

# JPIASource

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ACWA JPIA Risk Management for the Water Industry

## Pipe replacement programs for water agencies



# Pipe replacement programs play a crucial role in mitigating risks

Water agencies provide essential services that ensure public health, preserve environmental sustainability, and support economic growth. Among the many challenges agencies face, aging and deteriorating pipes pose a significant threat to water supply systems. The American Water Works Association (AWWA) State of the Water Industry 2023 Report, indicates that rehabilitation and replacement of aging water infrastructure has remained the number one ranked challenge facing the water industry for the past five years. California's water is a vital resource, and water agency staff recognize that maintenance and management of its infrastructure are paramount.

## Risks and Impacts of Pipe Breaks

Agency staff are well aware of the risks and impacts of pipe breaks. Breaks can happen in the middle of the night and increase employee safety and health risks. Response actions often include 811 notification, traffic control, valve turning, lock out tag out, trenching and excavation, slip, trip, and fall mitigation, and confined space entry.

Whenever a pipe failure causes damage, early reporting of all incidents is critical, and your agency's efforts to gather essential facts promptly are crucial. In the spring of 2021, South Coast Water District received an [H.R. LaBounty Safety Award](#) for its [Field Incident Reporting](#) system which streamlines and distributes water and wastewater emergency communications methodically. After an incident, the District reviews the information in its "lessons learned" discussions.

## The Benefits of Pipe Replacement Programs

It is essential to support and skillfully execute your agency's pipe replacement program. These programs help prevent catastrophic failures, minimize service disruptions, and preserve water quality by proactively identifying and replacing aging and deteriorating pipes. Additionally, new installations include up-to-date plans and GIS/tracer wire

capabilities, which translate to faster locates and reduced line strikes.

Effective pipe replacement programs require careful planning, prioritization, and operational involvement to maximize their impact and efficiency. Key considerations include:

- **Conditions Assessments** - These methodologies enable water agencies to evaluate the health and integrity of their pipe networks. By leveraging options, agencies can identify high-risk areas and prioritize replacement efforts based on the condition and criticality of assets. Conditions assessments often require coordination between operators, engineers, and contractors.
- **Asset Management** - Adopting a proactive asset management approach allows water agencies to optimize resource allocation, minimize risks, and maximize the lifespan of infrastructure assets. Staff can support these efforts by capturing accurate data in their work order systems. The JPIA's Commitment to Excellence Program (C2E) maintains a Standard Operating Guideline (SOG) on [Asset ID and Documentation](#) as a resource for members.

The JPIA encourages members to engage within their agencies regarding losses and work to evaluate continuous improvement measures.

## Emergency Response Tips and Tools

- Track emergency response including response times (i.e., time to the site after a reported incident, and the time to stop/turn off the water).
- Maintain emergency response supplies (berms, waddles, sandbags, etc.) to divert water away from entering structures to reduce third-party damage.



The C2E Program maintains member resources and best management practices aiming to improve risk reduction in our most frequent and costly loss categories. The categories are Construction, Infrastructure, Employment Practices, Ergonomics/Falls, Wildfires, and Vehicle Operations. Examples of resources in the Infrastructure Loss Reduction Focus Area related to pipe failure mitigation include an SOG on [Maintenance Management Systems](#), an SOG on [Valve Exercising and Maintenance](#), a [Leak Repair Summary Report](#), and an SOG on [Sewer Backup and Response](#). Sample procedures listed there also include those provided by JPIA members like Bella Vista Water District, Mission Springs Water District, Santa Fe Irrigation District, South Coast Water District, Sweetwater Authority, and Western Municipal Water District.

### Ensuring Resilience and Sustainability

Pipe replacement programs are indispensable tools for safeguarding the reliability, safety, and sustainability of public water agencies in California. The severity and consequences of water and wastewater pipe breaks can vary due to many factors. Through best management practices found in the JPIA's [C2E](#), effective investigation and proactive assessment of pipe breaks, diligent asset management, and stakeholder collaboration, water agency staff can help ensure the resilience and viability of their operations.

### Test your Knowledge

Please answer the following questions as **true** or **false**:

1. The JPIA's C2E contains resources to help mitigate the risk of pipe breaks.
2. Pipe replacement programs can be a proactive way to reduce the many risks of pipe failure.

3. The C2E does not include sample resources developed by other member agencies.
4. Investigation of pipe breaks does not help inform pipe replacement plans.
5. Data from previous line break incidents that have resulted in claims should be considered when discussing pipe replacement plans.

### References

- American Water Works Association (2019), AWWA Manual of Water Supply Practices – M77 Conditions Assessment of Water Mains
- American Water Works Association (2023), State of the Water Industry Report 2023 [PDF]. Retrieved from <https://www.awwa.org/Portals/0/AWWA/ETS/Resources/2023-SOTWI-Full-Report.pdf>
- State Water Resource Control Board (2022), ORDER WQ 2022-0103-DWQ, Retrieved from [https://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2022/wqo\\_2022-0103-dwq.pdf](https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2022/wqo_2022-0103-dwq.pdf)

**JPIASource**

The JPIASource is not intended to be exhaustive. The discussion and best practices suggested herein should not be regarded as legal advice. Readers should pursue legal counsel or contact their insurance providers to gain more exhaustive advice.

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### Answer Key

1. True
2. True
3. False
4. False
5. True