SANTA CLARA VALLEY WATER DISTRICT ANNEX TO
THE ABAG MULTI-JURISDICTIONAL LOCAL HAZARD MITIGATION PLAN

INTRODUCTION

The Santa Clara Valley Water District (District) is a special district that provides wholesale water supply, flood control and environmental stewardship of 800 miles of rivers and streams for Santa Clara County, California. Formed in 1929 by an act of the State Legislature as the Santa Clara Valley Water Conservation District, the agency later incorporated additional missions of flood control and environmental stewardship into its charter to give it a unique mission among California special districts. The District is the largest dual purpose water and flood management special district in California. Santa Clara County – popularly known as Silicon Valley – is located at the south end of San Francisco Bay. The District encompasses all of the County's 1,317 square miles and serves the area's 15 cities, 1,682,585 residents (2000 U.S. census) and more than 200,000 daily commuters. Located in the county are the nation's 10th largest city (San Jose) and two other cities with populations in excess of 100,000 persons (Santa Clara and Sunnyvale). There are 579,329 housing units in the county for a population density of 449 persons per square mile.

The District's 2006-07 budget was $314 million. The District employs approximately 850 people. The core businesses of the District are to provide:

- **A clean and reliable supply of water**
  To accomplish this, the District manages, captures, and stores local surface water in its reservoirs, recharges the groundwater basin and imports water from the Sacramento/San Joaquin Delta. Water is first treated at District facilities and is then sold and distributed through pipelines to municipal and investor-owned water retailers for sale to County residents and businesses. Private well owners and water retailers rely on the groundwater pumped from the groundwater sub-basin for mitigating the effects from a drought.

- **Protection from flooding**
  The District works to protect residents and business from the devastating effects of flooding. Flood protection is provided through construction and maintenance of capital projects such as channels and levees. In recent years, District started to integrate habitat protection or enhancement and recreation opportunities into flood protection projects. The District also performs sediment removal, bank protection and vegetation management of its flood protection facilities throughout the County, provides field responses (including clearing of hot spots to prevent flooding) during storm events and conducts inspections after storm events.

- **Environmental Stewardship**
  The District serves as a steward for the County's 800 miles of streams and creeks, its groundwater basins, and District-owned reservoirs. The District uses best management practices, and collaborations or partnerships with others to be environmentally sensitive in how it plans and conducts its work. It also strives to be a "Good Neighbor" by minimizing the unavoidable disruption to neighborhoods and residents caused by District work, and integrate habitat protection into its capital and maintenance projects. In addition, the District works with local jurisdictions to make available reservoirs, trials, and open space for public use and enjoyment.

The District serves 13 public and private retail water providers. More than half the County's water supply comes from underground aquifers recharged through an extensive District ground water recharge system. The District operates and maintain three water treatment plants, 11 dams and reservoirs (including the Federal Energy Regulatory Commission-regulated Anderson Dam, and the Rinconada Reservoir) and the San Felipe Division of the Central Valley Water Project, which includes the Pacheco Pumping Plant, Pacheco Conduit (which includes the Pacheco Tunnel), Santa Clara Conduit (which includes the Santa Clara Tunnel and Calaveras Fault Crossing), and the Coyote Pumping Plant. A short portion of the Santa Clara Conduit passes through the San Benito County.

THE PLANNING PROCESS FOR DEVELOPING THIS ANNEX

The District subscribes to and practices a continuously updated, all-hazards approach to emergency response. This includes continuing compliance activities for the California Standardized Emergency Management System (SEMS) – National Incident Management System (NIMS) and Incident Command System (ICS). The District drafted this plan by building on existing programs and identifying gaps that may lead to disaster vulnerabilities so that we are better equipped to address those risks through mitigation.

Many District activities contributed to the planning process for developing the Annex in support of the multi-jurisdictional plan. The District participated in various ABAG workshops and meetings including the Lifelines and Transportation Hazard Review Committee on September 16, 2004, the general "kick-off" meeting in April 2005 and a special workshop for water utilities on June 26, 2006. In addition, the District has provided written and oral comments on the multi-jurisdictional plan. The District also provided information on critical facilities to ABAG.

Key District staff met on four occasions to identify and prioritize mitigation strategies appropriate for the District. Staff involved in these meetings or preparation of this annex included staff from the Office of Emergency Services, the Office of Watershed Planning, Watershed Business Management Unit, Water Quality Unit, Infrastructure Planning Unit, Water Utilities Treated Water Operations Unit. At the first meeting, the general priorities and appropriate District departments were identified. The second meeting identified preliminary budgets and potential funding sources for strategies designed as "High" priority. Subsequent meetings were devoted to clarifying any outstanding issues and refining responses related to mitigation strategies.

Additionally, working drafts were accessible through the ABAG website since March 1, 2007. Other staff and managers who had not participated in the past meetings were invited to comment on the DRAFT mitigation strategies during March 2007. Staff or managers from Community Projects Review Unit, and Guadalupe, West Valley/Lower Peninsula, and Coyote/Uvas/Llagas Watershed Field Operations, and water utility enterprise provided comments to the drafts.

The resolution for adopting the plan and acknowledging these strategies was on the Board of Directors agenda on April 10, 2007. The priorities were refined as an integral part of the District's budgeting processes, in which the public had an opportunity to comment and provide feedback.

HAZARD AND RISK ASSESSMENT

The ABAG multi-jurisdictional Local Hazard Mitigation Plan, to which this is an Annex, lists nine hazards that affect the Bay Area: five related to earthquakes (faulting, shaking, earthquake-induced landslides, liquefaction and tsunamis) and four related to weather (flooding, landslides, wildfires and drought). Because the District service area is the same as the political boundaries of Santa Clara County which encompasses a broad geographic/geological/climatic area, all hazards that affect the County are also of concern to the District.

The District has undertaken a number of general hazard mapping activities. General public inquires are referred to the ABAG website at http://quake.abag.ca.gov/mitigation/.

Information on disasters declared in Santa Clara County is at http://quake.abag.ca.gov/mitigation/disaster-history.html.

The multi-jurisdictional plan did not include specifics on water treatment and distribution facilities. Specific water contamination, water distribution, water supply and water source issues were not addressed. A discussion of these issues and hazards is found below.

Santa Clara County has examined the hazard exposure of urban land based on the information on ABAG's website at http://quake.abag.ca.gov/mitigation/pickdbh2.html. Except where noted below, all hazard exposures and all information pertinent to the County are the same for the District and may be found at http://quake.abag.ca.gov/mitigation/SantaClaraCo-Annex.pdf

The District also examined the hazard exposure of infrastructure based on the information on ABAG's website at http://quake.abag.ca.gov/mitigation/pickcrit.html.

Based on information obtained from the California Geological Survey, FEMA, ABAG and 2004 District Water Infrastructure Reliability Project, the Number of Critical District Facilities Susceptible to various hazards are as follows:

- **Earthquake Faulting Potential** – According to the CGS Alquist-Priolo Earthquake Fault Zone information on the ABAG website, SCVWD pipelines cross a number of faults, including the Calaveras, Shannon-Monte Vista, and Warm Springs fault zones. Portions of the SCVWD Coyote and Anderson Dams are also susceptible to faulting potential on either the Calaveras or Silver Creek Fault zones.
- **Earthquake Shaking Potentia**l – All of the SCVWD facilities are susceptible to a moderate to strong category of ground shaking potential, due to the close proximity of the San Andreas, Sargent, Berocal, Monte Vista–Shannon, Coyote Creek, Silver Creek, Warm Springs, Hayward, or Calaveras faults.
- **Earthquake Liquefaction Susceptibility** – The majority of Santa Clara Valley is not susceptible to liquefaction. The areas of higher liquefaction susceptibility includes SCVWD pipelines located in the extreme northwest area of the county adjacent to the southern end of the San Francisco Bay, and certain areas adjacent to the east side of the valley floor extending northwestward from the San Benito County line to the east-west margin of higher liquefaction potential described above. In addition, SCVWD pipelines are susceptible to liquefaction at many creek crossings. Detailed seismic stability assessments are currently being performed on four SCVWD dams (Almaden, Anderson, Calero and Guadalupe) which will also

address liquefaction potential in the dam foundations; similar analyses may be performed for other SCVWD dams in the near future

- **Earthquake Dam Seismic Stability -** Detailed seismic stability assessments are currently being performed on four SCVWD dams; similar analyses may be performed for other SCVWD dams in the near future
- **Earthquake-induced landslides** – A number of SCVWD pipelines in the more mountainous portions of the county are located in earthquake-induced landslide zones. The Penitencia Water Treatment Plant is also located in an earthquake-induced landslide zone. .
- **FEMA Flood Zones** – 15 facilities are located in areas of "undetermined but possible flood hazards"
- **Flooding and effects of flooding** – A number of SCVWD pipelines are partially located in flood zones and are subject to damage by erosion or inundation.
- **Wildfire Threat Areas** -- 2 SCVWD facilities (Coyote and Uvas dams) are subject to very high wildfire threat; 1 facility (Anderson Dam) is located in a high threat area; and 17 other SCVWD facilities are subject to moderate wildfire threat.
- **Wildland-Urban Interface Fire Threat** – 13 SCVWD facilities.
- **Drought** – Of the 139 miles of pipeline operated by the District, none are subject to damage due to drought. The District maintains in-ground water storage, above-ground storage in reservoirs and imports water through State and Federal water projects.

A number of SCVWD facilities located on the floor of Santa Clara Valley are located in flood-prone areas. Information on repetitive loss properties in the County per http://quake.abag.ca.gov/mitigation/pickflood.html indicates that there are 27 repetitive loss properties responsible for 67 claims totaling $869,596. Four of the 27 properties are located outside the mapped flood plain.

To delineate where potential damages might occur the District staff reviewed and will continue to review various ABAG regional hazard maps and its updates at http://quake.abag.ca.gov/mitigation/ and http://www.abag.ca.gov/cgi-bin/pickmapx.pl (Loma Prieta map).

STUDIES AND REPORTS SPECIFIC TO THE DISTRICT:

Water System Security Vulnerability Assessment (September 2002) -- This report includes an assessment and recommendations regarding internal policies and procedures to facilitate protection of the District against insider threats. The report examines such things as security policies and procedures; access control and security protocols; mailroom and package receiving policies and procedures; human resources; security guard force operations; emergency response & business continuity; and performed an overall threat assessment.

Water Infrastructure Reliability Project (May 2005) – This study included reconnaissance-level evaluation of retail water systems supplied by the District water system. The report describes water retailer systems and how they interact with the District water supply system, hazards to which systems are exposed, systems' responses to hazards, and a multi-tiered retrofit program to reduce risk. The final report includes numerous detailed maps showing earthquake vulnerabilities, along with detailed vulnerability study results. The goal this effort included an overall facilities assessment and reliability response evaluation and a system-wide water

infrastructure reliability plan. The plan proposes improvements and modifications to improve performance after a major event (infrastructure as well as planning/procedures, etc.) and includes District water storage, transmission, pumping, treatment and distribution facilities. (This includes portions of the U.S. Bureau of Reclamation San Felipe Project which the District operates.) The County's other imported water supplies are evaluated at a reconnaissance-level to assess their respective impact on the District's system ability to supply and deliver water to its customers. (This includes the California Department of Water Resources South Bay Aqueduct, San Francisco Public Utilities Commission and District retailer systems). The project also includes prioritization of regional solutions for improving District systems reliability.

Facility Vulnerability Assessment (August 2003) – Although primarily focused on facilities and employee security and safety, this study addresses issues raised by the Infrastructure Mitigation Strategies (and other categories and items) regarding assessment of the vulnerability of critical facilities to damage in natural disasters and security threats as designated by "lifeline operators" – in this case the District. The study provides facility risk prioritization based on criticality to District mission success, consequences of loss of those facilities and symbolic attractiveness of facilities as targets of malevolent acts (including terrorism).

Emergency Operations Plan – The EOP is intended to be the standard format for all District emergency plans. It consists of three sections: Part 1 (Basic Plan) describes general District all-hazards emergency response using the California Standardized Emergency Management System (SEMS)/National Incident Management System (NIMS), including the Incident Command System (ICS), to which the District subscribes and is compliant. Part 2 (Contact Information) includes "perishable" contact information for allied emergency management agencies. Part 3 (Technical Information & Emergency Contingency Plans) includes site or situation specific information. This section is owned by the District organization that is primarily responsible for its implementation and maintained by the Office of Emergency Services.

The District plans to work with Association of Bay Area Governments (ABAG) to develop specific information about the kind and level of damage to District buildings, infrastructure, and critical facilities which might result from any of the hazards previously noted. The reviews of the information available revealed that earthquake (particularly shaking), flooding, wildfire, and landslides (including unstable earth) could pose significant risk for potential losses in these District facilities. The District will continue to review the hazards identified and update the priorities accordingly.

MITIGATION ACTIVITIES AND PRIORITIES

As a participant in the ABAG multi-jurisdictional planning process, District staff helped in the development and review of the comprehensive list of mitigation strategies in the overall multi-jurisdictional plan. District staff further reviewed all of the mitigation strategies at meetings on August 28, 2006 and September 13, 2006. Assignment of priorities was made based on mainly staff and management feedback, which took into consideration of technical and administrative feasibility, political acceptability, social appropriateness, legal and economic soundness, and sensitivity to the environment and heritage.

Over time, the District is committed to developing better hazard and risk information to use in making necessary trade-offs on an on-going basis. While the District cannot create a disaster-proof region, it does and will continue to contribute to improving Disaster-resistance in

the areas it serves. This Plan identified about 70 existing strategies and over 30 very high and high priority mitigation strategies that needed funding for.

The mitigation strategies including DRAFT priorities have been accessible to the public on the ABAG website since March 1, 2007. The priorities along with the package were submitted to District executive management for review in March 2007. The refined priorities were provided to the Board of Directors on April 10, 2007.

The District will use established and proven mechanisms to continue support existing mitigation strategies identified and pursue funding for strategies having very high or high priorities in this Annex. The principal means for project approval and implementation are the District's Capital Improvement Plan (CIP) and annual budget. The CIP is an annual, comprehensive review of asset investments required over a 10-year period to ensure adequate water resources, maintain clean, safe water and meet the present and future needs of District customers. The vulnerability of key assets to natural disasters identified in this annex will be considered in future asset investments strategies.

In addition, as the District assesses infrastructure needs through the asset management planning, performance audits or other efforts, additional high or very high priority mitigation strategies may emerge and trigger the need for funding request.

MAINTENANCE AND UPDATE PROCESS FOR THIS ANNEX

The District's Office of Emergency Services will ensure that monitoring of this Annex occurs. Major disasters affecting our community, legal changes, notices from ABAG as the lead agency in this process, and other unforeseen conditions could trigger reviews or revision as needed. Also, during the annual budgeting process, the Annex will be reevaluated in light of technological and political changes during the past year or other significant events.

The District intends to comprehensively review and update of this Annex at least once every five years, as required by the Disaster Mitigation Act of 2000.

Beginning January 2008, the manager of the Office of Emergency Services will start coordinating with ABAG on its plan for updating the multi-jurisdictional plan and determine whether the District continues to participate in ABAG's update. Should ABAG decide not to act as the lead agency in the multi-jurisdictional effort, other agencies will be contacted, including the County Office of Emergency Services to establish cooperative efforts within Santa Clara County. The District will support counties throughout the Bay Area in working together to identify another regional forum for developing a multi-jurisdictional plan and participation in that successor forum.

The District will continue to engage the public. Public notice will be posted prior to the meeting to announce the comment period and meeting logistics and pertinent milestones will be incorporated into the District-wide performance management tracking systems, supplemented by more detailed monitoring done at the operations level.