

**EL TORO WATER DISTRICT ANNEX**

The El Toro Water District (ETWD) 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, ETWD 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 ETWD.

This Annex supplements information contained in the primary Plan and describes how ETWD’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 ETWD 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 ETWD and coordinated the hazard mitigation planning efforts with ETWD staff:

**Primary Point of Contact**

Sherri Seitz  
Public Relations/Emergency Preparedness Administrator  
sseitz@etwd.com  
949-837-7050 x239

**Alternate Point of Contact**

Rick Olson  
Operations Superintendent  
rolson@etwd.com  
949-837-7050 x217

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 ETWD’s internal hazard mitigation planning development team.

<b>Representative</b>	<b>Title</b>	<b>How Participated</b>
Robert R. Hill	General Manager	Review Process/Updates
Dennis P. Cafferty	Assistant General Manager	Review Process/Updates
Bobby Young	Project Engineer	Review Process/Updates
Rick Olson	Operations Superintendent	Review Process/Updates
Troy Davis	Pump Stations Foreman	Review Process/Updates
Jeff Webster	Operations Foreman	Review Process/Updates
Mark Pade	Chief Plant Operator	Review Process/Updates
Neely Shahbakhti	Finance Manager	Review Process/Updates
Steve Wingen	Field Customer Service Crew Chief	Review Process/Updates
Mike Miazga	IT Manager	Review Process/Updates

**JURISDICTION PROFILE (Service Population: 48,500)**

ETWD was formed in September 1960 under provisions of the California Water District Law (Division 13, Section 34000 et seq. of the Water Code of the State on California). The District is governed by a publicly elected Board of Directors consisting of five Board Members. The Board of Directors establishes District policies and Rules and Regulations. The District’s service area, which is nearly completely developed, includes 5,350 acres in South Orange County. ETWD is bordered by the Irvine Ranch Water District

(IRWD) to the north and west, the Laguna Beach County Water District (LBCWD) to the southwest, the Moulton Niguel Water District (MNWD) to the east and south, and the Santa Margarita Water District (SMWD) to the northeast. The District also shares a small border with Trabuco Canyon Water District (TCWD) in the north-eastern portion of the District. The District provides water, sewer, and recycled water service to a population of 49,124 in portions of Laguna Hills, Lake Forest, Mission Viejo, Aliso Viejo, and all of the city of Laguna Woods.

ETWD maintains and operates the largest covered drinking water reservoir in Orange County with a capacity of 275 million gallons. SMWD and MNWD share capacity in the regional reservoir. ETWD treats and distributes potable water for domestic consumption, irrigation and fire protection. District staff operates and maintains six water storage reservoirs, eight pumping stations, and over 170 miles of distribution pipelines. ETWD also collects, treats and recycles wastewater. District staff maintains a Water Recycling Plant, 11 sewer pumping stations, 119 miles of sewer collection pipelines, and the recycled water system including the Tertiary Treatment Plant, Recycled Water Pump Station and 19 miles of recycled water pipelines.

The District's domestic water demands are met from the supply imported from Metropolitan through MWDOC and supply from the Baker Water Treatment Plant. ETWD receives imported (potable) water from Metropolitan via the Allen-McColloch Pipeline (AMP) and the East Orange County Feeder #2 (EOCF#2) as a back-up. The Baker water supply is delivered via the South County Pipeline through an interconnection with MNWD.

## **HAZARDS**

Detailed hazard profiles for the planning area are provided in Section 3. ETWD is located inland and therefore is not subject to coastal hazards, such as coastal storms/erosion and tsunamis. However, the District is subject to most of the other hazards identified 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. The eastern- and westernmost portions of the service area include areas identified as very high and high fire hazard zones. The District owns and operates two dams: El Toro R-6 Dam/Reservoir and Rossmoor #1 Dam/Reservoir; refer to Section 3. Inundation of infrastructure could occur in the event of failure. Human-caused hazards and power outages are also hazards that could impact the District. There are no hazards that are unique to ETWD.

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

**Table F-1  
ETWD Hazard Identification**

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Climate Change	Extensive	Likely	Limited	Medium
Contamination/ Salt Water Intrusion	Limited	Unlikely	Negligible	Low
Dam/Reservoir Failure	Limited*	Unlikely	Catastrophic	High
Drought	Extensive	Likely	Limited	Medium
Earthquake Fault Rupture & Seismic Hazards	Extensive	Occasional	Catastrophic	High
Flood	Limited	Likely	Limited	Medium
Geologic Hazards	Limited	Occasional	Negligible	Low
High Winds/ Santa Ana Winds	Extensive	Highly Likely	Negligible	Low
Landslide/Mudflow	Limited	Unlikely	Limited	Low
Wildland/Urban Fire	Significant	Likely	Critical	Medium/High
Human-Caused Hazards	Limited	Occasional	Limited	Medium
Power Outage	Extensive	Likely	Limited	Medium
<b>Geographic Extent</b> Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area Limited*: ETWD’s planning area is minimally impacted. Reservoir is outside of District’s planning area.		<b>Magnitude/Severity</b> 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.		
<b>Probability of Future Occurrences</b> 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.		<b>Significance</b> Low: Minimal potential impact Medium: Moderate potential impact High: Widespread potential impact		

The identification of hazards provided in Table F-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 F-2, ETWD Infrastructure and Exposure to Hazards, identifies ETWD’s water and wastewater infrastructure assets that are located within the mapped hazard zones, identified above.

**Table F-2  
ETWD Infrastructure and Exposure to Hazards**

Hazard		Infrastructure Type					
		Interties (#)	Pump Stations (#)	Pressure Control Stations (#)	Reservoirs (#)	Potable Pipeline (miles)	Wastewater Pipeline (miles)
Fire Hazard Zone	Moderate	2	1	0	1	1.7	1.5
	High	1	1	0	0	0.9	0.8
	Very High	2	1	0	2	1.8	1.3
FEMA Flood Zone	100-Year	0	0	0	0	0.7	1.0
	500-Year	0	0	0	0	0.3	0.5
Alquist-Priolo Rupture Zone		0	0	0	0	0	0
Ground Shaking	Moderate	3	5	1	5	5.3	3.1
	High	11	3	0	1	12.8	15.9
	Extreme	0	0	0	0	0	0
Liquefaction	Moderate	0	0	0	0	0	0
	High	0	0	0	0	0	0
	Very High	0	0	0	0	0	0
	Unknown	5	2	0	0	5.0	8.3
Landslide Zone		1	2	0	0	0.6	0.1
Tsunami Zone		0	0	0	0	0	0

Several infrastructure types are located within areas identified as high and very high fire hazard zones, areas identified as being at risk for moderate and high ground shaking during an earthquake and within landslide zones. Of the infrastructure located within mapped hazard areas, most is located within areas identified as susceptible to high ground shaking during an earthquake.

**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. The ETWD 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 F-3a through F-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.

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

<b>Ordinance, Plan, Policy, Program</b>	<b>Responsible Agency or Department</b>	<b>Description/Comments</b>
Building Code	City of Laguna Woods, Lake Forest, Laguna Hills, Mission Viejo and Aliso Viejo	ETWD complies with applicable building codes and works with the Cities within the District service area.
Zoning Ordinance	City of Laguna Woods, Lake Forest, Laguna Hills, Mission Viejo, Aliso Viejo. and County of Orange	ETWD complies with applicable zoning ordinances within the District service area.
Subdivision Ordinance or Regulations	City of Laguna Woods, Lake Forest, Laguna Hills, Mission Viejo, Aliso Viejo. and County of Orange	ETWD complies with applicable subdivision ordinance or regulations within the District service area.
Special Purpose Ordinance	ETWD Engineering, Collections System, Administrative and Customer Service Departments	ETWD ordinances: Water Shortage and Supply; Fats, Oil and Grease (FOG), Cross Connection and Industrial Waste Discharge.
Growth Management Ordinances	City of Laguna Woods, Lake Forest, Laguna Hills, Mission Viejo, Aliso Viejo. and County of Orange	ETWD complies with applicable growth management ordinances within the District service area.
Site Plan Review Requirements	ETWD Engineering Department	ETWD provides plan check for new development for compliance with District standards for water, wastewater and recycled water.
General Plan	ETWD Engineering Department, City of Laguna Woods, Lake Forest, Laguna Hills, Mission Viejo and Aliso Viejo	The District periodically updates its Master plan to define long term projects and operations. ETWD is also integrated into each City's General Plan update process.
Capital Improvements Plan	ETWD	The District updates its 5-year capital improvement plan annually as part of the budget process.
Economic Development Plan	City of Laguna Woods, Lake Forest, Laguna Hills, Mission Viejo, Aliso Viejo	ETWD complies with applicable economic development management plans within the District service area.
Emergency Response Plan	ETWD	The District maintains and periodically updates its Emergency Response Plan. The District provides training to its staff per the NIMS/SEMS requirements.
Dams	ETWD Engineering and Operations Department/Department of Safety of Dams	The District complies with the DSOD & CRWQCB requirements.
Title 17 & 22	ETWD Engineering and Operations Department	The District administers a Cross Connection Control program in compliance with Title 17 and monitors compliance with Title 22 with is recycled water users.
Wastewater	ETWD Operations Department	The District maintains a sewer collection and waste water treatment plant system in compliance with all regulatory requirements.
Waste Discharge Requirements	ETWD Engineering and Operations Departments/Regional Water Quality Control Board	The District complies with all applicable waste discharge requirements and monitors compliance with customers and contractors as appropriate.

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

<b>Staff/Personnel or Type of Resource</b>	<b>Responsible Agency or Department</b>	<b>Description/Comments</b>
Planner(s) or Engineer(s) with Knowledge of Land Development and Land Management Practices	Outside Consultants	ETWD staff utilizes an outside consultant with input from staff, as necessary.
Engineer(s) or Professional(s) Trained in Construction Practices Related to Buildings and/or Infrastructure	ETWD Engineering Departments	2 Engineers; 1 Engineering Associate; 1 Inspector.
Planners or Engineer(s) with an Understanding of Natural and/or Human - Caused Hazards	Outside Consultants	ETWD staff utilizes an outside consultant with input from staff, as necessary.
Floodplain manager	County of Orange	The agency coordinates with the County Floodplain Manager.
Surveyors	Outside Consultants	ETWD staff utilizes an outside consultant with input from staff, as necessary.
Staff with Education or Expertise to Assess the Community's Vulnerability to Hazards	ETWD Engineering and Operations Departments	Specific to water, wastewater and recycled water.
Personnel Skilled in GIS and/or HAZUS	ETWD Information Technology and Engineering Department	IT Manager, Project Engineer.
Emergency Manager	ETWD	General Manager, Assistant General Manager.
Grant Writers	Outside Consultants	ETWD staff utilizes an outside consultant with input from staff, as necessary.
Lab Specialist & Lab Staff	ETWD Laboratory Department	1 Lab Supervisor; 1 Lab technician.

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

<b>Financial Resources</b>	<b>Agency or Department</b>	<b>Description/Comments</b>
Capital Improvements Project Funding	ETWD Engineering and Finance Departments	Capital Construction Reserves
Authority to Levy Taxes for Specific Purposes	ETWD Finance Department	Subject to voter approval
Fees for Water, Sewer (Rate Structure)	ETWD Finance Department	
Impact Fees for Homebuyers or Developers for New Developments/Homes	ETWD Engineering and Finance Departments	Capital Facilities Fees
Incur Debt Through General Obligation Bonds	ETWD Finance Department	Subject to voter approval
Incur Debt Through Special Tax and Revenue Bonds	ETWD Finance Department	Subject to voter approval
Incur Debt Through Private Activity Bonds	ETWD Finance Department	
Grants	ETWD Engineering and Finance Departments	

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

<b>Resource/Programs</b>	<b>Agency or Department</b>	<b>Description/Comments</b>
Boil Water Notices	DDW/ETWD	Per the DDW guidance, ETWD would issue this notice to inform residents on how to use drinking water during an emergency.
Construction Alerts	ETWD Engineering and Public Relation Departments	ETWD would utilize this type of notice to inform residents of any construction located in their area.
Community Outreach Events	ETWD Public Relations Department	ETWD attends multiple events each year hosted by other agencies. (i.e., South County Disaster Preparedness Expo). ETWD communicates on a variety of topics including emergency preparedness.
Alert OC	County of Orange/WEROC/ETWD Public Relations Department	ETWD participates in the County of Orange Alert OC emergency notification system to alert residents in case of an emergency by phone, email and/or text.
Newsletter	ETWD Public Relations Department	The ETWD newsletter provides an opportunity to educate residents how ETWD prepares for emergencies and how residents can prepare for an emergency.
Website	ETWD Public Relations Department and IT Department	The ETWD website provides an opportunity to educate residents on how ETWD prepares for emergencies, how the resident can prepare for an emergency and/or provide information during an emergency. ETWD will develop an emergency preparedness page for the website.
Social Media	ETWD Public Relations Department	ETWD social media accounts provide an opportunity to communicate to the community prior to an emergency and quickly during an emergency.
Press Releases	ETWD Public Relations Department	ETWD would utilize this type of notice to inform residents on emergency preparedness information and/or during an emergency.
Laguna Woods Channel 6	Channel 6/ETWD	Communicate to Laguna Woods residents on emergency preparedness and during an emergency.
Bill Stuffer/Bill Message	ETWD Public Relations Department	Communicate to residents on emergency preparedness.

**MITIGATION STRATEGY**

**Mitigation Goals**

ETWD 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 F-4, ETWD Mitigation Actions, identifies the mitigation actions, including the priority, hazard addressed, risk, timeframe, and potential funding sources.

**Table F-4  
ETWD 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
<b>Multi-Hazard</b>								
High	Configure and backup server VM's to a cloud cold site.	District Business Data	Low	\$300/Month	Immediate	Annual Operating Budget	New	Currently in place. Fire, Flood, Earthquake Hazards.
High	Install Cyber Security Monitoring System.	District Business Data	High	\$1800/Month	Immediate	Annual Operating Budget	New	Currently in place. Fire, Flood, Earthquake Hazards.
High	Demolish abandoned water treatment plant.	Filtration Plant	High	\$400,000	Short Term	District Capital Reserves	New	In District's five-year capital budget. Fire, Flood, Earthquake, Landslide Hazards
Medium	Consider participation in South Orange County Reliability Projects.	All	Medium	Unknown	Long Term	District Capital Reserves	Existing	Ongoing evaluation. Fire, Flood, Earthquake Hazards
Medium	Install stationary generator at P-3 Pump Station.	Midzone	Medium	\$250,000	Short Term	District Capital Reserves	Existing	In District's five-year Capital budget. Fire, Flood, Earthquake Hazards
Low	Relocate Fuel Storage Tanks at WRP Above Ground.	WRP	Medium	\$450,000	Long Term	District Capital Reserves	Existing	Project deferred until required by regulations or end of useful life. Fire, Flood, Earthquake Hazards
Low	Install additional storage at sewer lift stations to enhance response time in the event of pump station failures.	All	Medium	Unknown	Long Term	District Capital Reserves	Existing	Future project. Fire, Flood, Earthquake Hazards
High	Install additional wet well storage and emergency overflow storage at the Oso Lift Station as a component of the Oso Lift Station Improvement Project.	Oso Station	High	\$1,500,000	Short Term	District Capital Reserves	Existing	Project currently in design. Fire, Flood, Earthquake Hazards
High	Install parallel or replace sewer force mains where feasible and appropriate.	District wide	Low	Unknown	Short Term	District Capital Reserves	Existing	Evaluate as part of master plan study. Fire, Flood, Earthquake Hazards



**Table F-4  
ETWD 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
Medium	Continue to coordinate with SOCWA regarding the condition and potential replacement schedule for the Effluent Transmission Main.	Ocean Outfall Line	Medium	Unknown	Long Term	District Capital Reserves	Existing	SOCWA is the Lead Agency. Fire, Flood, Earthquake Hazards
Medium	Implement protective measures for the 4920 Lift Station influent siphon at creek crossing.	4920 Station	Medium	\$200,000	Short Term	District Capital Reserves	Existing	In District's five-year capital budget. Fire, Flood, Earthquake Hazards
Medium	Implement La Paz Lift Station Slope/Panel Stabilization project.	LaPaz Station	Medium	\$20,000	Short Term	District Capital Reserves	Existing	District to budget for geotechnical evaluation. Fire, Flood, Earthquake, Landslide Hazards
<b>Contamination</b>								
High	Replace sodium hypochlorite storage tanks at Reservoir 6 to prevent a chemical spill.	R-6 Reservoir	High	210,000	Immediate	District Capital Reserves	New	Project to be completed in 2018.
<b>Earthquake/Liquefaction</b>								
Low	Conduct a seismic vulnerability assessment of critical facilities.	All	Medium	Unknown	Long Term	District Capital Reserves	Existing	Evaluate as part of the master plan study.
<b>Flood</b>								
Low	Implement Infiltration & Intrusion Study Flow Monitoring Project.	District wide	Low	Unknown	Long Term	District Capital Reserves	Existing	Possible future master plan project.
<b>Power Outage</b>								
High	Purchase trailer mounted waste water emergency pump.	District wide	Medium	Unknown	Short Term	District Capital Reserves	New	In District's five-year capital budget.
Medium	Aliso Creek Lift Station Emergency Pump	Aliso Creek	Medium	200,000	Short Term	District Capital Reserves	New	In District's five-year capital budget.
Low	Replace Aliso Creek Lift Station Emergency Generator	Aliso Creek	Low	200,000	Long Term	District Capital Reserves	New	In District's five-year capital budget.
Medium	Replace Ocean Outfall Pump Station Emergency Generator	WRP	Low	220,000	Short Term	District Capital Reserves	New	In District's five-year capital budget.
<p>Notes:</p> <p><b>Timeframe to Completion of Project:</b> "Immediate" is up to 1 year; "Short Term" is 1 to 3 years; "Long Term" is 3 years or longer.</p> <p><b>Status:</b> "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><b>Status Rationale:</b> 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: Implement GIS System Project to help identify risks and goals relative to hazard mitigation as it pertains to ETWD infrastructure.

Status: Complete.

Mitigation: Implement Low Zone 1 Reconfiguration Project to provide connection from Gravity Zone to Reduced High Zone.

Status: Complete.

Mitigation: Install additional wet well storage and emergency overflow storage at the Northline Lift Station as a component of the Northline Lift Station Improvement Project.

Status: Complete.

Mitigation: Place protective measures in creeks where pipeline crossing is determined to be vulnerable.

Status: Complete.

Mitigation: Replace sodium hypochlorite storage tanks at WRP to prevent a chemical spill.

Status: Complete.

Mitigation: Consider participation in Baker Regional Treatment Facility project.

Status: Complete.

Mitigation: Implement installation of upgraded Motor Control Center and Smart Motor Controllers at Cherry Booster Station.

Status: Complete.

Mitigation: Implement Shenandoah Booster Station Improvement Project to upgrade the Motor Control Center, install Smart Motor Controllers and relocate electrical equipment out of the pump room.

Status: Complete.

Mitigation: Purchase portable emergency generators.

Status: Complete.

**PLAN INTEGRATION**

ETWD's capital budget, Water Master Plan, Wastewater Master Plan and Annual Operating Budget 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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