response Coordination Center (FEMA)
<b>SCWA</b>	Solano County Water Agency
<b>SEMS</b>	Standardized Emergency Management System
<b>SID</b>	Solano Irrigation District
<b>SWP</b>	Solano Water Project
<b>USACE</b>	US Army Corps of Engineers
<b>USCG</b>	US Coast Guard
<b>VOAD</b>	Volunteer Organizations Active in Disaster



## Appendix B ABAG 2010 – Critical Facilities in Flood Hazard Zones

Table B-1: Critical Facilities in Flood Hazard Zones

<b>Solano County</b> TOTAL FEMA Flood Zones Critical Facilities Exposure, 2010				
	<u>Total Number</u>	<u>Minimal or Undetermined Flood Hazard</u>	<u>500-yr Flood Plain or Other Concern (Zone X500)</u>	<u>100-yr Flood Plain (Zone V or Zone A)</u>
<b>HEALTH CARE FACILITIES:</b>	45	35	9	1
Hospital	6	4	2	0
Long-Term Care Facility	11	10	1	0
Primary Care or Specialty Clinic	17	13	4	0
Home Health Agency or Hospice	11	8	2	1
<b>SCHOOLS:</b>	139	117	19	3
K-12	110	94	13	3
Continuation High School or Other	27	21	6	0
College or University	2	2	0	0
<b>CRITICAL FACILITIES:</b>	328	275	34	19
City-Owned	249	211	27	11
County-Owned	11	5	6	0
Owned by Special Districts	68	59	1	8

## Solano County

### TOTAL FEMA Flood Zones Critical Facilities Exposure, 2010

	<u>Total Number</u>	<u>Minimal or Undetermined Flood Hazard</u>	<u>500-yr Flood Plain or Other Concern (Zone X500)</u>	<u>100-yr Flood Plain (Zone V or Zone A)</u>
<b>BRIDGES AND INTERCHANGES:</b>	342	255	31	56
Locally-Owned	179	115	25	39
State-Owned	163	140	6	17

#### Sources:

- Association of Bay Area Governments, 2010.
- Health care facilities are based on a list of licensed facilities from the California Office of Statewide Health Planning and Development.
- K-12 schools, colleges, and universities are based on a combination of addresses from Thomas Bros. and the individual facilities.
- Critical facilities were identified by the local jurisdictions. City-owned and county-owned facilities were identified for all cities and counties in the Bay Area. Thirty water, transit, fire and other special districts are included as well, but this should not be considered a complete count of special district facilities.
- It's not always clear whether an agency is part of the city or county government or an independent special district. Agencies with dedicated functions (e.g. PUC) are included in the city-owned or county-owned totals if they are a department of the city or county. Otherwise they are considered a special district.

## Appendix C ABAG 2010 – Critical Facilities in Tsunami Hazard Zones

Table C-1: Critical Facilities in Tsunami Hazard Zones

<b>Solano County</b> <b>TOTAL Tsunami Critical Facilities Exposure, 2010</b>			
	<u>Total Number</u>	<u>Not In Threat Area</u>	<u>Within Threat Area</u>
<b>HEALTH CARE FACILITIES:</b>	<b>45</b>	<b>45</b>	<b>0</b>
Hospital	6	6	0
Long-Term Care Facility	11	11	0
Primary Care or Specialty Clinic	17	17	0
Home Health Agency or Hospice	11	11	0
<b>SCHOOLS:</b>	<b>139</b>	<b>139</b>	<b>0</b>
K-12	110	110	0
Continuation High School or Other	27	27	0
College or University	2	2	0
<b>CRITICAL FACILITIES:</b>	<b>328</b>	<b>328</b>	<b>0</b>
City-Owned	249	249	0
County-Owned	11	11	0
Owned by Special Districts	68	68	0
<b>BRIDGES AND INTERCHANGES:</b>	<b>342</b>	<b>342</b>	<b>0</b>
Locally-Owned	179	179	0
State-Owned	163	163	0

Source:

- Association of Bay Area Governments, 2010.
- Health care facilities are based on a list of licensed facilities from the California Office of Statewide Health Planning and Development.
- K-12 schools, colleges, and universities are based on a combination of addresses from Thomas Bros. and the individual facilities.
- Critical facilities were identified by the local jurisdictions. City-owned and county-owned facilities were identified for all cities and counties in the Bay Area. Thirty water, transit, fire and other special districts are included as well, but this should not be considered a complete count of special district facilities.
- It's not always clear whether an agency is part of the city or county government or an independent special district. Agencies with dedicated functions (e.g. PUCs) are included in the city-owned or county-owned totals if they are a department of the city or county. Otherwise they are considered a special district.