



**2024-25**

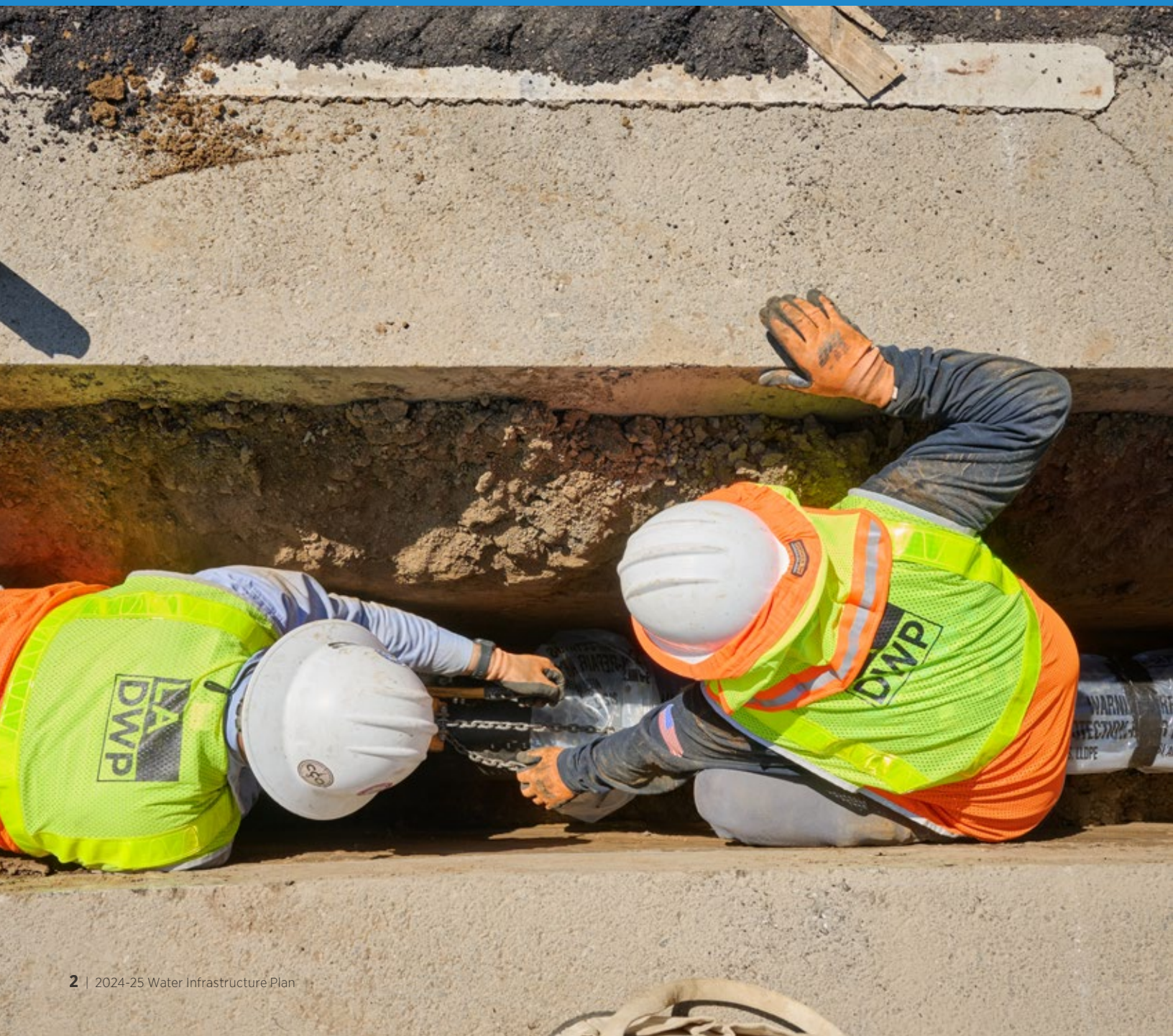


# **Water Infrastructure Plan**



# Introduction

The Los Angeles Department of Water and Power (LADWP) maintains and operates a vast Water System with about 7,341 miles of mainlines and trunk lines and approximately 300 miles of water conveyance system along the Los Angeles Aqueduct, along with related infrastructure and storage facilities that are critical to delivering high-quality water to Los Angeles residents and businesses. The Water Infrastructure Plan (WIP) describes infrastructure accomplishments and goals that are a part of LADWP's \$7 billion five-year Water System capital plan. All major water infrastructure components are evaluated through the ongoing Asset Management (AM) Program to systematically manage assets to achieve the lowest cost of ownership, including capital, operations, and maintenance costs. The AM Program data and analysis is continuously being improved and refined.





# Distribution Mainlines

- Approximately 6,794 miles of Mainline Pipe
- 20 inches or smaller in diameter

Distribution mainlines around the city of Los Angeles constitute the backbone of LADWP’s water distribution system. They deliver water to individual services and convey water between distribution supply facilities. Over 30 percent of LADWP’s mainlines are more than 80 years old. LADWP’s plan is to achieve an annual replacement of 240,000 feet per fiscal year and to maintain this level of replacement, which equates to a 150-year replacement cycle.

## 2023-24 Achievements

- Installed approximately 236,500 feet of mainline pipe (FY23-24 Goal: 225,000 feet)
- Installed approximately 85,000 feet of earthquake resilient pipe between FY21-22 and FY23-24 (FY21-22 to FY23-24 Goal: 52,800 feet)
- Achieved an average leak rate of 14.7 leaks per 100 miles for FY23-24; about 40 percent lower than the national industry average of 25 leaks per 100 miles (Water Research Foundation, 2017)

## 2024-2025 Goal

- Replace 240,000 feet of mainline pipe

## Long-Term Goals

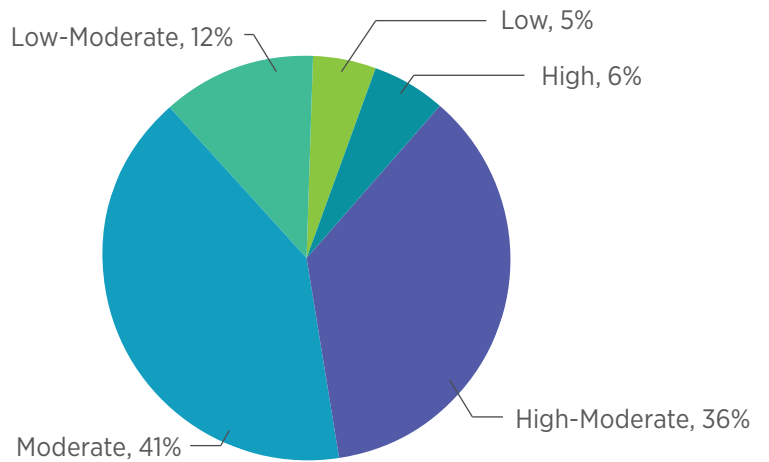
- Continue to replace 240,000 feet of mainline pipe each fiscal year
- Reduce distribution life cycle costs, including capital, operations, and maintenance costs

## Prioritizing Mainline Replacements

Based on LADWP’s analysis, about 6 percent of LADWP’s water distribution mainlines are classified as a high priority for replacement. The factors considered include:

- Leak history (quantity and density of leaks, type of leaks, time between leaks)
- Age of pipe (design and construction method used at time of installation)
- Soil conditions (corrosiveness, hillside, landslide, fault line, and liquefaction potential)
- Risk of service interruption and community disruptions
- Coordination with planned projects by Streets LA
- Other Water System improvement projects

## Mainline Replacement Priority



# Trunk Lines

▪ Approximately 547 miles of Trunk Line Pipe    ▪ Larger than 20 inches in diameter

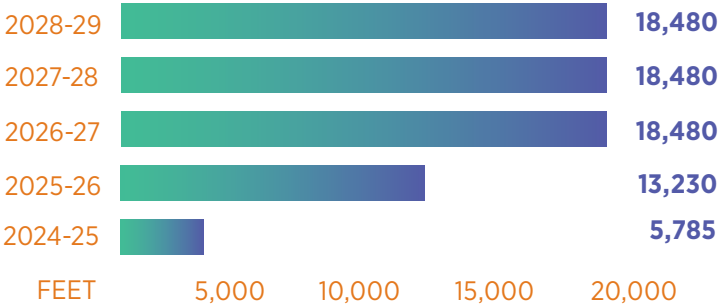
Trunk lines provide the transmission capacity to move large amounts of water around the city, from reservoirs and tanks to smaller distribution mainlines. Prioritization for trunk line replacement is similar to the process for mainlines, taking into account leak history, soil conditions, and pipe age, along with other factors.

## 2023-24 Achievement

- Installed 4,836 feet of trunk line pipe (FY23-24 Goal: 6,900 feet)

## Trunk Line Replacement Goals

### FISCAL YEAR



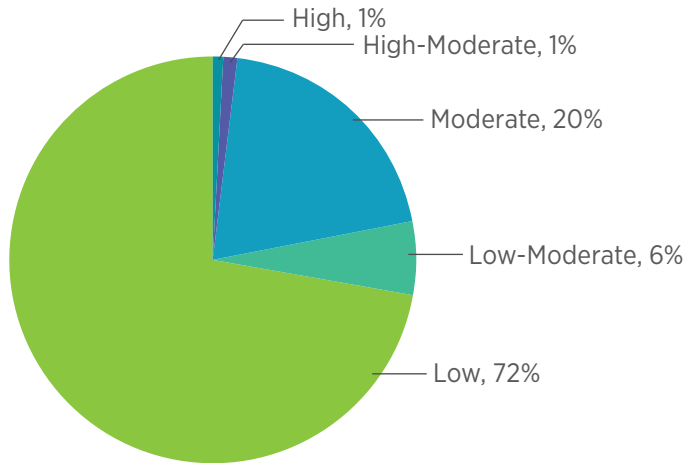
## 2024-25 Goal

- Replace 5,785 feet of trunk line pipe

## Long-Term Goals

- Accelerate design and construction of trunk line projects to replace high-risk trunk lines
- Continue the corrosion protection program
- Continue pipe replacements required to meet drinking water regulatory compliance
- Enhance trunk line resilience through the use of earthquake resilient pipe
- Continue to work with stakeholders to raise awareness about projects in their communities and minimize impacts due to construction

## Trunk Line Replacement Priority





# Large Valves

- More than 2,800 Large Valves
- 16 to 144 inches in diameter

Large valves are flow control devices that are critical for Water System operations around the city. The Department's Large Valve Replacement Program strategically prioritizes replacement of large valves based on operational needs, water shutdown, and valve availability. There are currently 37 valves identified for replacement through the program. Each year, LADWP continues to replace at least 5 large valves under the program, along with additional valves replaced under other Water System improvements.

## 2023-24 Achievement

- Replaced 6 large valves (FY23-24 Goal: 5 large valves)

## 2024-25 Goal

- Replace 5 large valves as part of the Large Valve Replacement Program, along with additional large valve replacements under other Water System improvements

## Long-Term Goals

- Continue to maintain and update a complete list of broken and difficult-to-operate valves
- Continue to exercise, maintain, and replace large valves to minimize valve damage and extend the valves' useful life
- Continue the installation and renewal of large valves in conjunction with trunk line construction projects
- Continue large valve vault assessments and rehabilitations





# Reservoirs and Tanks

- 10 major active Reservoirs
- More than 106 smaller Reservoirs and Tanks

Reservoirs and tanks around the city provide storage capacity and pressure management and create operational flexibility to balance water supplies and customer demands.

Eagle Rock, Elysian, Lower Franklin No. 2, Green Verdugo, Santa Ynez, Upper Stone Canyon, and Lower Van Norman Bypass are protected with a floating membrane or roof; Headworks East and Headworks West are buried structures; and Los Angeles Reservoir utilizes shade balls and ultraviolet (UV) disinfection.

Additionally, the following six large reservoirs are no longer in-service but contain non-potable water for emergency use: Encino, Upper Hollywood, Lower Hollywood, Ivanhoe, Silver Lake, and Lower Stone Canyon.

Similar to the reservoirs, tanks provide the needed daily and emergency supplies for the community. Steel and concrete tanks have capacity ranging from 9,000 gallons to 30 million gallons. The typical useful life is 60 years for a steel tank and 100 years for a concrete tank.

Objectives for reservoirs and tanks include:

- Preserve water quality and structural integrity
- Replace floating covers based on a 20-year useful life or earlier if needed due to deterioration and damage, or as required by the California State Water Resources Control Board (SWRCB), Division of Drinking Water

- Retrofit or replace tanks based on condition assessment of structural and mechanical elements, materials, and safety seismic stability
- Maintain dam safety surveillance on reservoirs as required by the California Department of Water Resources, Division of Safety of Dams
- Continue inspection and maintenance program for reservoirs and tanks

## 2023-24 Achievement

- Completed planning of the Solano Reservoir Replacement Project

## 2024-25 Goals

- Repair Santa Ynez Reservoir cover
- Complete seismic assessment of the Eagle Rock Reservoir Seismic Improvement Project

## Long-Term Goals

- Construct De Soto Tank in Chatsworth
- Replace Elysian Park Tank
- Replace Solano Reservoir in Elysian Park

# Treatment Facilities

## 39 Treatment Facilities

Treatment facilities are necessary for achieving drinking water standards. Treatment facilities include the Los Angeles Aqueduct Filtration Plant; the Dr. Pankaj Parekh Ultraviolet Disinfection Facility; the Los Angeles Reservoir Ultraviolet Disinfection Plant; groundwater treatment facilities; and ammoniation, chlorination, and fluoridation stations.

LADWP's Groundwater Remediation Program will help protect public health and the environment by reducing exposure to chemicals and will limit the migration of contaminants that prevent the full beneficial use of groundwater. The program's goal is to fully restore the City's allocation of groundwater from the San Fernando Basin—a critical local water resource that has been limited due to historic contamination affecting nearly 50 percent of LADWP's groundwater wells. To meet these objectives, LADWP has constructed three major projects: North Hollywood West (NHW) Wellhead, North Hollywood Central (NHC), and Tujunga Central (TJ) Treatment Facilities.

### 2023-2024 Achievements

- Received SWRCB's Division of Drinking Water permit for the NHW Wellhead Treatment Facility
- Completed substantial construction of the NHC and TJ Treatment Facilities
- Completed design of the NHW and Rinaldi-Toluca (RT) Chlorination Station Improvement Projects

### 2024-25 Goals

- Place NHW Wellhead Treatment Facility in service
- Receive SWRCB's Division of Drinking Water permit to place NHC and TJ Treatment Facilities in service
- Begin construction of the RT Chlorination Station Improvement Project
- Complete design of the Mission Wells Chloramination Station
- Place Chloramination Trailers at Cyprian and Highway Highlands Tank sites in service

### Long-Term Goals

- Complete construction of the 99th Street Wells Chloramination and Filtration Plant and place in service
- Complete construction of the RT, NHW, and NHC Chlorination Station Improvement Projects
- Place Chloramination Trailers at Ascot, Bairdstown, and Blue Jay Tank sites in service





# Pump Stations

## 86 Pump Stations

Pump stations pump water to customers or storage facilities at higher elevations around the city. Pump station maintenance objectives include:

- Preventing service disruptions
- Maintaining operations during construction or replacement
- Minimizing operational costs
- Reducing repair costs through appropriate preventative maintenance

### 2023-24 Achievement

- Replaced or rehabilitated 19 pumps and motors (FY23-24 Goal: 12 pumps and motors)

### 2024-25 Goal

- Replace or rehabilitate 14 pumps and motors



# Pressure Regulator and Relief Stations

## 350 Regulator and Relief Stations

Regulator and relief stations around the city control water pressure by adjusting for changes in flow and accommodating customer peak usage. Maintenance objectives include:

- Preventing service disruptions
- Maintaining system operations during construction
- Minimizing life cycle costs

### 2023-24 Achievements

- Replaced 2 regulator stations and headers (FY23-24 Goal: 2 regulator stations and headers)
- Retrofitted 9 regulator and relief stations (FY23-24 Goal: 8 regulator and relief stations)

### 2024-25 Goals

- Replace 2 regulator stations and headers
- Retrofit 8 regulator stations







# Water Meters

- 7,300 Large Meters (3 inches and larger)
- Approximately 700,000 Small Meters (2 inches and smaller)

Accurate metering is necessary to fully account for water use by all customers as well as to quantify water loss within the distribution system. Since completing the cycle for large meter replacements, LADWP has focused on replacing small meters, which constitute the vast majority of the Water System’s meter inventory. LADWP’s plan is to achieve an annual replacement of 34,000 small meters per fiscal year and to maintain this level of replacement, which equates to a 20-year replacement cycle.

The industry average life cycle of a small meter is 20 years, before wear and tear on its moving parts cause loss of measuring accuracy.

## 2023-24 Achievement

- Replaced approximately 30,100 small meters (FY23-24 Goal: 34,000 small meters)

## 2024-25 Goal

- Replace 34,000 small meters

## Priorities for Water Meter Replacement

- Increase to a long-term replacement rate of 34,000 small meters per year
- Continue to explore and evaluate new meter technologies
- Achieve at least 80 percent completion rate for repair or replacement of stuck or defective meters within 30 days after the service order is released by the Field Investigations Group



# Los Angeles Aqueduct System

- Approximately 300 miles of Conveyance System

The Los Angeles Aqueduct (LAA) conveyance system, which includes tunnels, open channels, covered conduit, and sag pipe, conveys water from the Eastern Sierra and Owens Valley to Los Angeles. LADWP's objective is to maintain operations through in-place refurbishment of the entire LAA System.

## 2023-24 Achievements

- Reconstructed two critical diversion structures, damaged in the 2023 storms, in Independence and Bishop
- Completed construction of the concrete parking lot at the Bishop Administration Office
- Completed repairs to two spillways damaged from storm flows in the Southern District
- Completed installation of a new office trailer in the Southern District
- Completed installation of a new vault for a flow meter at Cartago, which supplies water to the Owens Lake

## 2024-25 Goals

- Replace 3 miles of the original top on the concrete conduit section in the Freeman Division
- Replace the Bishop Creek Canal Headgate structure and flume
- Complete Long Valley Dam Rockfall Mitigation Study
- Complete planning of a new intertie connection to the State Water Project for improved resiliency of the supply system

## Long-Term Goals

- Complete the exterior recoating of 5 miles of sag pipe
- Design mitigation for a potential San Andreas Fault rupture at the Elizabeth Tunnel
- Re-drill and replace groundwater wells in the Owens Valley, averaging two per year
- Complete construction of Bishop Bypass Intake Structure Replacement



# LAA Reservoirs and Dams

## 8 Reservoirs and 10 Dams

Reservoirs and dams along the LAA provide storage capacity and pressure management, and create operational flexibility to balance water supplies. LADWP evaluates and maintains the integrity of the LAA's dam structures by conducting site-specific stability studies. The Department also maintains a reservoir surveillance program, as required by the California Department of Water Resources, Division of Safety of Dams.

### 2023-24 Achievements

- Completed 70 percent of the installation of new power poles and electrical supply upgrade as part of the Long Valley Dam Emergency Tunnel Stem and Operator Project; anticipated completion by end of 2024
- Completed rehabilitation of the Long Valley Dam Barge used to facilitate maintenance and repairs in the Emergency Tunnel
- Completed realignment of the LAA and construction of a diversion structure

### 2024-25 Goals

- Repair leak at Fairmont Reservoir No. 2
- Complete replacement of the stem and gate operator at the Long Valley Dam Emergency Outlet Tunnel
- Complete repair to the Spunky Flume at Bouquet Reservoir
- Replace 30-inch blowoff valves at South Haiwee Reservoir
- Award the Design-Build Contract for the Fairmont Sedimentation Plant
- Complete feasibility studies for the Bouquet Canyon Reservoir Auxiliary Spillway Upgrade/Replacement Project

### Long-Term Goals

- Design and build the Fairmont Sedimentation Plant to meet long-term water quality requirements for water supplied through the LAA and east branch of the State Water Project
- Design and construct a new auxiliary spillway at Bouquet Canyon Reservoir







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