

2024



Orange County Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan

Annex O: Irvine Ranch Water District



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IRVINE RANCH WATER DISTRICT ANNEX

Irvine Ranch Water District (IRWD) is a participant (Member Agency [MA]) in the Orange County Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). As a participant MA, IRWD 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 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). The base plan, including the HMP procedural requirements and planning process apply to IRWD.

To comply with DMA 2000 requirements IRWD recently completed a single-jurisdiction Local Hazard Mitigation Plan (LHMP) that was adopted in 2021. Instead of updating this plan, IRWD opted to join the MJHMP update process established by MWDOC.

Information contained within IRWDs LHMP was reviewed and discussed as part of the update process. The following summarizes that process and any relevant changes to their plan as a result.

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

The representative listed in **Exhibit O-1** lead the IRWD Planning Team, attended meetings, and coordinated the hazard mitigation planning efforts with IRWD staff.

Exhibit O-1. Planning Team Attendance

Primary Point of Contact
Steve Choi
Director of Safety and Security
Telephone: (949) 453-5712
Email: choi@irwd.com

IRWD 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 IRWD's internal hazard mitigation planning development team.

Exhibit O-2. Internal Hazard Mitigation Planning Development Team

Name	Title
Eric AKiyoshi	Engineering Manager
Bryan Clinton	Operations Manager
Robert Meripol	Safety & Security Supervisor
Mitch Robinson	Senior Engineer

O.2 OUTREACH

Outreach to the public within IRWD's service area was performed to ensure residents could access information on this planning effort. To reach the largest number of people possible, IRWD published a webpage/ blogpost with information on the MJHMP process. Posts to social media platforms Facebook, X (formerly known as Twitter), LinkedIn, and Nextdoor were made on August 21, 2024 regarding the MJHMP to increase exposure.

IRWD has been diligent in continuing to distribute information using their in-person board meetings, social media and web-based platforms to ensure their customers are aware of the project and have an opportunity to share their feedback.

O.3 HAZARDS

A review of the hazards of concern within both the MWDOC MJHMP and IRWD LHMP verified that both plans were generally consistent with one another regarding hazards of concern. Based on the discussion conducted by the planning partners, the only changes to hazards of concern in the MWDOC MJHMP Update were hazards that were not deemed hazards of concern for IRWD at this time. These hazards are categorized as human-caused hazards and were included to better align with IRWD's American Water Infrastructure Act (AWIA) Risk and Resilience Assessment process. Detailed hazard profiles for the planning area are provided in **Section 3** of the base plan.

During the review of the Hazards of Concern, IRWD did update some of the hazard priorities based on discussion with the planning team. The following changes were incorporated:

Seismic Hazards – Ground Shaking: Changed from Medium to High based on the growing concern surrounding earthquakes and more frequent seismic activity being experienced.

Coastal Storms/Erosion: Changed from Medium to Low priority given the proximity to the coast and lack of infrastructure susceptible to these types of hazards.

Sea Level Rise: This hazard was originally identified as a low priority, however during Planning Team discussions it was determined that IRWD does not have any assets located in close proximity to the coast where sea level rise impacts would most likely occur. As a result this hazard was de-prioritized.

O.4 VULNERABILITY AND RISK ASSESSMENT

Assessing vulnerabilities shows the unique characteristics of individual hazards and begins the process of narrowing down locations within IRWD's service area that are vulnerable to specific hazard events. The existing vulnerability assessment in the 2021 LHMP considered unique local knowledge of hazards and impacts and a Geographic Information Systems (GIS) overlaying method for examining such vulnerabilities more in depth. Using these methods, vulnerable populations, infrastructure, and potential losses from hazards were estimated.

During the planning process, the IRWD Planning Team verified the asset inventory used in their 2021 LHMP analysis. No new assets have been constructed since that analysis, therefore the existing risk and vulnerability assessment is still relevant to the MWDOC MJHMP Update. In addition, changes to the priorities of hazards listed above did not change the outcomes of the risk and vulnerability assessment, requiring additional analysis.

O.5 CAPABILITIES ASSESSMENT

IRWDs existing capabilities assessment identifies the various plans, programs, staffing, and resources necessary to conduct mitigation activities within the District. To better comply with the latest requirements the following updates to their capabilities assessment have been provided as part of the plan update process (**Exhibit O-3**).

Exhibit O-3. Changes to Capabilities Assessment

Resource	Description and Ability to Support Mitigation
Planning and Regulatory	
Emergency Operations Plan	
Responsible Department: IRWD Safety & Security, Automation, and Information Technology Departments	The IRWD Emergency Operations Plan (EOP) outlines responsibility and resource deployment during and following emergencies or disasters. The EOP was updated in 2020 as part of the AWIA requirements and then again in 2023 to clarify activation levels and other concept of operations. The EOP outlines the emergency organization, activation, and Emergency Operations Center (EOC) operations. The EOP includes a Continuity of Operations Plan, outlining a clear chain of command, line of succession, and plans for backup or alternate emergency facilities in the case of an extreme emergency or disaster. Additionally, the EOP includes references to a Disaster Recovery Plan and Cyber Incident Response Plan maintained by Automation and Information Technology Departments. Together, the EOP and LHMP provide a mitigation and response strategy to hazard events.
Urban Water Management Plan	
Responsible Department: IRWD Water Resources Department and Environmental Compliance Department	The Urban Water Management Plan (UWMP) is prepared every five years, to support IRWD’s long-term resource planning and ensure adequate water supplies are available to meet existing and future water supply needs. The UWMP also addresses drought conditions, and the ability of IRWD to continue supplying water to customers. The latest UWMP was adopted in June 2021, along with the IRWD Water Shortage Contingency Plan. The Water Shortage Contingency Plan provides a series of response actions that IRWD may implement in the event of a water shortage due to drought or emergency. The UWMP and Water Shortage Contingency Plan can be used in coordination with the LHMP to implement mitigation actions associated with drought and water supply reliability (redundancy). IRWD will update the UWMP in 2025 to be adopted in 2026.
Baker Water Treatment Plant Emergency Action Plan	
Responsible Department: IRWD Safety & Security Department	The Baker Water Treatment Plant (BWTP) Emergency Action Plan (EAP) provides guidance for IRWD employees in the case of emergencies as outlined by California Code of Regulations (CCR) Title 8. The BWTP EAP identifies potential hazards associated with specific natural/manmade hazards, including some pre-hazard mitigation actions. Together, the LHMP and EAP provide a mitigation and response strategy for hazards at BWTP.
Water System Risk and Resilience Assessment	
Responsible Department: IRWD Safety & Security, Engineering, and Operations Departments	The Water System Risk and Resilience Assessment (RRA) develops a risk baseline for IRWD critical assets, as well as an analysis of potable water system resilience and recommendations for enhancement. The RRA was prepared in 2020 in accordance with the American Water Infrastructure Act. The RRA identified vulnerabilities similar to the LHMP and includes recommendations for mitigation actions to increase resilience and reduce risk.
Dam Safety Program	
Responsible Department: Engineering Department	The Dam Safety Program ensures continual monitoring, inspection, and maintenance for IRWD dams and reservoirs. The Dam Safety Program exceeds current state standards and establishes a Risk-Informed Decision-Making process to identify and reduce risk. The program outlines

Resource	Description and Ability to Support Mitigation
	safe operation and management, design, regulation and oversight, and commitment to community conversation. IRWD has implemented the Dam Safety Program that addresses risk identified in dam portfolio assessment. The Dam Safety Program works with the LHMP to provide a foundation for infrastructure and safety protocols at IRWD’s five “extremely high” hazard dams.
Sewage Treatment Master Plan & Potable Reuse Program	
Responsible Department: Water Resources, Capital Projects	The Sewage Treatment Master Plan outlines IRWD's long-term vision for a potable reuse program. Sewage treated at LAWTP could be treated to advanced purified water, conveyed to Baker Water Treatment Plant (WTP), and treated again for domestic purposes. This would offset the need for import water and improve IRWD’s drought resiliency. This program can be utilized in coordination with the LHMP to identify and mitigate risks related to drought resiliency.
Administrative and Technical	
Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Four Engineering groups are staffed within the Engineering Department: Treatment & Conveyance, Dams & Storage, Operations Support & Pipelines, and Infrastructure Planning. Each group employs engineers trained in construction practices related to buildings and infrastructure, and staff has the capability to implement mitigation actions.
Engineers with an understanding of natural hazards and/or infrastructure	Four Engineering groups are staffed within the Engineering Department: Treatment & Conveyance, Dams & Storage, Operations Support & Pipelines, and Infrastructure Planning. Each group employs engineers trained in construction practices related to buildings and infrastructure, and staff has the capability to implement mitigation actions.
Safety & Security Department	The Safety & Security Department writes and implements related plans, provides training, manages exercise projects, and/or develops and facilitates safety exercises. The Director of Safety & Security and Safety & Security Specialists support the LHMP and has the capability to implement mitigation actions.
Emergency Operations Team	The IRWD Emergency Operations Team (EOT) is comprised of managers and supervisors across various departments.
Personnel skilled in Geographic Information Systems	The Infrastructure Planning Group within Engineering employs a full-time GIS group to maintain internal databases and assist with mapping and infrastructure planning.
Financial	
Development Connection Fees	IRWD collects developer connection fees during the plan check and permitting process to fund existing infrastructure and to offset future infrastructure improvements, and increased water/wastewater service demand related to new developments within the service area.
Education and Outreach	
IRWD Alert	IRWD Alert is IRWD's mass notification system used to communicate with employees and the public within IRWD's service area. Coordination with Water Emergency Response Organization of Orange County (WEROC) would occur before sending any broad messages so as to not overlap or conflict with County or City messaging.
IRWD Website, E-Newsletter, Social Media, Brochures and Pamphlets	The IRWD Communications Department maintains the IRWD website, writes the monthly e- newsletter, and posts regularly through IRWD social media channels. These various forms of communication provide an opportunity to convey information and implement mitigation actions

Resource	Description and Ability to Support Mitigation
	specific to educating and informing the community regarding all hazards and ways to reduce impacts from the hazards.

How can these capabilities be expanded upon and improved to reduce risk?
Multiple mitigation measures are priority projects to expand on IRWD capabilities. Examples of opportunities to expand capabilities include the following mitigation actions:
Planning/Regulatory: Technical Communications Plan (Mitigation Action #4), Specific Hazard Response Plans (Mitigation Action #8), Energy and Greenhouse Gas Master Plan (Mitigation Action #12), Recycled Water Shortage Contingency Plan (Mitigation Action #16), Inflow and Infiltration Study (Mitigation Action #19), Cybersecurity Plan (Mitigation Action #28), SCE Communications Plan (Mitigation Action #40).
Admin/Technical: Back-up communications system (Mitigation Action #3 and #4), WEROC membership (Mitigation Action #9), phone system enhancements (Mitigation Action #10), communication resilience in canyon areas (Mitigation Action #34), extend battery life for the Supervisory Control and Data Acquisition (SCADA) (Mitigation Action #43), improve canyon facility access for staff (Mitigation Action #53).
Financial: Seek funding opportunities for potable reuse program (Mitigation Action #14), funding for seismic vulnerability evaluation (Mitigation Action #47).
Education/Outreach: Annual communication system training (Mitigation Action #3), annual alert/warning system training (Mitigation Action #5), Specific Hazard Response Plans regular training and exercise programs (Mitigation Action #8), WEROC membership for communication and collaboration (Mitigation Action #9), coordination with police for IRWD-preferred response in localized flooding incidents (Mitigation Action #23), support customer cities in community outreach regarding hazardous materials (Mitigation Action #26), coordination with public safety agencies after wildfires (Mitigation Action #30), collaboration with CDFW & CAL FIRE regarding defensible space strategy (Mitigation Action #50), continue existing outreach programs (Mitigation Action #54), and explore opportunities for additional outreach programs (Mitigation Action #55).

O.6 MITIGATION STRATEGY

O.6.1 Mitigation Goals

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

O.6.2 Mitigation Actions

IRWD reviewed the mitigation actions identified in the 2021 plan and 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 HMP update. The following are updates to mitigation actions within the 2021 LHMP.

Mitigation: Implement and maintain information sharing mechanisms/platforms for involved departments to utilize during a disaster response. Ensure the platform can be viewed on network devices and mobile devices, while maintaining data security.

- **Update Status:** Enterprise Master GIS plan in the works with opportunities to include disaster response tools.

Mitigation: Conduct an update of the IRWD Energy and Greenhouse Gas Master Plan.

- **Status:** Modified to: Conduct an update of the IRWD Climate Adaptation and Energy Management Plan, formerly known as the Energy & Greenhouse Gas Master Plan.

Mitigation: Develop a Cybersecurity Plan in coordination with a consultant and include an IS/Network focused Business Continuity Plan (BCP).

- **Status:** Update action to: Develop a Cybersecurity Plan in coordination with a consultant to include a disaster recovery (DR) plan. Cybersecurity Plan completed with a consultant.

Mitigation: Coordinate with Southern California Edison prior to any planned power outage to ensure generator capacity and provide time to pre- position supplies as applicable

- **Status:** Modify. Coordinate with SCE prior to any planned power outage to ensure generator capacity and time to pre-position supplies as needed. Maintain communications with SCE for duration of power outage.

O.6.3 Completed or Removed Mitigation Initiatives

The following mitigation actions from the 2021 plan have been completed or are in progress and therefore are removed from this plan update.

Mitigation: Coordinate with the County of Orange for opportunities to allow shared communication space on cell towers for IRWD. Shared space would allow for IRWD Supervisory Control and Data Acquisition (SCADA) radio communication only.

- **Status:** Completed.

Mitigation: Identify additional back-up communication systems (such as satellite phones or radio) for purchase, to utilize if primary communication systems become unavailable. Ensure that coverage includes the entirety of the IRWD service area. Include annual training opportunities.

- **Status:** Completed.

Mitigation: Implement and maintain both internal and external alert/warning systems to effectively communicate hazard threats to staff and customers. Include utilization of the alert/warning system in a regular training program.

- **Status:** Completed.

Mitigation: Enhance phone system to support phone connectivity when people are working offsite through Voice over Internet Protocol (VoIP).

- **Status:** Completed.

Mitigation: Prepare a Recycled Water Shortage Contingency Plan

- **Status:** Completed.

Mitigation: Assess permanently elevating water-sensitive equipment and anchoring fuel tanks in flood-prone locations.

- **Status:** Completed.

Mitigation: Regularly check and maintain radar flood level gauges located in San Diego Creek.

- **Status:** Remove - this is part of preventative maintenance and does not need to be included here

Mitigation: Designate alternative locations for residual dirt and fill storage, away from the Michelson Yard

- **Status:** Complete in 2024. Expected to be completed in 2024 with alternative road access being developed into and out of MWRP for use in the event of major flooding. Flood gates have also been implemented. This allows IRWD vehicles and equipment to continue to be staged at its normal location without having to be re-staged.

Mitigation: Continue to monitor and track regulatory requirements and updates as they relate to hazardous materials storage and response actions.

- **Status:** Completed. Regulatory compliance team and legislative team that tracks all regulatory requirement.

Mitigation: Consider development of a project utilizing the recent hyper-local landslide study and resulting report (2021 WERT report) in combination with assessment of canyon facilities to determine potential for additional mitigation projects protecting against debris flow.

- **Status:** Remove.

Mitigation: Assess the communications resilience in canyon areas; address capacity of canyon facilities to communicate with each other (some are linked and dependent), as well as sending communications back to IRWD staff in other locations monitoring facility status.

- **Status:** Completed.

Mitigation: Perform monthly maintenance checks on permanent and portable back-up generators, and check fuel supply

- **Status:** Remove. This is part of preventative maintenance and does not need to be included here

Mitigation: Seek funding opportunities to rehabilitate or replace aging generators in order to maintain critical water and wastewater operations during power outages.

- **Status:** Complete. No funding found. Construction is underway for increasing fuel storage to 72 hours and replacing several generators.

Mitigation: Establish a communication plan with Southern California Edison for use during an unplanned power outage to assess the potential duration and extent of the power outage, and associated need for generators and supplies.

- **Status:** Completed.

Mitigation: The necessity for fire agency escorts into fire-affected areas has complicated physical access to facilities for refueling. Increase the capacity of current portable fueling equipment to allow better access to affected facilities with fewer trips during active fire activity. This project will also increase efficiency during power outages that do not involve wildfires.

- **Status:** Complete. All fuel tanks in the canyons are in construction for supporting 72 hours of operation.

Mitigation: Extend battery life for the SCADA system by purchasing long runtime or extended long runtime uninterruptible power supply (UPS) to prevent outages in canyon facilities. Evaluate which locations would benefit from the upgraded UPS.

- **Status:** Complete. A new UPS was installed at Modjeska Reservoir to allow longer runtime during power outages. Manning, Williams, Fleming, Shaw, and Read pump stations all have generators. Shaw Reservoir is getting a new PLC panel & UPS as part of the current projects so that will help that site.

Mitigation: Collaborate with the California Department of Fish and Wildlife (CDFW), CAL FIRE, and local firefighting agencies to establish a defensible space strategy in compliance with existing plans and environmental policies that provides IRWD the ability to maintain/remove vegetation around critical facilities in the wildfire hazard zone.

- **Status:** Complete. Now part of the annual maintenance program.

Mitigation: Develop measures to improve access to canyon facilities for fueling and maintenance during wildfires. Collaboration with fire agencies and pre-planning with WEROC are two possibilities.

- **Status:** Complete. Now part of a standard operating procedure

Mitigation: Continue existing community and customer outreach programs/modules, including landscaping, irrigation, water quality, water efficiency, leak detection, and other relevant topics as needed.

- **Status:** Complete.

O.7 PLAN INTEGRATION

IRWD’s capital budget, Capital Improvements Program, Infrastructure Master Planning, and other planning and response documentation are all used to implement mitigation initiatives identified in this annex. IRWD will update its Emergency Response Plan (also referred to the Emergency Operations Plan) that will establish protocol and incorporate applicable areas of the MJHMP. After adoption of the MJHMP, the District will continue to integrate mitigation priorities into these documents.

Since the previous Plan Update, IRWD incorporated information from the HMP in its Capital Investment Plan (CIP), updated various plans, and procedures and conducted the following activities to support plan integration:

- The risk assessment and mitigation actions were used to inform IRWD’s updates to Master Plans and Urban Water Management Plan.
- The Capital Budget was used to implement mitigation initiatives identified in the previous Plan.
- The risk assessment informed the need for additional studies focused on risk reduction and mitigation implementation.