



Fact Sheet: Our Water Lifeline__

The Colorado River Aqueduct.



Photo: Aerial photo of CRA

Investment in Reliability

The Colorado River Aqueduct is considered one of the nation's top civil engineering marvels. It was originally conceived by William Mulholland and designed by Metropolitan's first Chief Engineer Frank Weymouth after consideration of more than 50 routes. The 242-mile CRA carries water from Lake Havasu to the system's terminal reservoir at Lake Mathews in Riverside. This reservoir's location was selected because it is situated at the upper end of Metropolitan's service area and its elevation of nearly 1,400 feet allows water to flow by gravity to the majority of our service area

The CRA was the largest public works project built in Southern California during the Great Depression. Overwhelming voter approval in 1929 for a \$220 million bond – equivalent to a \$3.75 billion investment today – brought jobs to 35,000 people. Miners, engineers, surveyors, cooks and more came to build the aqueduct, living in the harshest of desert conditions and ultimately constructing 150 miles of canals, siphons, conduits and pipelines. They added five pumping plants to lift water over mountains so deliveries could then flow west by gravity. And they blasted 90-plus miles of tunnels, including a waterway under Mount San Jacinto.

Many innovations came from this period in time, including the creation of a medical system for contract workers that would become the forerunner for the prepaid healthcare plan offered by Kaiser Permanente.



The Vision

Despite the city of Los Angeles' investment in its aqueduct, by the early 1920s, Southern Californians understood the region did not have enough local supplies to meet growing demands. Without additional investment, water shortages were on the horizon – a cycle that seems to repeat itself ever more. The Metropolitan Water District was created by state law in 1928 to build and operate the Colorado River Aqueduct. This would add a major source of imported water supplies for the growing region. It would be 1941 when the first CRA deliveries would reach the city of Pasadena. Today, Metropolitan also imports water through participation rights in the State Water Project via the 444-mile California Aqueduct.



System Operations

Metropolitan owns and operates a world-class system of reservoirs, water treatment plants and hydroelectric-generating facilities. Maintaining this complex infrastructure is no simple task. It requires the dedication of employees who live and work in remote desert areas, operators who are experts in their field, whether at pumping plants, operations control centers, or as engineers, planners

and mapping experts based at downtown Los Angeles headquarters. Together, with the support of administrative teams and oversight of water quality experts – including chemists, biologists, microbiologists, water purification and laboratory service staff – Metropolitan is able to provide Southern California with safe and reliable water supplies.

System Overview

Colorado River Aqueduct

CRA Length: 242 miles from Lake Havasu to Lake Mathews, Riverside

CRA Construction: Began 1933, completed in 1939; Regional distribution system operational 1941

CRA Capacity: About 1.25 million acre-feet* annually

* An acre-foot of water typically serves three Southern California households for a year.



Photo: CRA canal section approaching Hinds Pumping Plant

Pumping Plants & Lift

Each pumping plant helps move water across the desert and to Southern California. Though varying in lift, each is designed with the same nine number of pumps – eight with a spare one should any of the others require servicing. Some Metropolitan staff live onsite at these remote locations so that operations remain seamless and emergencies can be quickly addressed.

Whitsett Intake // 291 feet

Gene // 303 feet

Eagle Mountain // 438 feet

Julian Hinds // 441 feet

Iron Mountain // 144 feet

**Total lift:
1,617 feet**

Photo: Iron Mountain Pumping Plant



Siphons:

144

spanning **29 miles**

Tunnels:

29

spanning **92 miles**

Canals:

29

totalling **63 miles**

Conduits &

Pipelines:

totalling **58 miles**



Photo: Diemer Water Treatment Plant

Water Treatment

PLANTS & CAPACITIES

Metropolitan operates five water treatment plants – all designed now to use highly effective ozone as disinfection treatment. Metropolitan's premier Water Quality Laboratory is located in La Verne, with each treatment plant having its own satellite laboratory.

Joseph Jensen // Granada Hills

750 million gallons per day

Robert A. Skinner // Winchester

350 million gallons per day

F.E. Weymouth // La Verne

520 million gallons per day

Robert B. Diemer // Yorba Linda

520 million gallons per day

Henry J. Mills // Riverside

220 million gallons per day

Number of Reservoirs: **nine**

Completion of Diamond Valley Lake in 2000 marked a milestone for Metropolitan in safeguarding our supplies from risks like multi-year droughts and emergencies. The addition of DVL nearly doubled the in-region surface water storage capacity and increased reserves for emergencies. Metropolitan’s total storage portfolio exceeds 5 million acre-feet.

Diamond Valley Lake

Hemet
810,000 AF

Copper Basin

Gene
24,200 AF

Garvey

Monterey Park
1,600 AF

Lake Mathews

Riverside
182,000 AF

Gene Wash

Gene
6,300 AF

Palos Verdes

Rolling Hills
1,100 AF

Lake Skinner

Winchester
44,000 AF

Live Oak

La Verne
2,500 AF

Orange County

Brea
212 AF

Total Storage Capacity:
1,072,000 AF

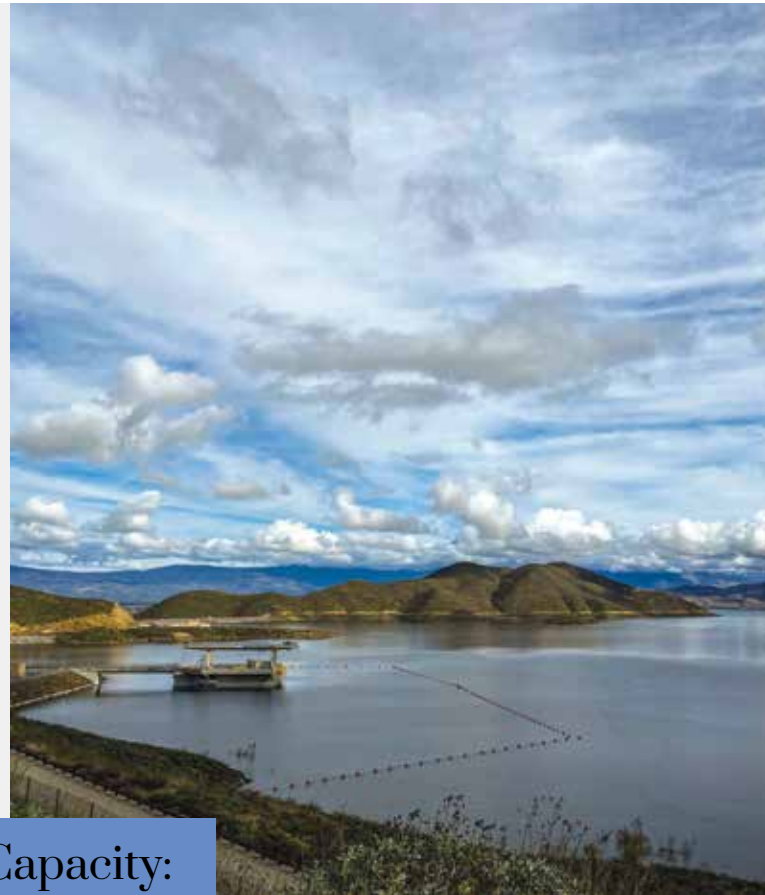


Photo: Diamond Valley Lake



Photo: Wadsworth Pumping/Hydro-generating Facility

15 Hydroelectric
Plants

capacity 130
megawatts

830 Distribution
System

miles of pipelines
and tunnels

About **400** Connections
to member
agencies

About Metropolitan

The Metropolitan Water District of Southern California is a state-established cooperative of 26 member agencies – cities and public water agencies – that serve 19 million people in six counties. Metropolitan imports water from the Colorado River and Northern California to supplement local supplies and helps its members develop increased water conservation, recycling, storage and other resource management programs.

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