

2024



Orange County Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan

Annex I: Mesa Water District



Contents

I.1 Hazard Mitigation Plan Point of Contact and Development Team	1
I.2 Jurisdiction Profile.....	2
I.3 Hazards	2
I.4 Hazard Maps	4
I.5 Vulnerability and Risk Assessment	11
I.6 Capabilities Assessment	13
I.7 Mitigation Strategy	17
I.7.1 Mitigation Goals.....	17
I.7.2 Mitigation Actions	17
I.7.3 Completed or Removed Mitigation Initiatives	19
I.8 Plan Integration.....	19

Exhibits

Exhibit I-1. Planning Team Lead	1
Exhibit I-2. Internal Hazard Mitigation Planning Development Team	1
Exhibit I-3. Mesa Hazard Identification	3
Exhibit I-4. Fire Hazard and Mesa Water District Potable Water Infrastructure	5
Exhibit I-5. Flood Hazard and Mesa Water Potable Water Infrastructure	6
Exhibit I-6. Seismic Shaking Hazard and Mesa Water District Potable Water Infrastructure	7
Exhibit I-7. Liquefaction Hazard and Mesa Water District Potable Water Infrastructure	8
Exhibit I-8. Landslide Hazard and Mesa Water District Potable Water Infrastructure	9
Exhibit I-9. Tsunami Hazard and MWDOC Potable Water Infrastructure	10
Exhibit I-10. Mesa Water Infrastructure and Exposure to Hazards	11
Exhibit I-11a. Planning and Regulatory Capabilities Summary	13
Exhibit I-11b. Administrative and Technical Capabilities Summary	15
Exhibit I-11c. Financial Capabilities Summary	16
Exhibit I-11d. Education and Outreach Capability Summary	17
Exhibit I-12. Mesa Water Mitigation Actions.....	18

MESA WATER DISTRICT ANNEX

Mesa Water District (Mesa Water®) is a participant (Member Agency [MA]) in the Orange County Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). As a participant MA, Mesa Water representatives were part of the MJHMP planning process and served on the planning team responsible for the plan update; refer to **Section 2** of the MJHMP. The base plan, including the MJHMP procedural requirements and planning process apply to Mesa Water.

This annex details the hazard mitigation planning elements specific to Mesa Water and describes how Mesa Water’s risks vary from the planning area. This annex is not intended to be a standalone document but supplements the information contained in the base plan. All sections of the MJHMP, including the planning process and other procedural requirements, apply to and were met by Mesa Water. The base 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 Mesa Water with a focus on the risk assessment and mitigation strategies.

I.1 HAZARD MITIGATION PLAN POINT OF CONTACT AND DEVELOPMENT TEAM

The representative listed in **Exhibit I-1** lead the Mesa Water planning team, attended meetings on behalf of Mesa Water, and coordinated the hazard mitigation planning efforts with Mesa Water staff and the consultant team supporting the effort.

Exhibit I-1. Planning Team Lead

Primary Point of Contact
Name: Carrie Fesili
Title: Water Operations Coordinator
Telephone: 949-207-5464
Email: CarrieF@MesaWater.org

Mesa Water followed the planning process detailed in **Section 2** and formed an internal team to support and provide information for the plan update. The following staff served as Mesa Water’s internal hazard mitigation planning development team.

Exhibit I-2. Internal Hazard Mitigation Planning Development Team

Name	Title
Andrew Wiesner	District Engineer
Bob Mitchell	Water Operations Supervisor
Karyn Igar	Senior Civil Engineer
Kaying Lee	Water Quality and Compliance Supervisor
Tyler Jernigan	Operations Manager

Outreach to the public within Mesa Water’s service area was performed to ensure residents could access information on this planning effort. To reach the largest number of people possible, Mesa Water published a webpage with information on the MJHMP process. Social media posts were made on the Facebook and Instagram platforms on August 14, August 15, August 27, and October 1, 2024, to increase engagement.

I.2 JURISDICTION PROFILE

Service Population: 110,000

Mesa Water is an independent special district that provides water service to 110,000 residents in an 18-square-mile service area that includes most of the City of Costa Mesa, parts of Newport Beach, and John Wayne Airport. Mesa Water commenced operations on January 1, 1960, through a consolidation of the City of Costa Mesa’s Water Department, Fairview County Water District, Newport Mesa Irrigation District, and Newport Mesa County Water District. Mesa Water set a precedent with this consolidation as the first California water agency to merge two or more water utilities and assume both their assets and debts.

Due to the Mesa Water Reliability Facility, Mesa Water provides customers with 100 percent local groundwater supplies, pumped from Orange County’s natural groundwater basin and from a deeper, amber-tinted aquifer located in Mesa Water’s service area. Mesa Water is committed to the continued investment in, and proactive maintenance of, its infrastructure, which pumps, treats, and delivers more than 5 billion gallons per year of quality drinking water to homes and businesses in its community. Mesa Water owns and maintains 317 miles of pipeline, 5,139 mainline valves, 3,383 fire hydrants, three booster pump stations, nine wells, three reservoirs, and the Mesa Water Reliability Facility, which features nanofiltration technology for water treatment.

Mesa Water is governed by a publicly elected, five-member Board of Directors who are elected by division to serve a four-year term. The Board of Directors sets policy, establishes water rates, and oversees district operations. Mesa Water is one of the most efficient water agencies in Orange County, based on expenditures per capita. Additionally, Mesa Water is AAA rated by both Fitch and Standard & Poor’s.

I.3 HAZARDS

This section is intended to profile the hazards and assess the vulnerabilities that Mesa Water faces, distinct from that of the county-wide planning area. The hazard profiles in the MJHMP discuss overall impacts to the planning area and describes the hazard problem description, hazard extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. For more information on risk assessment methodologies, see **Section 3**.

Mesa Water’s service area 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 power outages, drought, seismic shaking, and windstorms. Based on the risk assessment, the Mesa Water development team discussed which hazards should or should not be profiled in the base plan. This discussion resulted in the identification of the following hazards that affect Mesa Water and summarized their probability of future occurrence, level of impact and significance as outlined in **Exhibit I-3**. Detailed hazard profiles for the planning area are provided in **Section 3** of the base plan.

Exhibit I-3. Mesa Hazard Identification

Hazard Type	Occurrence Probability*	Affected Area*	Primary Impact*	Secondary Impact*	Hazard Planning Consideration*	Significance to Mesa Water
Human-Caused Hazards: Power Outage	Highly Likely	Medium	Catastrophic	High	High	High
Wildfire	Highly Likely	Medium	Critical	High	High	Low
Human-Caused Hazards: Terrorism (Cyber Threat)	Highly Likely	Medium	Critical	Limited	High	High
Seismic Hazards – Seismic Shaking	Likely	Medium	Catastrophic	High	High	High
Seismic Hazards –Seismic Liquefaction	Likely	Medium	Catastrophic	High	High	High
Severe Weather – Windstorm	Highly Likely	Large	Limited	Negligible	Medium	Low
Severe Weather – Extreme Heat	Likely	Medium	Critical	Moderate	Medium	Low
Severe Weather – Drought	Highly Likely	Large	Negligible	Negligible	Medium	Low
Dam/Reservoir Failure	Somewhat Likely	Medium	Catastrophic	High	Medium	Low
Flood	Likely	Medium	Limited	Negligible	Medium	Low
Coastal Hazards – Coastal Storms	Likely	Small	Limited	Limited	Medium	N/A
Coastal Hazards – Coastal Erosion	Likely	Isolated	Limited	Limited	Medium	N/A
Seismic Hazards – Fault Rupture	Somewhat Likely	Isolated	Catastrophic	Limited	Medium	High
Geological Hazards –Landslide and Mudflow	Somewhat Likely	Small	Limited	Moderate	Medium	Low
Coastal Hazards – Sea Level Rise	Likely	Isolated	Limited	Negligible	Medium	N/A
Human-Caused Hazards – Contamination/ Saltwater Intrusion	Unlikely	Small	Critical	High	Low	Low
Human-Caused Hazards – Terrorism (MCI)	Unlikely	Isolated	Critical	Moderate	Low	Medium
Human-Caused Hazards – Hazardous Materials	Unlikely	Isolated	Limited	Moderate	Low	Medium
Urban Fire	Unlikely	Isolated	Limited	Negligible	Low	Low
Geological Hazards – Land Subsidence	Unlikely	Isolated	Negligible	Limited	Low	Low
Geological Hazards – Expansive Soils	Unlikely	Isolated	Negligible	Limited	Low	Low
Coastal Hazards – Tsunami	Unlikely	Isolated	Negligible	Negligible	Low	Low

*The values within these columns are representative of the entire planning area of Orange County and are not narrowed down to Mesa Water’s service area.

<p>Geographic Affected Area</p> <ul style="list-style-type: none"> ▪ Isolated: Less than 10% of planning area ▪ Small: 10-30% of planning area ▪ Medium: 30-60% of planning area ▪ Large: 60-100% of planning area 	<p>Significance</p> <ul style="list-style-type: none"> ▪ Low: Minimal potential impact ▪ Medium: Moderate potential impact ▪ High: Widespread potential impact
<p>Probability of Future Occurrences</p> <ul style="list-style-type: none"> ▪ 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 	<p>Magnitude/Severity</p> <ul style="list-style-type: none"> ▪ Catastrophic: More than 50% of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths. ▪ Critical: 25-50% 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% of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable; does not result in permanent disability. ▪ Negligible: Less than 10% of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

The FEMA Local Mitigation Planning Handbook requires each agency to identify the magnitude/severity of each hazard to their infrastructure. The identification of hazards provided in **Exhibit I-3** is highly dependent on the location of facilities within each agency’s 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 agency’s expertise and knowledge. The table was created with input from the Water Emergency Response Organization of Orange County (WERO), consultant staff, and Mesa Water.

I.4 HAZARD MAPS

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

Exhibit I-4. Fire Hazard and Mesa Water District Potable Water Infrastructure

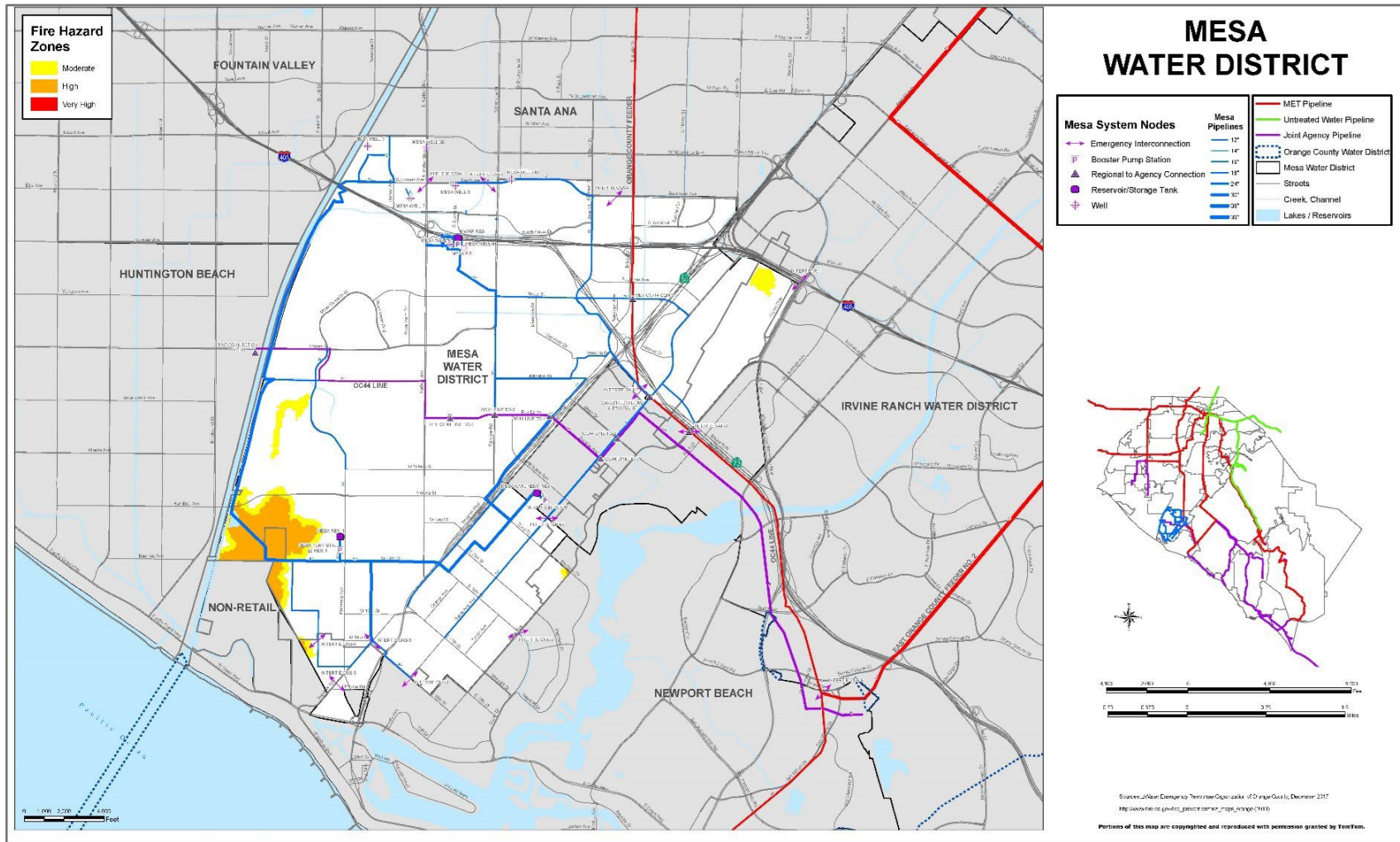


Exhibit I-5. Flood Hazard and Mesa Water Potable Water Infrastructure

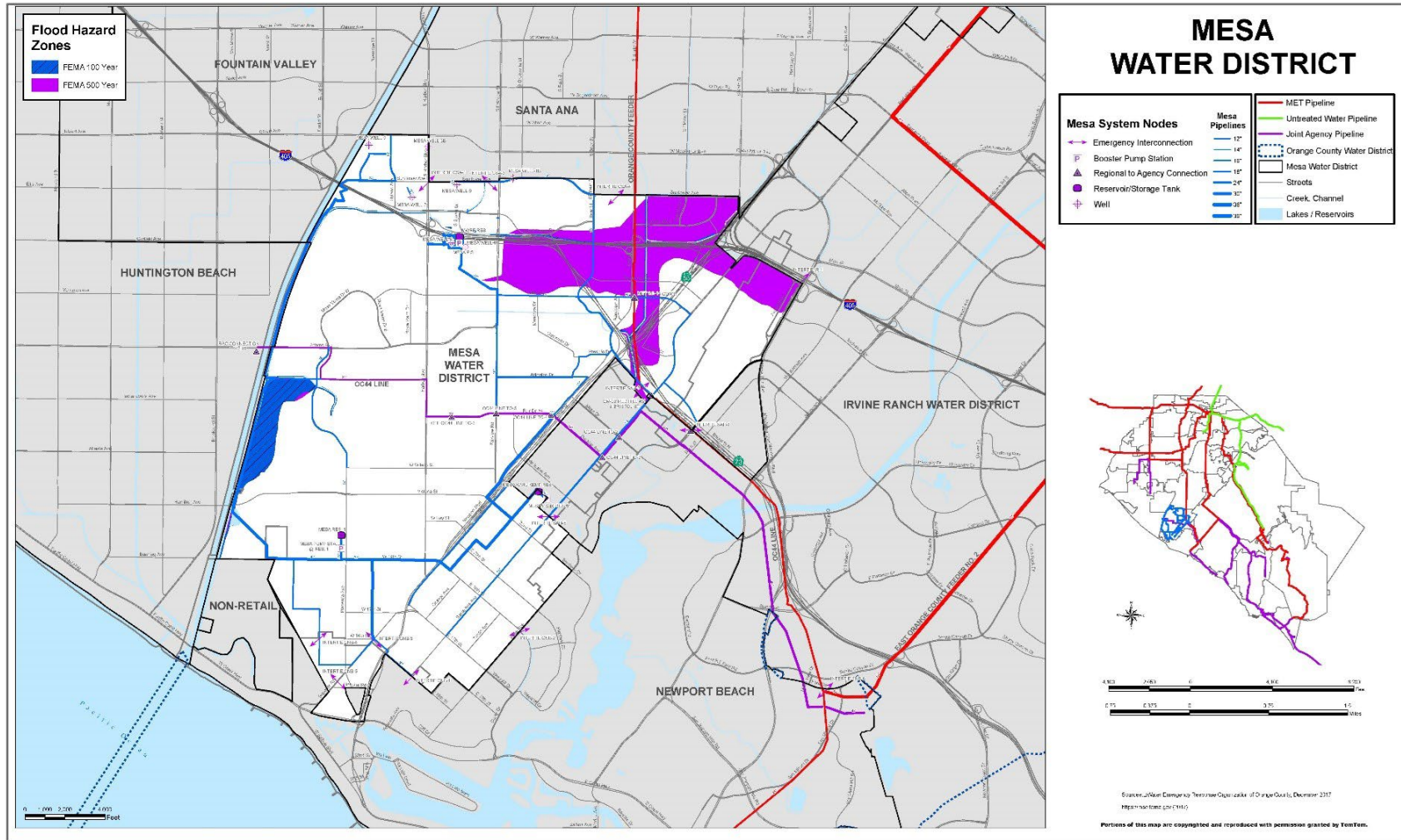


Exhibit I-6. Seismic Shaking Hazard and Mesa Water District Potable Water Infrastructure

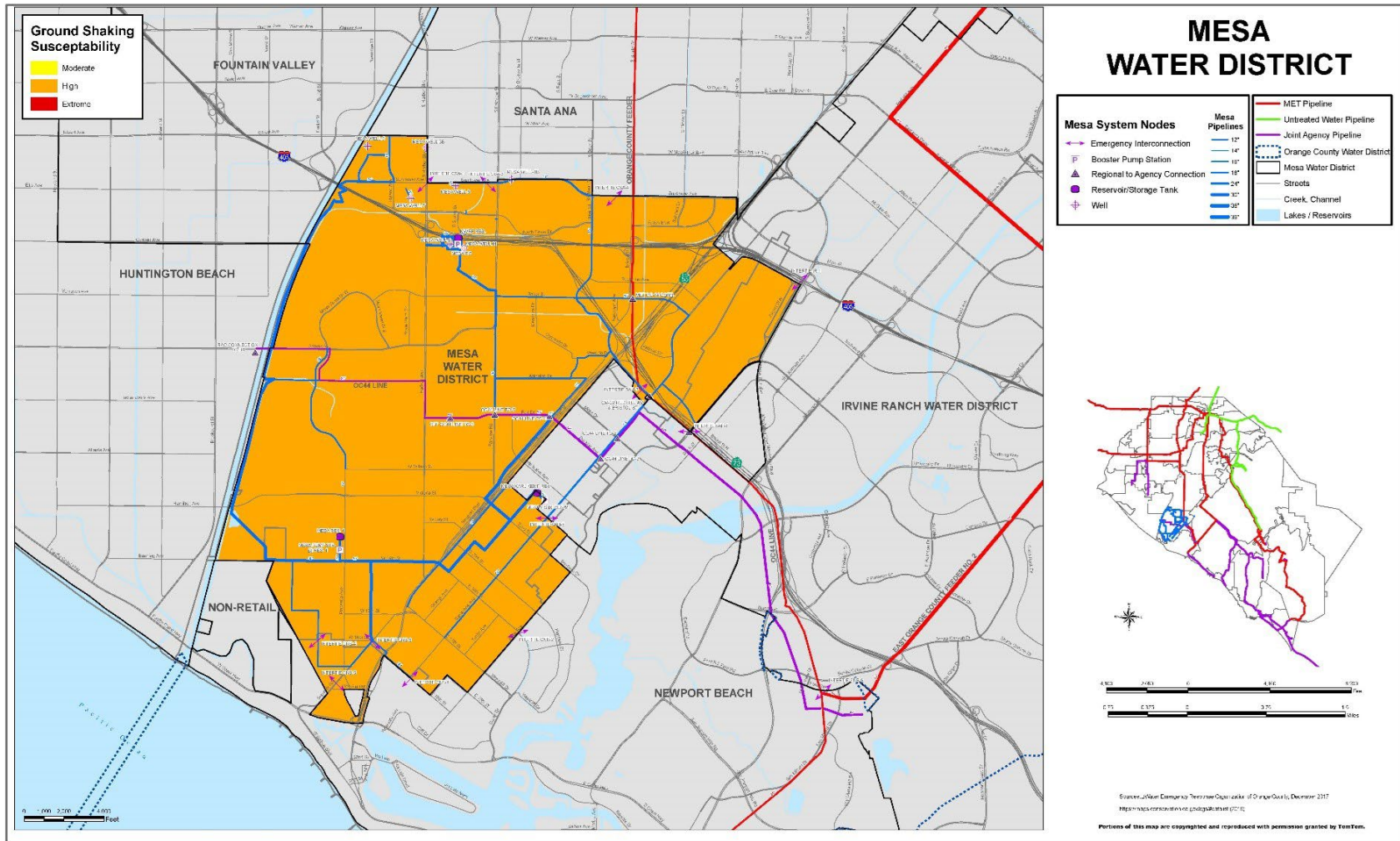
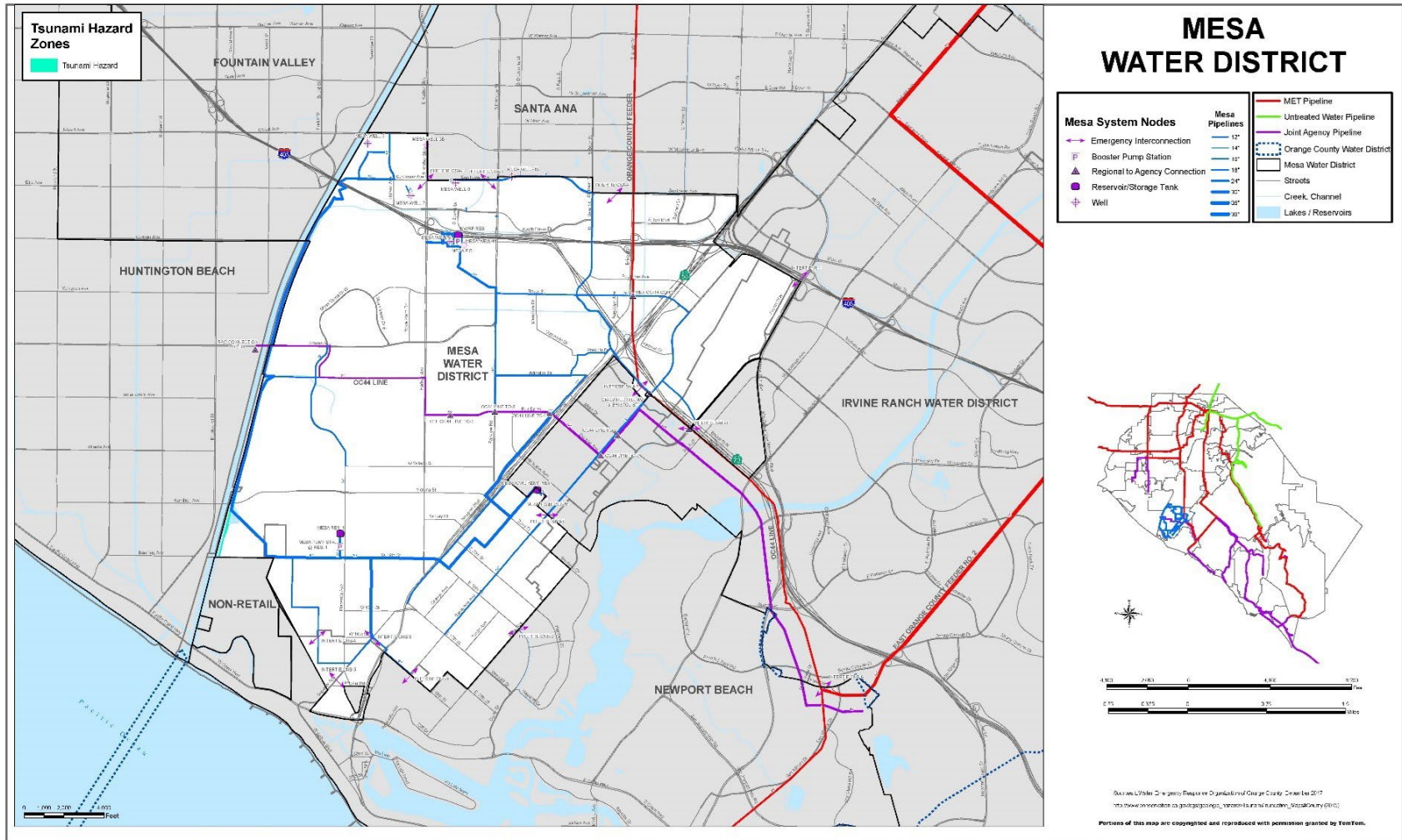


Exhibit I-9. Tsunami Hazard and MWDOC Potable Water Infrastructure



I.5 VULNERABILITY AND RISK ASSESSMENT

Assessing vulnerabilities shows the unique characteristics of individual hazards and begins the process of narrowing down locations within Mesa Water’s service area that are vulnerable to specific hazard events. The vulnerability assessment considered unique local knowledge of hazards and impacts and a GIS overlaying method for examining such vulnerabilities more in depth. Using these methods vulnerable populations, infrastructure, and potential losses from hazards can be estimated.

Assets Susceptible to Hazard Events

Mesa Water’s infrastructure is outlined in **Exhibit I-10**, which lists the number of Mesa Water’s infrastructure assets are located within the mapped hazard zones identified above.

Exhibit I-10. Mesa Water Infrastructure and Exposure to Hazards

Hazard		Infrastructure Type					
		Interties (#)	Pump Stations (#)	Treatment Plants (#)	Reservoirs (#)	Wells (#)	Potable Pipelines (miles)
Fire Hazard Zone	Moderate	1	0	0	0	0	0.2
	High	0	0	0	0	0	0.8
	Very High	0	0	0	0	0	0
FEMA Flood Zone	100-Year	0	0	0	0	0	1.8
	500-Year	1	0	0	0	0	1.5
Alquist-Priolo Rupture Zone		0	0	0	0	0	0
Seismic Shaking	Moderate	0	0	0	0	0	0
	High	13	3	1	3	9	32.6
	Extreme	0	0	0	0	0	0
Liquefaction	Moderate	0	1	1	1	5	1.6
	High	4	0	0	0	4	8.2
	Very High	0	0	0	0	0	0
	Unknown	0	0	0	0	0	1.1
Landslide Zone		0	0	0	0	0	0.1
Tsunami Zone		0	0	0	0	0	0.2

Mesa Water’s service area and its associated infrastructure is within an area identified as having a high risk of seismic shaking. A portion of Mesa Water’s service area is also located within areas identified as having moderate and high seismic liquefaction susceptibility. There are several miles of potable pipeline and infrastructure, including interties, wells, a reservoir, a treatment plant, and a pump station located within these moderate and high liquefaction susceptibility areas.

Changes in Land Use and Development

Mesa Water completed major projects in 2024, a SCADA Control Room and Wet Lab Upgrade and the Chandler Ave Well 12 and Croddy Way Well 14 and Pipeline Project. The two new potable water wells installed in Santa Ana allow Mesa Water to increase water production capacity by 8,000 gallons per minute. To connect the two wells to Mesa Water®’s distribution system, 4,500 linear feet of ductile iron transmission pipeline was constructed.

The past five years have seen various changes within the Mesa Water service area. While the majority of Mesa Water’s service area is heavily built-out, there is a trend towards high density development within the service area. This high-density development will result in small to moderate population increases. These increases are met by the two new wells constructed. The majority of Mesa Water’s service area covers the City of Costa Mesa which has undergone growth and development including two major construction projects: a 393-unit apartment project and a 200-unit apartment project. Along with these two large projects, smaller projects have occurred around the city.

Vulnerabilities Associated with Climate Change

Hazard	Climate Change Vulnerabilities
Hazards of High Concern	
Human-Caused Hazard: Power Outage	Climate change will likely increase Mesa Water’s vulnerability to power outages as local electric companies implement protocols such as rolling blackouts or targeted shutoffs that may impact Mesa Water facilities.
Human-Caused Hazards: Terrorism (Cyber Threat)	Connections between climate change and cyber based terrorism have not been identified.
Seismic Hazards: Seismic Shaking	Climate change is not expected to cause any changes to the frequency or intensity of seismic shaking occurring within Mesa Water’s service area.
Seismic Hazards: Seismic Liquefaction	Climate change is anticipated to impact liquefaction potential within the Mesa Water service area as periods of both intense rain and drought could potentially increase or decrease groundwater elevations affecting the risk of liquefaction, depending on the circumstances.
Seismic Hazards: Fault Rupture	There are no expected changes to the frequency or intensity of fault ruptures occurring within Mesa Water’s service area as a result of climate change.
Hazards of Medium Concern	
Human-Caused Hazards: Terrorism (MCI)	Climate change has no direct link to human-caused hazards and is expected to follow the impacts described in the base plan.
Human-Caused Hazards: Hazardous Materials	Climate change has the potential of increasing hazardous materials releases resulting from transportation crashes or damage to storage vessels.
Hazards of Low Concern	
Coastal Hazards: Tsunami	Due to the minimal coastal property within Mesa Water, the vulnerability to tsunamis due to climate change is not expected to increase.
Dam/Reservoir Failure	There are no expected climate change impacts on dam/reservoir failure. However, fluctuations in the amount of precipitation and intensity of events could cause stress on dam/reservoir facilities not previously anticipated during initial design. These types of issues could increase the vulnerability of these facilities, which is described in the base plan.
Flood	Climate change is expected to cause some higher-level flood waters within Mesa Water with the 100-year flooding event potentially expanding into the 500-year flood zones on a more frequent basis.
Geological Hazards: Expansive Soils	Climate change is not expected to impact expansive soils within Mesa Water’s service area. The vulnerability follows that described in the Base Plan.
Geological Hazards: Land Subsidence	Mesa Water’s vulnerability to land subsidence is not expected to change due to climate change and is anticipated to be similar to those described in the base plan.

Hazard	Climate Change Vulnerabilities
Geological Hazards: Landslide and Mudflow	Climate change could indirectly affect the conditions for landslides within Mesa Water’s service area as increased precipitation and storm intensities may cause more moisture-induced landslides.
Human-Caused Hazards: Contamination/ Saltwater Intrusion	Changes in contamination and saltwater intrusion vulnerability due to climate change are expected to follow the changes outlined in the base plan.
Severe Weather: Drought	Droughts are expected to increase in length and frequency due to climate change and impact Mesa Water as described in the base plan.
Severe Weather: Extreme Heat	Temperatures are expected to increase due to climate change and impact Mesa Water’s service area as described in the base plan.
Severe Weather: Windstorm	The challenges to Mesa Water from climate change’s impacts on windstorms is expected to follow the impacts described in the base plan.
Urban Fire	There is no anticipated impact to how climate change could influence the ignition or behavior of urban fires.
Wildfire	Climate change is not expected to cause an increase wildfires within Mesa Water’s service area due to the lack of urban-wildland interfaces within Mesa Water.

I.6 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 MJHMP. Mesa Water’s internal development team revised the capabilities identified in the 2019 plan and collaborated to identify current local capabilities and mechanisms available to the MA for reducing damage from future hazard events. **Exhibits I-11a through I-11d** 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. Mesa Water has the ability to expand on and improve existing emergency management policies and programs to implement mitigation programs. In some instances, methods of expansion and improvement have been identified within a specific capability, while a majority of these capabilities are anticipated to be expanded and improved upon through additional projects/initiatives underway by the Agency. These have been included at the bottom of each table.

Exhibit I-11a. Planning and Regulatory Capabilities Summary

Ordinance, Plan, Policy, Program	Responsible Agency or Department	Description/Comments
Building Code	Engineering Department, Mesa Water	Mesa Water® Standards for water construction and State/local building codes. Mesa Water® Specifications and Standard Drawings for the Construction of Water Facilities – Updated April 2018. Expansion and Improvement: As retrofits and replacement projects are identified Mesa Water will anticipate meeting or exceeding the latest building codes to ensure greater resilience is incorporated into their infrastructure.

Ordinance, Plan, Policy, Program	Responsible Agency or Department	Description/Comments
Zoning Ordinance	City/County	Mesa Water® complies with applicable zoning ordinances and works with the cities within the district service area.
Subdivision Ordinance or Regulations	City/County	Mesa Water® complies with applicable subdivision ordinance or regulations and works with the cities within the district service area.
Special Purpose Ordinance	City/County	Mesa Water® complies with applicable special purpose ordinances and works with the cities within the district service areas.
Growth Management Ordinances	City/County	Mesa Water® does not have any growth management policies. Mesa Water® provides service to customers upon request. Expansion and Improvement: Growth management ordinances need to take into account water needs and available supplies for existing and future populations. Working closely with the Cities and County in the region, Mesa Water can help better understand how growth management ordinances could impact these resources.
Site Plan Review Requirements	Engineering Department, Mesa Water	Mesa Water® reviews/approves site plans related to water construction and works with the cities within the District service area. Expansion and Improvement: Developing better methods and techniques to support site plan reviews within Orange County can help ensure adequate planning, design, and engineering analysis is available to Cities and the County when new subdivisions are proposed.
General Plans	City/County	Mesa Water® complies with applicable general plans and works with the cities within the district service area.
Capital Improvements Plan	Engineering Department, Mesa Water	Plan for continued improvement facilities and water system. Expansion and Improvement: Incorporation of mitigation strategies into the CIP can help support future funding of improvements necessary to enhance water/wastewater systems.
Emergency Response Plan	Operations Department, Mesa Water	Plan for improvement of overall efficiency of operation. Expansion and Improvement: Continued improvement and enhancement of emergency response plans can help ensure Mesa Water is better prepared for future incidents and can anticipate their communities' needs.
Post-Disaster Recovery Plan	Finance Department, Mesa Water	Emergency Operations Plan (EOP) contains post-incident reporting requirements. Trainings, protocols, and paperwork for post disaster fund recovery.

How can these capabilities be expanded and improved to reduce risk?

- Conduct a risk and resilience assessment (RRA) and create corresponding Emergency Response Plan (ERP) per the America’s Water Infrastructure Act of 2018 (AWIA). Consider this plan as a resource to meet the AWIA requirements.
- Conduct disaster response fuel analysis and contingency planning with WEROC as a component of the Southern California Catastrophic Plan.
- Evaluate ability to contract with local fuel distributors and gas stations for emergency backup supply.
- Implement a process to review and include as appropriate mitigation actions identified in the HMP as part of the update to the Water Master Plan and EOP.
- Continue to identify future projects to mitigate hazards

Exhibit I-11b. Administrative and Technical Capabilities Summary

Staff/Personnel or Type of Resource	Responsible Agency or Department	Description/Comments
Planner(s) or Engineer(s) with Knowledge of Land Development and Land Management Practices	Engineering Department, Mesa Water	Two senior civil engineers experienced in the various land development types required to design and construct water production and distribution infrastructure.
Engineer(s) or Professional(s) Trained in Construction Practices Related to Buildings and/or Infrastructure	Engineering Department, Mesa Water	Experienced in the design and construction of water production and distribution infrastructure.
Personnel Skilled in GIS and/or HAZUS	Engineering Department, Mesa Water	Experienced in the use of GIS system related to water infrastructure. GIS system maintained by contractor.
Emergency Manager	Safety, Mesa Water	Two in-house staff trained to be emergency managers during EOC operation. EOC manager facilitates the overall functioning of the EOC by providing guidance and technical expertise to the director and section chiefs during EOC operations.
Lab Specialist and Lab Staff	Consultant	Water samples are sent to a contracted State-certified drinking water laboratory for analysis.
Water Quality	Operations Department, Mesa Water	Responsible for collecting water quality samples and reviewing water quality data to remain in compliance with drinking water regulations. Two water quality technicians and one water quality and compliance supervisor.

How can these capabilities be expanded and improved to reduce risk?

- Continue participation in MWDOC Water Loss Control Program, including meter testing and leak detection through training of internal staff or through MWDOC’s Choice program.
- Have all agency-registered engineers and other qualified individuals attend California Governor’s Office of Emergency Services (CalOES) Safety Assessment Program (SAP) training for building inspections.
- Coordinate with department managers to review the MJHMP and progress towards implementation.
- Identify information that should be included in future MJHMP updates.

Exhibit I-11c. Financial Capabilities Summary

Financial Resources	Agency or Department	Description/Comments
Capital Improvements Project Funding	Finance Department, Mesa Water	Mesa Water has a capital improvement plan that can be adjusted to support hazard mitigation. Expansion and Improvement: During annual budgeting Mesa Water can highlight HMP strategies that support funding needs for the CIP.
Authority to Levy Taxes for Specific Purposes	Finance Department, Mesa Water	Mesa Water would have statutory authority to seek certain types of taxes (as referenced above) to support hazard planning or mitigation efforts (such as earthquake retrofit, flood or inundation mitigation and similar) relating to Mesa Water’s properties, facilities, operations or other matters within Mesa Water’s special district authority. Mesa Water does have statutory authority to seek voter approval for certain types of special taxes for specific purposes.
Fees for Water, Sewer, Gas, or Electric Service	Finance Department, Mesa Water	Fees for meter charges and consumption. Expansion and Improvement: Analysis of future fees for services should analyze potential mitigation funding support opportunities to capture funding for these projects.
Impact Fees for Homebuyers or Developers for New Developments/Homes	Finance Department, Mesa Water	Capacity charges through new construction.
Incur Debt Through General Obligation Bonds	Finance Department, Mesa Water	Mesa Water has the ability to issue debt in order to support hazard mitigation.
Incur Debt Through Special Tax and Revenue Bonds	Finance Department, Mesa Water	Mesa Water can execute and deliver certificates of participation based on underlying installment sale and/or lease agreements. Mesa Water has authority to seek voter approval for issuance of general obligation bonded indebtedness pursuant to the provisions of the County Water District Law. Mesa Water has statutory authority to seek voter approval for certain types of special taxes for specific purposes.
Withhold Spending in Hazard-Prone Areas	Finance Department, Mesa Water	The ability of the Mesa Water Board to allocate, or withhold, spending to hazard-prone areas would depend on the involvement of Mesa Water properties, facilities and/or Mesa Water’s operations within such areas.
Grants	Finance Department, Mesa Water	Federal Emergency Management Agency (FEMA) grants. Expansion and Improvement: Mesa Water can coordinate with MWDOC to better understand how grant support could be conducted that benefits the entire planning area as a whole.

How can these capabilities be expanded and improved to reduce risk?
<ul style="list-style-type: none"> ▪ Learn about how to utilize post-disaster mitigation grants (Section 406) and incorporate it into the utility’s disaster recovery strategy. ▪ Identify potential assets and resources that may not currently be considered. ▪ Identify future Capital Improvement Plan that can support hazard mitigation.

Exhibit I-11d. Education and Outreach Capability Summary

Resource/ Programs	Agency or Department	Description/Comments
Public Awareness and Education	Public Information	Website – MesaWater.org Social Media – @MesaWater on Facebook, Instagram, X (formerly known as Twitter) Expansion and Improvement: Increase the use of social media resources for hazard mitigation related content and information.

How can these capabilities be expanded and improved to reduce risk?
<ul style="list-style-type: none"> ▪ Participation in WEROC-led efforts to develop standardized messaging for water outages, dam events, and general disaster response. Ensure that messaging will work for the general community, as well as the Access, Disability, and Functional Needs community specific to Mesa Water. ▪ Identify a variety of opportunities to provide hazard information to the community and ways to minimize impacts associated with a disaster event.

I.7 MITIGATION STRATEGY

I.7.1 Mitigation Goals

Mesa Water adopts the hazard mitigation goals developed by the planning team; refer to **Section 4**.

I.7.2 Mitigation Actions

The internal development team reviewed the mitigation actions identified in the 2019 plan and the updated risk assessment to determine if the mitigation actions were completed, required modification, should be removed because they are no longer relevant, and/or should remain in the MJHMP update. New mitigation actions to address the updated risk assessment and capabilities identified above were also considered and added. **Exhibit I-12**, Mesa Water Mitigation Actions, identifies the mitigation actions, including the priority, hazard addressed, risk, timeframe, and potential funding sources.

Exhibit I-12. Mesa Water Mitigation Actions

Action/Task/Project Description	Location/ Facility	Hazard	Cost	Responsible	Timeframe	Possible Funding Sources	Status
HIGH							
Installation of a new security system for all sites is in process.	District Wide	Human Caused	Not disclosed	Engineering	Immediate	Budget	Nearing completion
Maintain relationships with IRWD, City of Huntington Beach, City of Newport Beach and City of Santa Ana for interties.	Surround City Interties	Flood, Climate Change, Drought, Earthquake, Wild Land/Urban Fire Human Caused, Power Outage, High Winds	N/A	Engineering	Immediate	Budget	Ongoing.
MEDIUM							
Public awareness and education on the water's quality, drought, water conservation, and climate change	District Wide	Climate Change, Drought	\$1 Million	Public Information	Long Term	Budget	Ongoing

I.7.3 Completed or Removed Mitigation Initiatives

The following mitigation actions from the 2019 plan have been completed or are in progress and therefore are removed from this plan update.

- **Mitigation:** Construction of two new wells, Chandler Well 12 and Croddy Well 14 and pipeline to connect new wells to distribution system.
 - **Status:** Complete
- **Mitigation:** Well Automation Project will improve response time by allowing operators to start and stop wells remotely.
 - **Status:** Complete.
- **Mitigation:** Well Automation Project includes installing generators at existing and new well sites.
 - **Status:** Complete.
- **Mitigation:** Design to replace assets in Santa Ana Station.
 - **Status:** Complete.
- **Mitigation:** Reline section of OC-44 near San Diego Creek to reduce vulnerability to storm damage
 - **Status:** Complete.
- **Mitigation:** Conduct seismic survey of reservoir structures – retrofit as required.
 - **Status:** Removed in 2019. Seismic survey is not in the Mesa Water’s 5 Year Plan.
- **Mitigation:** Conduct seismic survey of other key Mesa Water facilities – retrofit as required.
 - **Status:** Removed in 2019. Seismic survey is not in the Mesa Water’s 5 Year Plan.

I.8 PLAN INTEGRATION

Mesa Water’s capital budget, Water Master Plan, Production System Operating Plan, and Pipeline Integrity Testing Program are all used to implement mitigation initiatives identified in this annex. Other local planning mechanisms that may be used to implement the mitigation strategy include WEROC Meetings, City-District Liaison Meetings, Groundwater Producer’s Group Meeting, and MWDOC Member Agency Group Meeting. After adoption of the MJHMP, the district will continue to integrate mitigation priorities into these documents.

Since the previous plan update, Mesa Water has incorporated information from the MJHMP into its CIP, in addition to the following planning mechanisms:

- The risk assessment and mitigation actions were used to inform Mesa Water’s Urban Water Management Plan.

Mesa Water will continuously monitor the progress of mitigation actions implemented through these other planning mechanisms and, where appropriate, their priority actions will be incorporated into updates of this plan.