

SANTA MARGARITA WATER DISTRICT ANNEX

The Santa Margarita Water District (SMWD) is a participant (Member Agency [MA]) in the Orange County Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan (HMP or Plan). As a participant MA, SMWD representatives were part of the HMP Planning Process and served on the Planning Team responsible for the Plan Update; refer to Section 2 of the Plan. The primary Plan, including the hazard mitigation plan procedural requirements and planning process apply to SMWD.

This Annex supplements information contained in the primary Plan and describes how SMWD’s risks vary from the planning area. The Risk Assessment (Section 3) summarizes the hazards and risks that pose a threat to Orange County. The primary Plan treats the entire County as the planning area and identifies which MAs are subject to a profiled hazard. The purpose of this Annex is to provide additional information specific to SMWD with a focus on the risk assessment and mitigation strategy.

HAZARD MITIGATION PLAN POINT OF CONTACT AND DEVELOPMENT TEAM

The following representatives attended the Planning Team meetings on behalf of SMWD and coordinated the hazard mitigation planning efforts with SMWD staff:

Primary Point of Contact

Chris Lopez
 Safety Specialist
 chrisl@smwd.com
 949-532-2551

Alternate Point of Contact

Daniel Peterson
 Operations Business Manager
 danielp@smwd.com

In addition to participating on the Planning Team, an internal team was also formed to support Planning Team representatives and provide information for the Plan update. The following staff served as SMWD’s internal hazard mitigation planning development team.

Representative	Title	How Participated
Erica Castillo	Controller	Financial Information
Steve Bay	Maintenance Forman	Infrastructure Information
Eric Smith	Operations Superintendent	Reservoirs/Dams/Stations

JURISDICTION PROFILE (Service Population: 165,000)

SMWD, established in December 1964 under provisions of the California Water District Law (Section 34000 et seq. of the California Water Code), includes 62,674 acres in the southeastern corner of Orange County. SMWD is bounded on the north by El Toro Road in the City of Lake Forest, on the east by the Cleveland National Forest, on the south by United States Marine Corp Camp Pendleton and Orange County border, and on the west by the City of San Juan Capistrano and Moulton Niguel Water District. SMWD is responsible for inter-utility coordination and long-range planning to meet future water supply and wastewater treatment needs for its service area.

The Cities of Mission Viejo, Rancho Santa Margarita, a portion of San Clemente and the incorporated communities of Coto de Caza, Las Flores and Ladera Ranch, as well as the remaining undeveloped portion of the Rancho Mission Viejo are within the service boundary of SMWD.

The governing body of SMWD (and all improvement districts therein) is a five-member Board of Directors, publicly elected at large for staggered four-year terms. SMWD's responsibilities as authorized by the California Water District Law are:

- Distribution of domestic water for consumption and fire protection.
- Collection and treatment of wastewater.
- Distribution of recycled water along with the collection and distribution of urban return flows for irrigation purposes.

All of the District's domestic water demands are imported from Metropolitan through MWDOC. SMWD receives approximately two-thirds of its imported (potable) water from Metropolitan via the regional distribution system located in Orange County (Allen-McColloch Pipeline and the East Orange County Feeder No. 2), while the remaining third comes from the Baker Treatment Plant located in Lake Forest.

HAZARDS

Detailed hazard profiles for the planning area are provided in Section 3. SMWD is located inland and therefore is not subject to coastal hazards such as coastal storms/erosion and tsunamis. SMWD is subject to the other hazards identified in for the planning area. Many of these hazards are dispersed and may affect the entire region, including climate change, drought, ground shaking from earthquakes, geologic hazards, and high wind. Regarding the hazard of dam/reservoir failure, the District owns and operates three dams: Portola Dam/Reservoir, Upper Oso Dam/Reservoir, and the Upper Chiquita Dam/Reservoir and would be subject to inundation in the event of failure; refer to Section 3. In addition, much of the area is located within a very high fire hazard zone. Human-caused hazards and power outages are also hazards that could impact the District. There are no hazards that are unique to SMWD.

Based on the risk assessment, the SMWD development team identified the following hazards that affect SMWD and summarized their geographic extent, probability of future occurrence, magnitude/severity and significance; refer to Table N-1.

**Table N-1
SMWD Hazard Identification**

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Climate Change	Limited	Unlikely	Negligible	Low
Contamination/ Salt Water Intrusion	Limited	Occasional	Limited	Medium
Dam/Reservoir Failure	Significant	Unlikely	Critical	High
Drought	Limited	Occasional		
Earthquake Fault Rupture & Seismic Hazards	Significant	Occasional	Limited	High
Flood	Limited	Unlikely	Negligible	Low
Geologic Hazards	Limited	Unlikely	Negligible	Low
High Winds/ Santa Ana Winds	Limited	Unlikely	Negligible	Low
Landslide/Mudflow	Limited	Occasional	Negligible	Medium
Wildland/Urban Fire	Significant	Occasional	Limited	Medium
Human-Caused Hazards	Limited	Occasional	Negligible	Low
Power Outage	Limited	Occasional	Negligible	Low
Geographic Extent Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area Probability of Future Occurrences Highly Likely: Near 100% chance of occurrence in next year, or happens every year. Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less. Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.		Magnitude/Severity Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths. Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability. Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability. Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid. Significance Low: Minimal potential impact Medium: Moderate potential impact High: Widespread potential impact		

The identification of hazards provided in Table N-1 is highly dependent on the location of facilities within each agencies jurisdiction and takes into consideration the history of the hazard and associated damage (if any), information provided by agencies specializing in a specific hazard (e.g., FEMA, California Geological Survey), and relies upon each agencies’ expertise and knowledge.

Hazard Maps

The following maps show the location of hazard zones within the jurisdiction relative to either potable water or wastewater systems, as applicable.

VULNERABILITY AND RISK ASSESSMENT

Assets Susceptible to Hazard Events

Table N-2, SMWD Infrastructure and Exposure to Hazards, identifies SMWD’s water and wastewater infrastructure assets that are located within the mapped hazard zones, identified above.

**Table N-2
SMWD Infrastructure and Exposure to Hazards**

Hazard		Infrastructure Type					
		Interties (#)	Pump Stations (#)	Reservoirs (#)	Wells (#)	Potable Pipeline (miles)	Wastewater Pipeline (miles)
Fire Hazard Zone	Moderate	0	1	0	0	13.9	7.8
	High	2	1	0	0	18.9	25.5
	Very High	4	9	26	1	55.0	37.8
FEMA Flood Zone	100-Year	0	1	0	0	0.3	4.5
	500-Year	0	0	0	0	3.6	0.7
Alquist-Priolo Rupture Zone		0	0	0	0	0	0
Ground Shaking	Moderate	2	8	20	0	40.1	23.1
	High	6	9	8	1	72.3	63.4
	Extreme	0	0	0	0	0	0
Liquefaction	Moderate	0	0	1	1	8.8	15.5
	High	0	0	0	0	0	0
	Very High	0	0	0	0	0	0
	Unknown	2	0	0	0	10.4	15.7
Landslide Zone		0	1	7	0	16.0	12.1
Tsunami Zone		0	0	0	0	0	0

Much of SMWD’s potable and wastewater pipeline systems are located in very high fire hazard areas and high hazard ground shaking areas. Additionally, the District contains a high number of reservoirs in both very high fire hazard areas and moderate ground shaking hazard areas. SMWD has infrastructure or pipelines in all hazard areas, except the Alquist-Priolo Rupture and tsunami zones.

CAPABILITIES ASSESSMENT

The capabilities assessment is designed to identify existing local agencies, personnel, planning tools, public policy and programs, technology, and funds that have the capability to support hazard mitigation activities and strategies outlined in this Plan. SMWD’s internal development team revised the capabilities identified in the 2012 plan and collaborated to identify current local capabilities and mechanisms available to the MA for reducing damage from future hazard events. Tables N-3a through N-3d assess the authorities, policies, programs, and resources that the jurisdiction has in place that are available to help with the long-term reduction of risk through mitigation. These capabilities include planning and regulatory tools,

administrative and technical resources, financial resources, and education and outreach programs. The agency has the ability to create or expand existing policies and programs to implement mitigation programs.

**Table N-3a
Planning and Regulatory Capabilities Summary**

Ordinance, Plan, Policy, Program	Responsible Agency or Department	Description/Comments
Building Code	State and local jurisdiction	SMWD complies with applicable building codes and works with cities within the District service area.
Zoning Ordinance	Local jurisdiction	SMWD complies with applicable zoning codes and works with cities within the District service area.
Subdivision Ordinance or Regulations	Local jurisdiction	SMWD complies with applicable subdivision ordinance or regulations, and works with cities within the District service area.
Special Purpose Ordinance	County of Orange Flood Control District/ Orange County Fire Authority / USACE / USFWS / CDFG	SMWD complies with applicable special purpose ordinances, and works with cities within the District service area.
Growth Management Ordinances	Local jurisdiction	SMWD complies with applicable growth management ordinances, and works with cities within the District service area.
Site Plan Review Requirements	Local jurisdiction/SMWD	Site Plans reviews to determine impacts on district facilities.
General Plan	SMWD	Based on water supply verification. Emergency water storage capability.
Capital Improvements Plan	SMWD Evaluates its facilities on a scheduled basis	Capital improvement plans are derived from the water and sewer master plans, as well as known problems that may develop in between plan updates.
Economic Development Plan		SMWD complies with economic development plans, and works with cities within the District service area.
Emergency Response Plan	Internal E.R.P.	E.R.P. is based on NIMS and SEMS concepts. E.R.P. Utilizes WEROC Resources and multi-agency support.
Post-Disaster Recovery Plan	Incorporated into the SMWD E.R.P.	Describes policies and procedures for resource recovery.
Vulnerability Assessment	Internal Facility Assessments. Homeland Security Guidelines Referenced Throughout Assessments	Services Provided by Consulting Firms. Continuous Updates Regarding Cyber Security.
Dams	Department of Safety of Dams	Annual Assessment.
VA ERP	Internal/OES/DHS/Consultants	Services Provided by Consulting Firms. Continuous Updates Regarding Cyber Security.
Water Discharge Requirements	RWQCB	Regulatory Compliance.

**Table N-3b
Administrative and Technical Capabilities Summary**

Staff/Personnel or Type of Resource	Responsible Agency or Department	Description/Comments
Engineer(s) or Professional(s) Trained in Construction Practices Related to Buildings and/or Infrastructure	SMWD Engineering Staff/Consultants	Provides information regarding the City's zoning and land use regulations and development standards. The Planning Division coordinates with other City departments in the review of new development projects for regulatory compliance. The Division also analyzes projects and prepares and presents reports to the Planning Commission for its bimonthly meetings.
Floodplain manager	OCFCD	The agency coordinates with the County Floodplain Manager.
Surveyors	Consultants	Contract service providers are on-call.
Staff with Education or Expertise to Assess the Community's Vulnerability to Hazards	SMWD Emergency Response Plan Staff	Assessment done in accordance with SMWD emergency response plan.
Personnel Skilled in GIS and/or HAZUS	SMWD SCADA, GIS, I.T. Department Personnel	Maps available displaying infrastructure.
Emergency Manager	SMWD Operations Manager	Roles and responsibilities.
Grant Writers	Consultants/Limited SMWD Staff	Evaluate & Recommend.
Water Quality Lab	SMWD Lab Staff	WQ lab located at Chiquita Wastewater Treatment Facility.

**Table N-3c
Financial Capabilities Summary**

Financial Resources	Agency or Department	Description/Comments
Capital Improvements Project Funding	SMWD Engineering Department, Operations Department, and Finance Department	Annual review of capital requirements and forecasting future cap needs.
Authority to Levy Taxes for Specific Purposes	SMWD / County of Orange	The district typically levies taxes for 1) special assessment tax obligation debt service and 2) general obligation debt service payments.
Fees for Water, Sewer, Gas, or Electric Service	SMWD Customer Service Department/Board of Directors/ SMWD Finance Department	The district, through the Prop 218 process, is able to charge customers fees for water and sewer services.
Incur Debt Through General Obligation Bonds	SMWD Finance and Engineering Department	Through a general election, the district can incur debt through general obligation bonds.
Incur Debt Through Special Tax and Revenue Bonds	SMWD Finance and Engineering Department	The district may incur special tax or revenue bonds as needed through the appropriate legal process.

**Table N-3d
Education and Outreach Capability Summary**

Resource/Programs	Agency or Department	Description/Comments
National Night Out	Multi Agency	Public Outreach Event Focusing on Emergency Response and Safety.
Ladera Ranch Spring Celebration	Multi Agency	Public Outreach Event Focusing on Emergency Response and Safety.
Annual Jims-Web EOC Training	SMWD	Annual Refresher Training to Focus on Web EOC-Data Input and Resource Acquisition.
SMWD EOC Operational Exercise	SMWD	Training to Focus On EOC Positions and Functionality.

MITIGATION STRATEGY

Mitigation Goals

SMWD adopts the hazard mitigation goals developed by the Planning Team; refer to Section 4.

Mitigation Actions

The internal development team reviewed the mitigation actions identified in the 2012 plan and the updated risk assessment to determine if the mitigation actions were completed, require modification, should be removed because they are no longer relevant, and/or should remain in the Plan Update. New mitigation actions to address the updated risk assessment and capabilities identified above were also considered and added. Table N-4, SMWD Mitigation Actions, identifies the mitigation actions, including the priority, hazard addressed, risk, timeframe, and potential funding sources.

**Table N-4
SMWD Mitigation Actions**

Priority (High, Medium, or Low)	Action/Task/Project Description	Location/Facility	Risk (High, Medium, or Low)	Cost	Timeframe (Immediate, Short Term, or Long Term)	Possible Funding Sources	Status/Progress (New, Existing, Modified)	Status Rationale
Multi-Hazard								
Medium	Continue preventative maintenance schedules at facilities to ensure they remain in working order.	Multiple Facilities	Medium	Labor	Immediate	Operating Budget	Existing	Ongoing project.
High	Work with OCFA to ensure that facilities are meeting best practices near fire risk areas.	Multiple Facilities	High	Labor	Immediate	Operating Budget	Existing	Ongoing project.
High	Complete Phase 3 of SCADA Plan to provide redundancy in communications network.	Multiple Facilities	High	\$300,000	Immediate	CIP Budget	Existing	Ongoing project.
High	Purchase emergency antenna trailers to allow for failure of multiple facilities.	Multiple Facilities	High	\$30,000	Short Term	Operating Budget	New	Budgeted for FY18.
Medium	Continue cathodic protection program to ensure corrosion control for pipelines.	Multiple Facilities	Medium	\$300,000 /yr	Long Term	CIP Budget	Existing	Annual budget.
Low	Exercise and maintain emergency interconnections.	Multiple Facilities	Low	Unknown	Short Term	CIP Budget	Existing	In CIP budget.
Low	Continue to seek additional regional resources for reliability (gas, equipment, etc.).	Multiple Facilities	Low	Unknown	Long Term	Operating Budget	New	Seeking partners.
High	Build Trampas Canyon Reservoir.	Trampas Canyon Reservoir	High	\$90 mil	Short Term	CIP Budget	New	Scheduled to open FY20.

**Table N-4 [continued]
SMWD Mitigation Actions**

Priority (High, Medium, or Low)	Action/Task/Project Description	Location/ Facility	Risk (High, Medium, or Low)	Cost	Timeframe (Immediate, Short Term, or Long Term)	Possible Funding Sources	Status/ Progress (New, Existing, Modified)	Status Rationale
Low	Build Ortega Recycled Reservoir.	Ortega Recycled Reservoir	Low	Unknown	Long Term	CIP Budget	New	Conceptual.
Medium	Develop San Juan Watershed project (Phase 1).	San Juan Watershed	Medium	\$34 mil	Short Term	CIP Budget	New	Conceptual.
Medium	Develop San Juan Watershed project (Phase 2).	San Juan Watershed	Medium	\$86 mil	Long Term	CIP Budget	New	Conceptual.
Medium	Develop San Juan Watershed project (Phase 3-4).	San Juan Watershed	Medium	Unknown	Long Term	CIP Budget	New	Conceptual.
High	Expand 3A Water Reclamation Plant tertiary capability.	3AWRP	High	\$34 mil	Short Term	CIP Budget	Modified	Awaiting partner approval.
High	Protect and properly maintain Upper Chiquita Reservoir.	Upper Chiquita Reservoir	Medium	Labor	Immediate	Operating Budget	Existing	Ongoing project.
High	Maintain sewer bypass pump and fittings trailer for emergency bypass operations.	Multiple Facilities	High	\$200,000	Immediate	Operating Budget	New	Budgeted for FY18.
High	Continue preventative maintenance schedules at facilities to ensure they remain in working order.	Multiple Facilities	High	Labor	Immediate	Operating Budget	Existing	Ongoing project.
High	Construct emergency storage facilities where applicable.	Multiple Facilities	High	Unknown	Long Term	CIP Budget	New	Some projects budgeted in CIP already. Others being evaluated.
High	Continue to evaluate and assess sewer system to best utilize annual sewer repair budget effectively.	Collections System	High	\$250,000 /yr	Short Term	CIP Budget	Existing	Ongoing project.
Medium	Standardize and upgrade older lift station's electrical and instrumentation systems.	Multiple Facilities	Medium	Unknown	Long Term	CIP Budget	Modified	In design.
High	Upgrade Collections Crew with two additional combo units to provide reliable response to sewer spills and ability to perform preventative maintenance.	Collections System	Medium	\$1 mil	Immediate	Operating Budget	New	Completed in FY18.
High	Maintain or surpass hydro cleaning and CCTV goals.	Collections System	High	Labor	Immediate	Operating Budget	Existing	Ongoing project.

**Table N-4
SMWD Mitigation Actions**

Priority (High, Medium, or Low)	Action/Task/Project Description	Location/Facility	Risk (High, Medium, or Low)	Cost	Timeframe (Immediate, Short Term, or Long Term)	Possible Funding Sources	Status/Progress (New, Existing, Modified)	Status Rationale
High	Provide long-term sustainable bypass capability at high risk lift stations.	Lift Stations	High	\$300k	Short Term	CIP Budget	Ongoing	Ongoing project.
High	Evaluate and update lift station emergency overflow response plans.	Lift Stations	High	Labor	Immediate	Operating Budget	Modified	Anticipate beginning in FY19.
Medium	Conduct condition assessments of force mains.	Force Mains	Medium	Unknown	Short Term	Operating Budget	Existing	Ongoing project.
Low	Update the inundation study for existing dams.	Multiple Facilities	Low	Unknown	Short Term	Operating Budget	Modified	Anticipate beginning in FY19.
Low	Update Emergency Action Plans for existing dams and provide updates to relevant agencies.	Multiple Facilities	Low	Labor	Immediate	Operating Budget	Modified	Anticipate beginning in FY19.
High	Update Emergency Action Plans for Trampas Canyon Reservoir Dam and provide to relevant agencies.	Trampas Canyon Reservoir	High	Unknown	Immediate	Operating Budget	New	Anticipate beginning in FY20.
Low	Request FEMA/OES mitigation funding to construct a seepage water removal well at Portola Dam.	Portola Dam	Low	Unknown	Short Term	CIP Budget	Modified	Anticipate beginning in FY20.
High	Continue preventative maintenance schedules at facilities to ensure they remain in working order.	Multiple Facilities	High	Labor	Immediate	Operating Budget	Existing	Ongoing project.
High	Upgrade Chiquita Water Reclamation Plant Influent Lift Station.	CWRP	High	\$17 mil	Short Term	CIP Budget	Modified	In Design.
Earthquake								
Medium	Maintain existing flexible connections at steel tank reservoirs.	Reservoirs	High	Labor	Immediate	Operating Budget	Existing	Ongoing project.
Fire								
High	Work with OCFA to ensure that facilities are meeting best practices near fire risk areas.	Multiple Facilities	High	Labor	Immediate	Operating Budget	Existing	Ongoing project.

**Table N-4
SMWD Mitigation Actions**

Priority (High, Medium, or Low)	Action/Task/Project Description	Location/Facility	Risk (High, Medium, or Low)	Cost	Timeframe (Immediate, Short Term, or Long Term)	Possible Funding Sources	Status/Progress (New, Existing, Modified)	Status Rationale
Human-Caused								
Medium	Improve active and passive security at facilities.	Multiple Facilities	Low	Unknown	Immediate	Operating Budget	Existing	Ongoing project.
Medium	Improve active and passive security at facilities.	Multiple Facilities	Low	Unknown	Immediate	Operating Budget	Existing	Ongoing project.
Low	Install reservoir management systems at key locations within District.	Reservoirs	Low	\$700,000	Short Term	CIP Budget	New	Budgeted for FY18.
Contamination								
Low	SMWD is continually monitoring the public water supply and requiring the installation of State Health Department approved backflow prevention devices on all hazardous potable services. All fires systems are upgraded to a Double-Check Detector Assembly if the site is being refurbished.	Approximately 50 single-check fire systems exist in SMWD with a total upgrade cost of about \$1.0 million. Currently SMWD has 1000 DC's out of 5000 CV Systems.	Low	\$1 M	Long-term	Budget	Existing	In Process.
High	Continually monitor the public water supply and require the installation of backflow prevention devices on all hazardous potable services.	Distribution System	High	Unknown	Long-term	Budget	Existing	In Process.
High	Install water quality analyzers that remotely send water quality info to District via SCADA.	Multiple Facilities	High	\$10,000 per site	Immediate	Budget	New	In Process.
Medium	Build dashboards that allow for increased monitoring of constituents of concern for District.	Multiple Facilities	Medium	Labor	Immediate	Budget	Modified	Reorganization of lab database in process.
<p>Notes:</p> <p><u>Timeframe to Completion of Project:</u> "Immediate" is up to 1 year; "Short Term" is 1 to 3 years; "Long Term" is 3 years or longer.</p> <p><u>Status:</u> "New" refers to a mitigation initiative newly created as part of the plan update process; "Existing" refers to an unfinished initiative that is carried over from the 2012 plan; "Modified" refers to an existing initiative that carried over from the previous plan but has changed to limit or expand its scope of activities.</p> <p><u>Status Rationale:</u> A statement of justification as to why the project is currently in the status it is in.</p>								

Completed or Removed Mitigation Initiatives

The following mitigation actions from the 2012 plan have been completed or are in progress and therefore are removed from the Plan update.

Mitigation: Create an inundation study for proposed Trampas Canyon Reservoir Dam.

Status: Completed in FY18.

PLAN INTEGRATION

SMWD's capital budget, Water Master Plan, Wastewater Master Plan and Sewer System Management Plan are all used to implement mitigation initiatives identified in this annex. After adoption of the HMP, the District will continue to integrate mitigation priorities into these documents.

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