

SOLANO COUNTY WATER AGENCY



Annex to 2010 Association of Bay  
Area Governments  
Local Hazard Mitigation Plan  
*Taming Natural Disasters*

Solano County Water Agency

February 23, 2011

# SOLANO COUNTY WATER AGENCY

## Table of Contents

Introduction .....	3
The Regional Planning Process.....	4
The Local Planning Process.....	4
<i>Public Meetings</i> .....	5
<i>Process for Updating Plan Sections</i> .....	6
Hazards Assessment .....	6
Past Occurrences Of Disasters (natural and human-induced).....	6
Risk Assessment .....	7
<i>Urban Land Exposure</i> .....	7
<i>Infrastructure Exposure</i> .....	8
<i>Repetitive Flood Loss Properties</i> .....	9
Mitigation Goals and Objectives.....	9
Mitigation Activities and Priorities.....	9
<i>Evaluation of Progress from 2005 Plan</i> .....	9
<i>Future Mitigation Actions and Priorities</i> .....	10
<i>On-Going Mitigation Strategy Programs</i> .....	12
Incorporation into Existing Planning Mechanisms .....	15
Mitigation Plan Point of Contact .....	16
Exhibit A - Jurisdiction Boundary Map .....	17
Exhibit B - Public Meeting Announcements .....	18
Exhibit C - SCWA Regional Mitigation Strategies.....	19

# SOLANO COUNTY WATER AGENCY

## Introduction

The boundaries of the Solano County Water Agency include the entire County of Solano and the property of the University of California at Davis in Yolo County – see Exhibit A. The Agency was formed in 1951 by an act of the State Legislature as the "Solano County Flood Control and Water Conservation District". The population in the Agency service area is approximately 422,000. Area of the County is 823 square miles.

As originally established, the Board of Supervisors of Solano County was the governing board (ex-officio) of the Solano County Flood Control and Water Conservation District (SCFC&WCD). As with other countywide flood control and water conservation districts established about that same time, the SCFC&WCD was given water supply and flood control authorities. The first major action of the SCFC&WCD was to contract with the United States Bureau of Reclamation for water supply from the Solano Project.

In 1988, the legislative act was changed to modify the governing board of the SCFC&WCD and to make other minor updates to the act. In 1989 the name of SCFC&WCD was changed to the "Solano County Water Agency" (SCWA).

The change in the governing board of SCWA was very significant. In addition to the five members of the Board of Supervisors, the mayors from all seven cities in the County were added and a board member from each of the three agricultural irrigation districts (Solano Irrigation District, Maine Prairie Water District and Reclamation District No. 2068) was added. The three agricultural districts were added because those districts provide retail water service to their constituents.

The authorities of SCWA fall into two main categories: water supply and flood control. The water supply function consists of providing wholesale, untreated water supply to cities, districts and state agencies. Additionally, SCWA leads efforts to protect rights to existing sources of water and participates in efforts to secure new sources of water for water supply reliability and future growth in the County.

The Agency's water supplies are from the Solano Project and the North Bay Aqueduct. The Solano Project is owned by the United States Bureau of Reclamation and consists of Monticello Dam (with a capacity of 1.6 Million acre feet), the Putah Diversion Dam and the 33 mile Putah South Canal. The North Bay Aqueduct is part of the State Water Project and is a 23 mile underground pipeline with two pumping station that takes water from the Delta.

For flood control, SCWA is responsible for operations and maintenance of the Ulatris Flood Control Project and the Green Valley Flood Control Project. The Ulatris Project consists of 57 miles of channel serving the central eastern part of the County. The Green Valley Project consists of 6 miles of channel serving a part of the Fairfield/Cordelia area. The SCWA also has authority to deal with all flood control matters within the boundaries of SCWA.

# SOLANO COUNTY WATER AGENCY

SCWA budget is about \$30 million per year. SCWA has 12 employees and contracts with other public agencies to perform operations and maintenance of its water supply and flood control facilities.

## The Regional Planning Process

The Solano County Water Agency participated in various ABAG workshops and meetings, and provided comments on ABAG LHMP work products to review draft priorities and reach consensus on priorities for mitigation. The Agency participated by providing comments on the dam section and infrastructure chapter of the Regional Planning section.

For more information on these meetings and for rosters of attendees, please see Appendix A and H in the ABAG Multi-Jurisdictional Local Hazard Mitigation Plan 2010 (MJ-LHMP). In addition, the Solano County Water Agency has provided written and oral comments on the multi-jurisdictional plan and provided information on facilities that are defined as “critical” to ABAG.

## The Local Planning Process

This process of preparing this Local Hazard Mitigation Plan Annex (Annex) is familiar to the Solano County Water Agency. The Agency has worked with the US Bureau of Reclamation on emergency preparedness for the Solano Project and with the County Office of Emergency Services on flooding emergencies. In addition, the Agency routinely enforces the requirements of the California Environmental Quality Act (CEQA) requirements (which, since 1988, have required mitigation for identified natural hazards). The Agency’s effort has focused on building on these pre-existing programs and identifying gaps that may lead to disaster vulnerabilities in order to work on ways to address these risks through mitigation.

The Agency also participates in Solano County Office of Emergency Services quarterly Disaster Council meetings.

Many of the activities conducted by the Agency were fed into the planning process for the multi-jurisdictional plan through Solano County. The Agency and the County provided information on facilities that are viewed as “critical” to ABAG.

Key Agency staff met to identify and prioritize mitigation strategies appropriate for the Agency. Staff involved in this meeting included the General Manager, the Principal Water Resources Engineer and Supervising Water Resources Scientist. The General Manager (David Okita) provided expertise and experience on the flood control aspects of the Annex. The Principal Water Resources Engineer (Thomas Pate) provided expertise on Solano Project risks. The Supervising Water Resources Scientist (Chris Lee) provided expertise on environmental hazards.

# SOLANO COUNTY WATER AGENCY

The Agency has a large role in identifying flooding risks in Solano County and working with stakeholders to develop potential solutions. The following documents relating to flood control were used to prepare this Annex.

- Phase 1 SCWA Flood Control Master Plan (1997)
- Phase 2 SCWA Flood Control Master Plan (1998)
- Preliminary Evaluation of McCune Creek (2001)
- Preliminary Evaluation of Suisun Creek (2000)
- Dixon Watershed Management Plan (2001)
- Preliminary Evaluation of Ledgewood Creek (2000)
- Storm Frequency Analysis December 2002 Storm (2003)
- Evaluation of Return Frequency of December 2005 Storm (2006)
- Twin Creeks Study (2007)
- Rio Vista Flood Risk Assessment (2009)

These documents were used in the following sections of the Annex: Hazard Assessment, Past Occurrences of Disasters, Risk Assessment and Mitigation Activities and Priorities.

The Agency along with the US Bureau of Reclamation is responsible for disaster preparedness and emergency response for the Solano Project. The following documents relating to the Solano Project were used to prepare this Annex.

- Comprehensive Facility Review Terminal Dam (2009)
- Emergency Action Plan Monticello Dam (1999)
- Comprehensive Facility Review Monticello Dam (2005)

These documents were used in the following sections of the Annex: Hazard Assessment, Risk Assessment and Mitigation Activities and Priorities.

## *Public Meetings*

The Agency provided the opportunity for the public to comment on the Draft Annex that included mitigation strategies selected by Agency staff at the Agency Board of Directors meeting on September 10, 2009. A Public Notice of the meeting was published in the local newspaper. The Draft Annex was also published on the Agency's web site for comment. We received no comments on the Draft Annex. Copies of the meeting notices and web posting are included in Exhibit B.

For mitigation strategies for flooding, the Agency has a Flood Control Advisory Committee that meets several times a year and receives public input of flooding issues throughout the County. The Committee is appointed by the Agency Board of Directors and has representatives from diverse areas of the County. The input the Committee has received has been incorporated into this Annex. This is a key method of public involvement regarding flooding risk and mitigation issues in Solano County.

# SOLANO COUNTY WATER AGENCY

The Board of Directors will adopt the plan in a public meeting via an official Resolution upon approval by FEMA.

## *Process for Updating Plan Sections*

This Annex is an update of the 2005 Annex. No new hazards were identified from 2005. The Agency did not suffer from any major disasters since 2005, however there were isolated flooding events that provided additional data to better understand flooding risks for specific areas and opportunities for mitigating these risks. Risk assessment did not change. The section on Mitigation Activities and Priorities includes a section on “Evaluation of Progress from 2005 Plan”. This subsection gives some detail on changes made in this Annex. The section on Future Mitigation Actions and Priorities was updated to reflect progress from 2005 and updated future activities. On-Going Mitigation Strategy Programs was updated to provide more detail.

## **Hazards Assessment**

The Solano County Water Agency has reviewed the hazards identified and ranked the hazards based on past disasters and expected future impacts. The conclusion is that earthquakes (particularly shaking), flooding (including dam failure), wildfire, and landslides (including unstable earth) pose a significant risk for potential loss.

The primary function of the Agency is to provide a water supply. The facilities to provide this water supply (Solano Project and North Bay Aqueduct) could be damaged by an earthquake. Since the Agency has some responsibility for flood control the hazard of flooding is the second most important hazard. The Agency service area has lands that are susceptible to wildfires and landslides, however the risk of major impacts to the Agency functions are less than earthquakes and flooding.

The Solano County Water Agency does not face any natural disasters not listed in the ABAG multi-jurisdictional plan and new hazards have been identified by the Solano County Water Agency since the original development of this plan in 2005.

While the Solano County Water Agency has undertaken a number of general hazard mapping activities, all of these maps are less detailed and are not as current as those shown on the ABAG website at <http://quake.abag.ca.gov/mitigation/>.

## **Past Occurrences Of Disasters (natural and human-induced)**

The Agency has had a number of flooding incidents throughout the County, the most recent occurring in December of 2002 and December of 2005. The December 2002 flooding affected the area Vacaville area and parts north and east of Vacaville the most. The December 2005 flooding was more widespread and affected the Fairfield area in addition to areas impacted by the 2002 storm. Both these storms caused flooding in specific areas known to be susceptible to flooding. These storms provided opportunities for discussions about mitigations and flood warning procedures.

# SOLANO COUNTY WATER AGENCY

Information on disasters declared in Solano County is at <http://quake.abag.ca.gov/mitigation/ThePlan-D-Version-August10.pdf>

## Risk Assessment

Risks and vulnerability in Solano County are similar to the overall Bay Area with the exception of a lower tsunami risk as there are no coastal areas in Solano County.

### *Urban Land Exposure*

The Agency examined the urban land exposure of Solano County based on the information on ABAG's website at <http://quake.abag.ca.gov/mitigation/pickdbh2.html>. Of the 100,720 acres of urban land (522,753 acres total) within the Agency boundaries, the following findings are made,

- ◆ Earthquake faulting - 1,039 acres are in California Geological Survey study zones. The only currently mapped active fault that could produce surface rupture in the County is the Concord-Green Valley fault.
- ◆ Earthquake shaking – While 6,388 acres are in the two highest categories for earthquake shaking potential, 1,088 acres are in the lowest shaking potential category. The County is in the vicinity of several known active and potentially active earthquake faults. These include the Hayward, Concord/Green Valley, North Hayward and Mt. Diablo faults.
- ◆ Earthquake-induced landslides – the California Geological Survey has not mapped Solano County for earthquake induced landslides. The hazard is assumed to be similar to that for rainfall-induced landslides, discussed below.
- ◆ Earthquake liquefaction – 40,984 acres are in areas of moderate, high or very high liquefaction susceptibility.
- ◆ Tsunamis – While portions of Solano County are at or below sea level, and susceptible to tsunami inundation according to the latest tsunami maps for the inner Bay, it is more appropriate to analyze exposure of critical facilities and infrastructure to tsunami inundation than urban land.
- ◆ Flooding – 11,564 acres are in the 100-year flood plain, while an additional 6,585 acres are in 500 year flood plain
- ◆ Landslides – 3,360 acres in areas “mostly a landslide area” and 30,740 acres in “few landslides”.
- ◆ Wildfires – 14,283 acres are subject to high, very high, or extreme wildfire threat, and 33,239 acres are in wildland-urban interface threat areas.
- ◆ Dam Inundation – 16,840 acres are subject to dam inundation.
- ◆ Drought – all 100,720 acres of urban land are subject to drought.

# SOLANO COUNTY WATER AGENCY

## *Infrastructure Exposure*

The Agency also examined the hazard exposure of [Agency-owned](#) infrastructure. The Agency does not own any buildings.

- ◆ Earthquake faulting – The Putah South Canal of the Solano project crosses the Concord/Green Valley fault. The Green Valley Flood Control Project is adjacent to the Green Valley Fault. No other infrastructure is impacted by known faults.
- ◆ Earthquake shaking – Ulatis and Green Valley Flood Control projects are in a moderate shaking zone. Solano Project Dams are in a moderate to low zone. The Putah South Canal runs through a high intensity zone related to the Green Valley Fault, but the rest of the Canal is in the moderate zone.
- ◆ Earthquake-induced landslides – the California Geological Survey has not completed mapping of this hazard in the Agency service area. The Putah South Canal has some areas prone to landslide damage.
- ◆ Earthquake liquefaction – Ulatis Flood Control Project is in a moderate to low zone except for the east part of the project that is in a high zone. Green Valley Flood control Project is in a low zone. Solano Project Dams are in a very low zone. Putah South Canal has a small section in a high zone, but most of canal is in a moderate or low zone.
- ◆ Tsunamis – No Agency infrastructure are exposed to tsunamis
- ◆ Flooding – Parts of Ulatis Flood Control Project are in 100 year flood zones. Parts of Putah South Canal cross some 100 year flood zones.
- ◆ Landslides – Parts of the Putah South Canal cross some area susceptible to landslides.
- ◆ Wildfires – Some infrastructure are in high and moderate wildfire areas, but the infrastructure are not susceptible to wildfire damage.
- ◆ Dam Inundation – The north part of the Ulatis Flood Control Project is in a dam inundation zone. Parts of the Green Valley Flood Control Project are in a dam inundation zone. The Putah South Canal crosses two smaller dam inundation zones.
- ◆ Drought – is not a hazard for Agency infrastructure.

The Agency has conducted watershed studies in several watersheds that are prone to flooding. The Agency has identified some areas that suffer from repetitive flooding and plan to perform some cost-benefit analyses to determine the extent to which mitigation is appropriate in these areas. For example, properties along Sweeney, Ledgewood, and Suisun Creek are subject to repetitive losses.

Drought is addressed through the Agency's Urban Water Management Plan and Urban Water Management Plans of the cities in Solano County.

The Agency plans to continue to work with ABAG to develop specific information about the kind and level of damage to buildings, infrastructure, and critical facilities which might result from any of the hazards previously noted.

# SOLANO COUNTY WATER AGENCY

## *Repetitive Flood Loss Properties*

FEMA has compiled data of repetitive loss properties in and out of identified flood hazard areas. Note that experience has shown that FEMA maps in the rural areas of Solano County are not always accurate. A prime example is the Sweeney Creek area near I-505. Solano County is working with FEMA on updating flood hazard mapping in that area. Note also that FEMA flood insurance data is not always indicative of flood losses as not every property that floods has flood insurance.

FEMA reports (ABAG, 2004) that there have been 76 repetitive flood loss claims (28 properties). 55 claims are in the 100 year flood plain. 19 are in the 500 year flood plain. 2 are outside flood plains. The total dollar amount of claims is \$1,555,414. In 2009 Solano County had 122 claims (47 properties). The increase is largely due to major flooding in Vacaville in 2005. It is unknown whether these claims were in the floodplain. The Agency is not the floodplain manager for the County. However, the Agency does participate in residential flood mitigation activities in a limited way.

## Mitigation Goals and Objectives

The goal of the ABAG MJ-LHMP is to maintain and enhance a disaster-resistant region by reducing the potential for loss of life, property damage, and environmental degradation from natural disasters, while accelerating economic recovery from those disasters. This goal is unchanged from the 2005 plan and continues to be the goal of Solano County Water Agency in designing its mitigation program.

## Mitigation Activities and Priorities

### *Evaluation of Progress from 2005 Plan*

In 2005 (Annex was done in 2007), mitigation actions and priorities were identified. The attached list indicates each of the strategies identified, along with responsible party, action taken, and current status of progress. Current status is in bold italics.

#### **1. Detention basins to protect Ulatis Flood Control Project - Completed**

In several areas the Ulatis Flood Control Project overtops its banks and flood adjacent homes and agricultural areas. Due to constraints in increasing the capacity of the flood control channels, upstream detention basins are needed to capture and hold flows upstream of the Ulatis Flood Control Project. *SCWA contributed \$2.5 million to City of Vacaville to assist in the construction of several new detention basins.*

#### **2. Landslide Protection for the Putah South Canal – Near completion**

# SOLANO COUNTY WATER AGENCY

The Putah South Canal crosses several areas of known landslide hazard. Landslides into the canal could block crucial water deliveries. Modifications to lands surrounding these areas or covering of the canal is necessary. *SCWA is near completion of a study to determine a project to mitigate this hazard. A bypass pipeline is the preferred alternative.*

### **3. Capacity Increase for Green Valley Project – Deferred**

The Green Valley Flood Control Project was designed for a 40 year storm. Increases in precipitation in recent years have lowered the level of protection of the Project. Improvements to the outlet of the Project and possible levee improvements are desirable. *No activity due to lack of funding.*

### **4. Capacity Increase for Ulatis Flood Control Project – Deferred**

In several areas the Ulatis Flood Control Project overtops its banks and flood adjacent homes and agricultural areas. In some of these areas, particularly agricultural areas there are opportunities to widen the channel to increase flood conveyance. *No activity due to lack of funding.*

### **5. Home Raising Projects - Ulatis Flood Control Project – On-going**

In some rural residential areas that are tributary to the Ulatis Flood Control Project, there are homes that are inundated with flood flows, due to limited capacity of tributaries to the Ulatis Flood Control Project. Home raising may be a cost effective way to mitigate flood damage. *SCWA contributed \$25,000(each) to seven homeowners for home raising or berming projects in this area.*

## *Future Mitigation Actions and Priorities*

As a participant in the 2010 ABAG multi-jurisdictional planning process, the staff of the Solano County Water Agency helped in the development and review of the comprehensive list of mitigation strategies in the overall multi-jurisdictional plan. The decision on priority was made based on a variety of criteria, not simply on an economic cost-benefit analysis. These criteria include being technically and administratively feasible, politically acceptable, socially appropriate, legal, economically sound, and not harmful to the environment or our heritage. Representatives from multiple departments then met on a regular basis to review progress on the jurisdiction's 2005 strategies, to identify and prioritize additional mitigation strategies to update the list

These draft priorities were submitted to Agency management for review. The draft priorities will be provided to the Agency Board of Directors for adoption pending approval of this LHMP by FEMA.

The Agency planning team also prioritized specific mitigation tasks for the next 5 years. This list includes implementation process, funding strategy, responsible agency, and approximate time frame. Projects were selected based on priorities in Capital Improvements Plan.

# SOLANO COUNTY WATER AGENCY

Based on the hazard exposure information described above, the Agency has determined the following priorities for mitigation:

**Project: Ulatis Project Detention Basins**

2010 MJ-LHMP Strategy Number: INFR-d-4

New or Existing Assets: Existing

Hazard Mitigated: Flood

Responsible Agency: City of Vacaville

Implementation Agency: City of Vacaville

Estimate of Cost: \$3 million

Anticipated Funding Source: SCWA Property Tax

Anticipated Schedule: Some basins completed, others pending funding

Comments: In several areas the Ulatis Flood Control Project overtops its banks and flood adjacent homes and agricultural areas. Due to constraints in increasing the capacity of the flood control channels, upstream detention basins are needed to capture and hold flows upstream of the Ulatis Flood Control Project. SCWA contributes to project costs.

**Project: Landslide Protection for the Putah South Canal**

2010 MJ-LHMP Strategy Number: INFR-e-1

New or Existing Assets: Existing

Hazard Mitigated: Landslide

Responsible Agency: Solano County Water Agency

Implementation Agency: Solano County Water Agency

Estimate of Cost: \$800,000

Anticipated Funding Source: SCWA Property Tax

Anticipated Schedule: FY 11/12

Comments: The Putah South Canal crosses an area of known landslide hazard. Landslides into the canal could block crucial water deliveries. Construction of a bypass pipeline is necessary.

**Project: Capacity Increase for Green Valley Project**

2010 MJ-LHMP Strategy Number: INFR-d-6

New or Existing Assets: Existing

Hazard Mitigated: Flood

Responsible Agency: Solano County Water Agency

Implementation Agency: Solano County Water Agency

Estimate of Cost: Unknown

Anticipated Funding Source: Unknown

Anticipated Schedule: None

Comments: The Green Valley Flood Control Project was designed for a 40 year storm. Increases in precipitation in recent years has lowered the level of protection of the Project. Improvements to the outlet of the Project and possible levee improvements are desirable.

**Project: Capacity Increase for Ulatis Flood Control Project**

2010 MJ-LHMP Strategy Number: INFR-d-6

New or Existing Assets: Existing

# SOLANO COUNTY WATER AGENCY

Hazard Mitigated: Flood

Responsible Agency: Solano County Water Agency

Implementation Agency: Solano County Water Agency

Estimate of Cost: Unknown

Anticipated Funding Source: Unknown

Anticipated Schedule: None

Comments: In several areas the Ulatis Flood Control Project overtops its banks and flood adjacent homes and agricultural areas. In some of these areas, particularly agricultural areas there are opportunities to widen the channel to increase flood conveyance.

Project: **Home Raising Projects - Ulatis Flood Control Project**

2010 MJ-LHMP Strategy Number: HSNG-h-8

New or Existing Assets: New

Hazard Mitigated: Flood

Responsible Agency: Solano County Water Agency

Implementation Agency: Solano County Water Agency

Estimate of Cost: \$25,000 per home

Anticipated Funding Source: SCWA property tax

Anticipated Schedule: Ongoing

Comments: In some rural residential areas that are tributary to the Ulatis Flood Control Project, there are homes that are inundated with flood flows, due to limited capacity of tributaries to the Ulatis Flood Control Project. Home raising may be a cost effective way to mitigate flood damage.

## *On-Going Mitigation Strategy Programs*

The Agency has many on-going mitigation programs that help create a more disaster-resistant region. The following list highlights those programs identified as *Existing Programs* in the mitigation strategy spreadsheet. Others are on-going programs that are currently underfunded. It is the Agency's priority to find additional funding to sustain these on-going programs over time. Exhibit C shows SCWA's Regional Mitigation Strategies.

- Encourage the cooperation of utility system providers and cities, counties, and special districts, and PG&E to develop strong and effective mitigation strategies for infrastructure systems and facilities (INFR-a-3).
- Support and encourage efforts of other (lifeline infrastructure) agencies as they plan for and arrange financing for seismic retrofits and other disaster mitigation strategies (INFR-a-5).
- Engage in, support, and/or encourage research by others (such as USGS, universities, or Pacific Earthquake Engineering Research Center-PEER) on measures to further strengthen transportation, water, sewer, and power systems so that they are less vulnerable to damage in disasters (INFR-a-6).
- Encourage communication between State Emergency Management Agency (CalEMA), FEMA, and utilities related to emergencies occurring outside of the Bay Area that can affect service delivery in the region (INFR-a-14).
- Monitor scientific studies of the Sacramento-San Joaquin Delta and policy decisions related to the long-term disaster resistance of that Delta system to ensure that decisions are made based on comprehensive analysis and in a scientifically-defensible manner. Levee failure due to earthquakes, flooding, and climate change (including sea level rise and more frequent and more severe flooding) are all of concern. The long-term health of the Delta area is critical to the Bay

# SOLANO COUNTY WATER AGENCY

Area's water supply, is essential for the San Francisco Bay and estuary's environmental health, provides recreation opportunities for Bay Area residents, and provides the long-term sustainability of Delta communities. While only part of the Delta is within the nine Bay Area counties covered by this multi-jurisdictional LHMP, the Delta is tied to the infrastructure, water supply, and economy of the Bay Area (INFR-a-22).

- Include "areas subject to high ground shaking, earthquake-induced ground failure, and surface fault rupture" in the list of criteria used for determining a replacement schedule for pipelines (along with importance, age, type of construction material, size, condition, and maintenance or repair history) (INFR-b-3).
- Comply with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling infrastructure facilities (INFR-b-8).
- Clarify to workers in critical facilities and emergency personnel, as well as to elected officials and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake (INFR-b-9).
- Assist, support, and/or encourage the U.S. Army Corp of Engineers, various Flood Control and Water Conservation Districts, and other responsible agencies to locate and maintain funding for the development of flood control projects that have high cost-benefit ratios (such as through the writing of letters of support and/or passing resolutions in support of these efforts) (INFR-d-4).
- Ensure that utility systems in new developments are constructed in ways that reduce or eliminate flood damage (INFR-d-13).
- Work for better cooperation among the patchwork of agencies managing flood control issues (INFR-d-16).
- Include "areas subject to ground failure" in the list of criteria used for determining a replacement schedule (along with importance, age, type of construction material, size, condition, and maintenance or repair history) for pipelines (INFR-e-1).
- Provide materials to the public related to coping with reductions in water supply or contamination of that supply beyond regulatory notification requirements (INFR-g-3).
- Provide materials to the public related to coping with disrupted storm drains, sewage lines, and wastewater treatment (such as that developed by ABAG's Sewer Smart Program) (INFR-g-4).
- Facilitate and/or coordinate the distribution of emergency preparedness or mitigation materials that are prepared by others, such as by making the use of the internet or other electronic means, or placing materials on community access channels or in city or utility newsletters, as appropriate (INFR-g-5).
- Sponsor the formation and training of Community Emergency Response Teams (CERT) for the employees of your agency (INFR-g-6).
- Develop and distribute culturally appropriate materials related to disaster mitigation and preparedness, such as those on the <http://www.preparenow.org> website related to infrastructure issues (INFR-g-7).
- Clarify to workers in critical facilities and emergency personnel, as well as to elected officials and the public, the extent to which the facilities are expected to perform only at a life safety level (allowing for the safe evacuation of personnel) or are expected to remain functional following an earthquake (GOVT-a-3).
- Encourage joint meetings of security and operations personnel at critical facilities to develop innovative ways for these personnel to work together to increase safety and security (GOVT-a-5).
- Comply with all applicable building and fire codes, as well as other regulations (such as state requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling government-owned facilities (GOVT-a-11).
- Prior to acquisition of property to be used as a critical facility, conduct a study to ensure the absence of significant structural hazards and hazards associated with the building site (GOVT-a-12).
- Establish a framework and process for pre-event planning for post-event recovery that specifies roles, priorities, and responsibilities of various departments within the local government

# SOLANO COUNTY WATER AGENCY

organization, and that outlines a structure and process for policy-making involving elected officials and appointed advisory committees(GOVT-b-1).

- Establish a goal for the resumption of local government services that may vary from function to function (GOVT-b-3).
- Develop a plan for short-term and intermediate-term sheltering of your employees (GOVT-c-1).
- Encourage your employees to have a family disaster plan (GOVT-c-2).
- Periodically assess the need for changes in staffing levels, as well as for additional or updated supplies, equipment, technologies, and in-service training classes(GOVT-c-5).
- Maintain and update as necessary the local government's Standardized Emergency Management System (SEMS) Plan and the National Incident Management System (NIMS) Plan, and submit an appropriate NIMSCAST report (GOVT-c-12).
- Continue to participate not only in general mutual-aid agreements, but also in agreements with adjoining jurisdictions for cooperative response to fires, floods, earthquakes, and other disasters (GOVT-c-13).
- Monitor weather during times of high fire risk using, for example, weather stations tied into police and fire dispatch centers (GOVT-c-17).
- Establish regional protocols on how to respond to the NOAA Monterey weather forecasts, such as the identifying types of closures, limits on work that could cause ignitions, and repositioning of suppression forces. A multi-agency coordination of response also helps provide unified messages to the public about how they should respond to these periods of increased fire danger. Response should also be modified based on knowledge of local micro-climates. Local agencies with less risk then may be available for mutual aid (GOVT-c-18).
- Improve coordination among cities, counties, and dam owners so that cities and counties can better plan for evacuation of areas the could be inundated if a dam failed, impacting their jurisdiction (GOVT-c-23).
- Promote information sharing among overlapping and neighboring local governments, including cities, counties, and special districts, as well as utilities (GOVT-d-1).
- Recognize that emergency services is more than the coordination of police and fire response; it also includes planning activities with providers of water, food, energy, transportation, financial, information, and public health services (GOVT-d-2).
- As new flood-control projects are completed, request that FEMA revise its flood-insurance rate maps and digital Geographic Information System (GIS) data to reflect flood risks as accurately as possible (GOVT-d-4).
- Cooperate with researchers working on government-funded projects to refine information on hazards, for example, by expediting the permit and approval process for installation of seismic arrays, gravity survey instruments, borehole drilling, fault trenching, landslide mapping, flood modeling, and/or damage data collection (GOVT-d-10).
- Continue to enforce State-mandated requirements, such as the *California Environmental Quality Act*, to ensure that mitigation activities for hazards, such as seismic retrofits and vegetation clearance programs for fire threat, are conducted in a way that reduces environmental degradation such as air quality impacts, noise during construction, and loss of sensitive habitats and species, while respecting the community value of historic preservation (ENVI-a-1).
- Encourage regulatory agencies to work collaboratively with safety professionals to develop creative mitigation strategies that effectively balance environmental and safety needs, particularly to meet critical wildfire, flood, and earthquake safety levels (ENVI-a-2).
- Continue to enforce and/or comply with State-mandated requirements, such as the *California Environmental Quality Act* and environmental regulations to ensure that urban development is conducted in a way to minimize air pollution. For example, air pollution levels can lead to global warming, and then to drought, increased vegetation susceptibility to disease (such as pine bark beetle infestations), and associated increased fire hazard (ENVI-a-3).
- Develop and implement a comprehensive program for watershed management optimizing ecosystem health with water yield to balance water supply, flooding, fire, and erosion concerns (ENVI-a-4).
- Balance the need for the smooth flow of storm waters versus the need to maintain wildlife habitat by developing and implementing a comprehensive Streambed Vegetation Management Plan that

# SOLANO COUNTY WATER AGENCY

ensures the efficacy of flood control efforts, mitigates wildfires and maintains the viability of living rivers (ENVI-a-5).

- Comply with applicable performance standards of any *National Pollutant Discharge Elimination System* municipal stormwater permit that seeks to manage increases in stormwater run-off flows from new development and redevelopment construction projects (ENVI-a-6).
- Enforce and/or comply with the grading, erosion, and sedimentation requirements by prohibiting the discharge of concentrated stormwater flows by other than approved methods that seek to minimize associated pollution (ENVI-a-7).
- Enforce and/or comply with the hazardous materials requirements of the State of California Certified Unified Program Agency (CUPA) (ENVI-a-9).
- Stay informed of scientific information compiled by regional and state sources on the subject of rising sea levels and global warming, especially on additional actions that local governments can take to mitigate this hazard including special design and engineering of government-owned facilities in low-lying areas, such as wastewater treatment plants, ports, and airports (ENVI-b-1).

## Incorporation into Existing Planning Mechanisms

The Solano County Water Agency is not a land use agency, thus does not have a General Plan. This Annex will be made available to Solano County and cities in Solano County for their use in General Plan elements, as appropriate.

The information in this Annex will be used in the Agency's Capital Improvement Plan for prioritizing capital improvements of Agency infrastructure.

The Agency enforces the requirements of the California Environmental Quality Act (CEQA), which, since 1988, requires mitigation for identified natural hazards. The Agency has used these pre-existing programs as a basis for identifying gaps that may lead to disaster vulnerabilities in order to work on ways to address these risks through mitigation.

## Plan Update Process

As required Disaster Mitigation Act of 2000, the Solano County Water Agency will update this plan annex at least once every five years, by participating in a multi-agency effort with ABAG and other agencies to develop a multi-jurisdictional plan.

The Solano County Water Agency management staff will ensure that monitoring of this Annex will occur. The General Manager is identified as the person responsible for making sure the Annex is monitored and updated as required or needed and will review the plan on an annual basis to determine if any changes or updates are necessary. The plan will be monitored on an ongoing basis. However, the major disasters affecting our Agency, legal changes, notices from ABAG as the lead agency in this process, and other triggers will be used. The Agency's Flood Control Advisory Committee will be a key method of getting public input on the flooding aspects of the Annex on an ongoing basis. Public input helps decide on priorities for efforts to mitigate flooding risk that the Agency will be involved in.

# SOLANO COUNTY WATER AGENCY

Finally, the Annex will be a discussion item on the agenda of the meeting of Department leaders at least once a year in April. At that meeting, the department heads will focus on evaluating the Annex in light of technological and political changes during the past year or other significant events. The Department leaders will be responsible for determining if the plan should be updated.

The Agency is committed to reviewing and updating this plan annex at least once every five years, as required by the Disaster Mitigation Act of 2000. The Agency management staff will contact ABAG four years after this plan is approved to ensure that ABAG plans to undertake the plan update process. If so, the Agency again plans to participate in the multi-jurisdictional plan. If ABAG is unwilling or unable to act as the lead agency in the multi-jurisdictional effort, other agencies will be contacted, including the County's Office of Emergency Services. Agencies should then work together to identify another regional forum for developing a multi-jurisdictional plan.

The public will continue to be involved whenever the plan is updated and as appropriate during the monitoring and evaluation process. Prior to adoption of updates, the Agency will provide the opportunity for the public to comment on the updates. A public notice will be posted prior to the meeting to announce the comment period and meeting logistics.

## Mitigation Plan Point of Contact

Name: David Okita

Title: General Manager

Mailing Address: 810 Vaca Valley Parkway, Suite 203, Vacaville CA 95688

Telephone: 707 455-1103

Email: dokita@scwa2.com

### *Alternate Point of Contact*

Name: Thomas Pate

Title: Principal Engineer

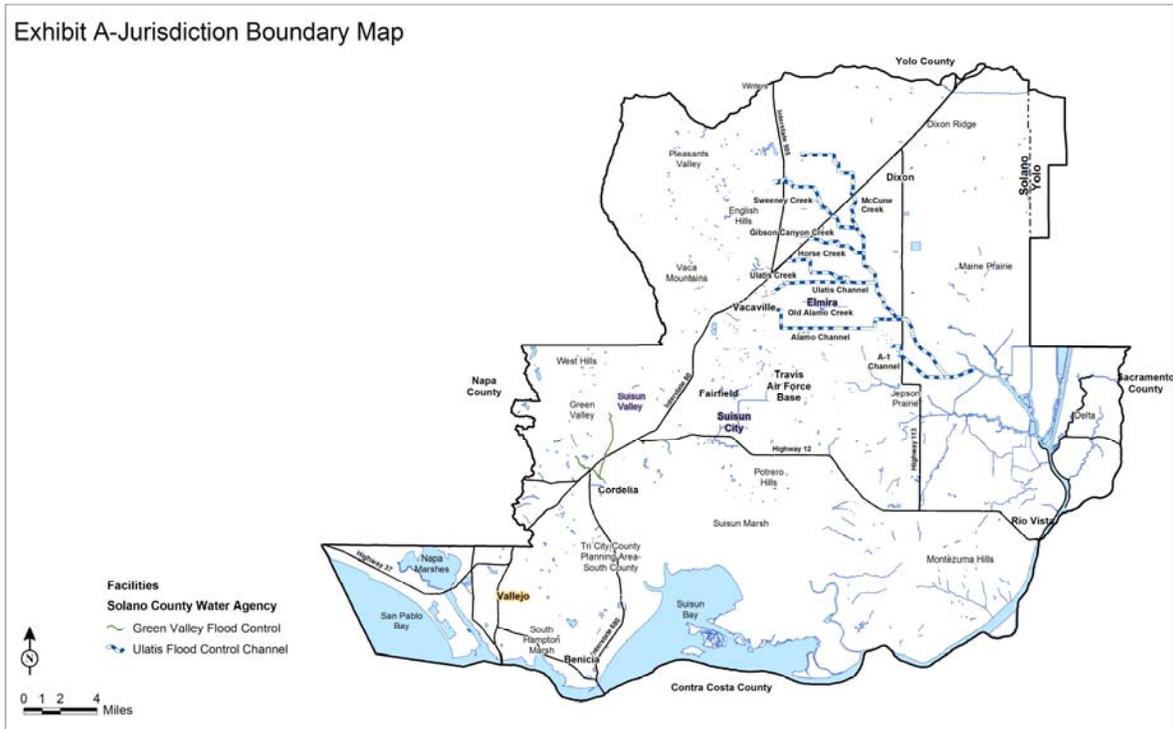
Mailing Address: 810 Vaca Valley Parkway, Suite 203, Vacaville CA 95688

Telephone: 707 455-1104

Email: tpate@scwa2.com

# SOLANO COUNTY WATER AGENCY

## Exhibit A - Jurisdiction Boundary Map



# SOLANO COUNTY WATER AGENCY

## Exhibit B - Public Meeting Announcements

# SOLANO COUNTY WATER AGENCY

## Exhibit C - SCWA Regional Mitigation Strategies

[Available on LHMP CD or at <http://www.abag.ca.gov/bayarea/eqmaps/mitigation/strategy.html>]