EBMUD Earthquake Preparedness
Lamorinda CERT

October 12, 2026

<u>Presenters</u>

Damon Hom – Superintendent of Water Treatment / Distribution / Quality

Heidi Benenson – Emergency Preparedness Administrator

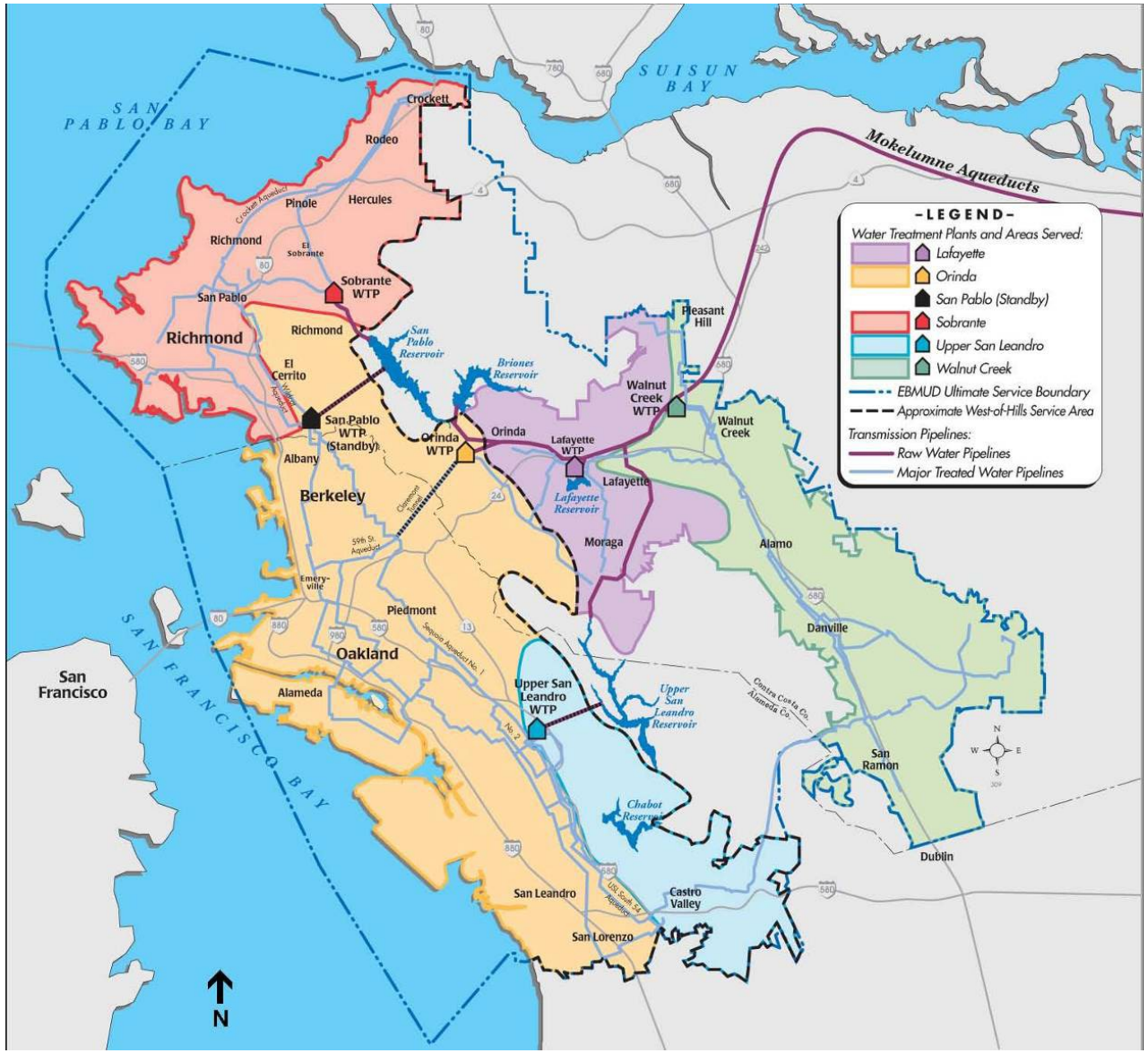
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Overview

- EBMUD system overview
- Earthquake impacts
- System restoration
- Seismic preparedness
- Response and recovery plans
- Personal preparation

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EBMUD Service Area



- 1.5 million customers
- 332 square mile service area
- Elevation from sea level to 1,450 feet
- 6 water treatment plants
- 400+ facilities (pumping plants, tanks, valve stations)
- 4,200 miles of pipeline
- 120 pressure zones

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Damage to EBMUD's water system is expected following a large magnitude earthquake on the Hayward Fault



Main break Carlson and Cutting Richmond May 2021

Water System Earthquake Impacts



- Hayward Fault M7.0
  - Cuts through EBMUD's western service area
  - Pipeline breaks > 5,000 (EBMUD average ~1,000/year)
- Calaveras Fault M6.7
  - Along I-680 corridor
  - Pipeline breaks ~1,000
- Damage predictions
  - Distribution – Loss of storage, loss of pressure, loss of potability
  - Treatment – Loss of production, loss of potability

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Water System Restoration

Water may not be available after an earthquake

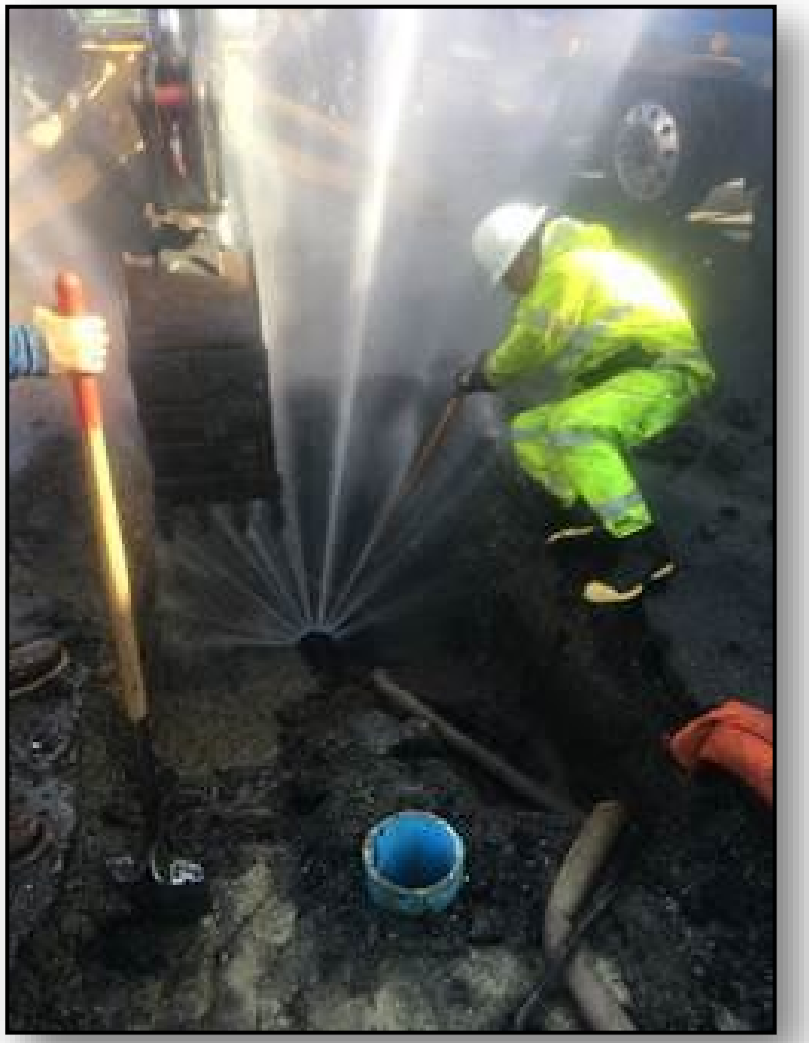
EBMUD water system has redundant facilities that support a reliable delivery of water

Skilled employees deal with individual system emergencies every day and know how to respond

Due to the widespread damage after a major earthquake, water service to most areas will be limited

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Water System Restoration
Early Operational Response Priorities



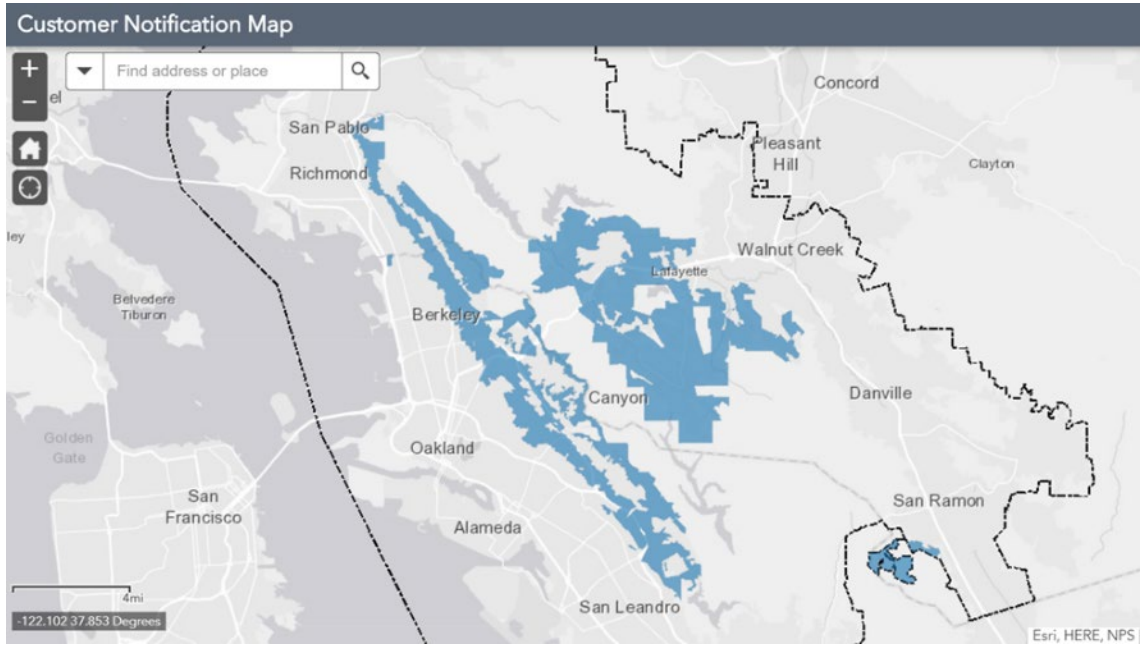
- Maintain pressure in the distribution system, isolate breaks as needed to maintain safety and limit water damage
- Maintain treatment production of potable water to the extent possible
- Restore service to critical customers such as hospitals, mass shelters, refineries, etc.
- Repair larger artery pipes first (within weeks), then expand into neighborhoods (could take months)

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Water System Restoration

Communicating restoration goals to the public

- Water system will be restored piece by piece, area by area
- Maps on ebmud.com will show updated system status
- Inform public of water quality instructions (e.g., water is potable, boil water, do not drink, do not use)



EXAMPLE status map

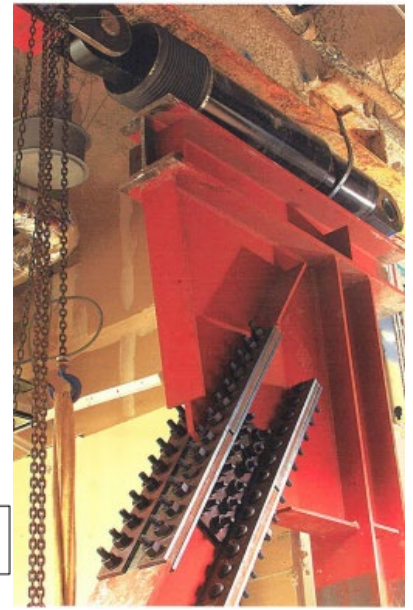
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Earthquake Preparedness
Seismic Improvement Program

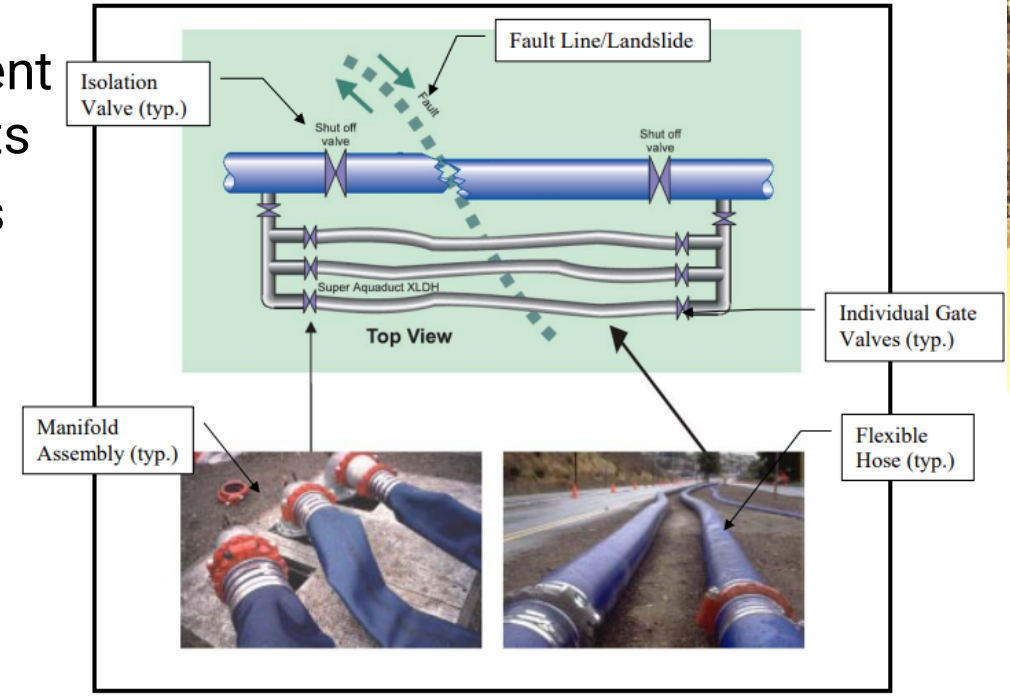
- Redundant Supplies
  - Claremont Tunnel bypass
  - Southern Loop
  - Inter water agency connections
- Reinforced Infrastructure
  - Reinforced dams, water treatment plants, tanks and pumping plants
  - Building/equipment anchorages
- Operational Tools
  - Fault crossings
  - Tank seismic isolation valves



Claremont Tunnel Bypass



Base isolation / Dampening



Emergency Bypass Connection at Fault Crossing

Bypass Hose Deployment Exercise



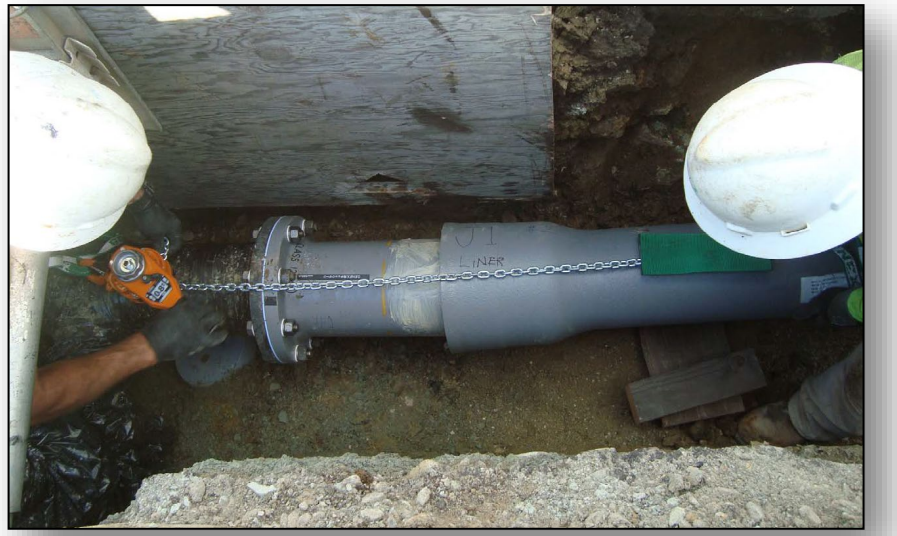


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Earthquake Preparedness
Designing Resilient Infrastructure

- Water Treatment
  - Improved process redundancy and reliability
  - Standby emergency generator
- Tanks
  - Seismic structural design
- Pumping Plants
  - Seismic structural design and backup pumps
  - Portable generator and pump connections
- Pipelines
  - Replace with materials to withstand ground movement in fault zones
  - Strategic valves to isolate breaks and keep the system in service

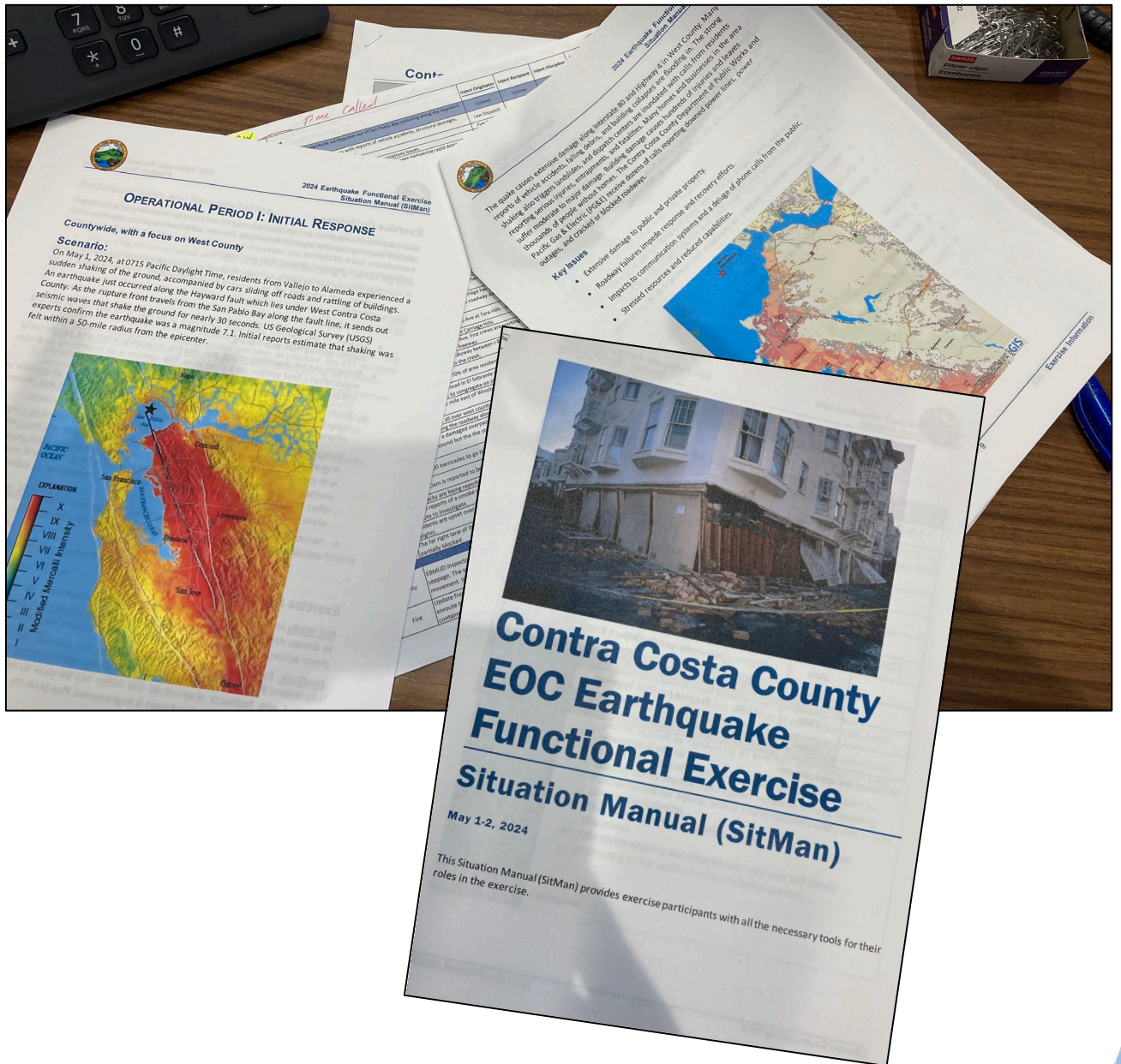




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Interactions with Office of Emergency Services

- Attend monthly Contra Costa multi-agency (including CERT representative) coordination group meeting
- Meet, train and exercise with city, county, state and federal partners



Response & Recovery

- After a large-scale disaster, regional, state and federal resources will support incident management in the Bay Area
  - Form a unified Emergency Operations Team
  - Manage mutual aid
  - Support decisions with or by local authorities
  - Support security
  - Manage evacuations and re-population
- Presence of hazards (fire, air quality, no vehicular access, downed power lines, red-tagged structures etc.) could lead to evacuation

Community Emergency Response

Priorities

1. Life safety
2. Incident stabilization
3. Protection of the environment and property
4. Operational recovery
5. Return to “normal” operations



District’s mobile command center trailer.

'89 Loma Prieta Earthquake – EBMUD Maintenance & Distribution Response



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Role of EBMUD

Immediate EBMUD strategy:

- Support fire suppression activities
- Assess damage, determine availability of workforce and communication ability, join emergency command structure
- Pipe repair: biggest to smallest
- Water treatment: keep water system pressurized and potable, when not potable, re-establish asap (requires authorization from state)
- Communicate status
- Engage with Mutual Assistance partners

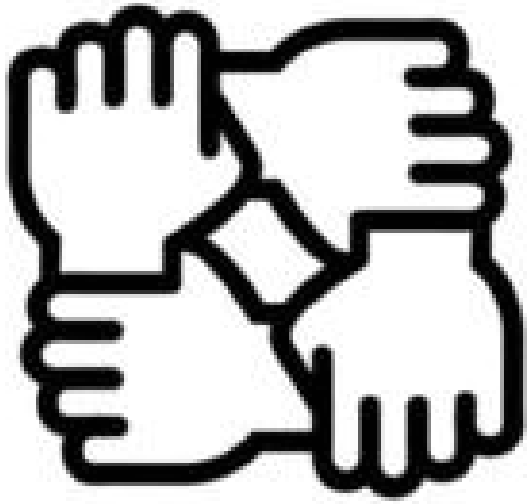


ICS at EBMUD EOC

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Mutual Assistance Will Likely Support EBMUD

- Mutual assistance accelerates recovery when local agency is overwhelmed
- Often, but not always, reimbursable by state or federal government
- Responding water repair crews from other agencies would be directed by EBMUD
- Will shorten substantial recovery timeframe from months to weeks
- Mutual aid from other utilities not likely within first 72 hours



Commodity Points of Distribution (CPOD)

- EBMUD will support local efforts to supply bottled water or bulk water via manifolds (hydrant or tanker)
- Sites selected in coordination with jurisdictions operating mass care shelters or densely populated areas with limited supplies (food, diapers, water)





CPOD Signs


NON-Potable Water
(Not for drinking or cooking)
Agua NO Potable
(No para beber o cocinar)
非飲用水
(不可飲用或烹飪)
EBMUD


NON-Potable Water
(Not for drinking or cooking)
Agua NO Potable
(No para beber o cocinar)
非飲用水
(不可飲用或烹飪)
Nước không uống được
(Không dùng để uống hoặc nấu ăn)
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ebmud.com


Potable Water
(Safe for drinking)
Agua Potable
(Para beber)
飲用水
(可飲用或烹飪)
Nước uống
(An toàn để uống hoặc nấu ăn)
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Staff Personal Preparedness

- Majority of staff live in the service area
- Train staff on personal preparedness
- Employee $2,500 emergency supply loan



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Personal Preparation

- EBMUD.com/emergency-preparedness
  - Store water, ideally two gallons per person/day for seven days, and don't forget your pets
  - Build an emergency kit (food, cash, camping gear, heat source/matches, vital medication, spare eyeglasses etc.)
  - Make a plan with your family
- Other resources
  - Ready.gov
  - Redcross.org
  - Pge.com
  - CDC.gov/water-emergency/
  - CDC: How to Make Water Safe in an Emergency



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Sign up for Emergency Alerts

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Be ready. Stay safe.

Emergencies can happen anytime. Take three simple steps to keep your household safe and connected.

1. **Sign up for EBMUD Emergency Alerts**
   Get text and email updates during water emergencies. Scan the QR code or visit **ebmud.com/alerts**
2. **Store Water for Emergencies**
   Keep at least 2 gallons per person per day for 7 days. Don't forget your pets!
   ebmud.com/emergency-preparedness
3. **Make a Plan**
   Know how to turn off your water and talk to your family about what to do if service is interrupted.
   ready.gov



EAST BAY MUNICIPAL UTILITY DISTRICT

Prepárese. Manténgase salvo.

Las emergencias pueden ocurrir en cualquier momento. Tome tres pasos sencillos para mantener su hogar seguro y conectado.

1. **Regístrese para recibir alertas de emergencia de EBMUD**
   Reciba actualizaciones por mensaje de texto y correo electrónico en tiempo real durante emergencias de agua. Escanee el código QR o visite **ebmud.com/alerts**
2. **Almacene agua para emergencias**
   Guarde al menos 2 galones por persona por día para 7 días. **ebmud.com/emergency-preparedness**
3. **Haga un plan**
   Aprenda cómo cerrar su suministro de agua y hable con su familia sobre qué hacer si el servicio se interrumpe. **ready.gov**



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What are your next steps to better prepare for emergencies?

Questions?

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