



# UNLOCKING A CITY'S PROMISE

The controversial history of the Los Angeles Aqueduct

BY KATE SHIRLEY

Since the beginning of the 20<sup>th</sup> century, Los Angeles has grown more than any other major first-world metropolitan region save Tokyo, thanks in large part to the engineering marvel that is the Los Angeles Aqueduct. Stretching 233 miles from the Owens River Valley in eastern California to Los Angeles in the south, its completion in 1913 transformed what was once a dusty town of barely 90,000 people into the flourishing city of four million people it is today.

While this enormous project had a profound effect on the destiny of Los Angeles, it was extremely controversial among residents of the Owens River Valley, a small farming and ranching enclave nestled between the Sierra Nevada and the White Mountains. The aqueduct's construction essentially eliminated the Owens Valley as a viable farming community and had a devastating effect on the Owens Lake ecosystem. While the trade-off was a severe one with high stakes on both ends, the City of Los Angeles has since initiated various mitigation efforts to help heal the small eastern valley to which it owes so much of its good fortune.

## A Key to Growth

The engineer who headed the aqueduct project was William Mulholland, an Irish immigrant who began his career as a ditch tender for the Los Angeles City Water Company. He moved up the ranks to become the first superintendent of the newly-formed Los Angeles Water Department in 1902. Mulholland was acutely aware of the water shortages in Los Angeles, and published an annual report assessing the water needs of the city. In 1902, the populace was consuming over 26 million gallons every day. A water metering system was introduced in 1903 to regulate consumption, but by then the city's population had ballooned to almost 200,000, straining the city's only source of water, the Los Angeles River. This usage, plus several years of drought, led Mulholland to investigate potential courses of a more reliable water supply.

Along with the need to sustain the growing population, another powerful force behind the project was money. A group known as the "San Fernando Syndicate," comprised of wealthy railroad barons, land developers and

local power players, started buying up much of the land in the San Fernando Valley at bargain prices. These savvy businessmen knew that the lack of water was the only thing holding back the massive growth potential of the area. Their ability to develop this dusty land into profitable farmland – and eventually valuable suburban developments – held the potential of untold riches.

The syndicate used their powerful connections to pave the way for the aqueduct project to acquire public approval and financing. It began in 1899, with the court decision *Los Angeles v. Pomeroy*, in which Los Angeles won the rights to all surface flow water atop the large natural aquifer beneath the San Fernando Valley, despite the fact that it was not within city limits at the time. The Los Angeles Times, whose publisher had important financial stakes in the project, then launched an aggressive public relations campaign to get public support behind the aqueduct plan. The Times touted the aqueduct as a necessary solution to recent water shortages, fomenting fear that the city would soon cease to exist without a new water source. This support from the largest paper in the area was a key factor in convincing Los Angeles voters, who overwhelmingly approved a \$25 million bond measure to pay for the aqueduct's construction in 1907.

## Acquiring the Land

Fred Eaton, an engineer and former Los Angeles mayor, first suggested to Mulholland that he look outside the city limits to find the water the city so desperately needed – specifically in the Owens Valley. The Owens River followed a natural course south toward Los Angeles, a direct route to the mountains north of the city, where it could be stored and diverted to thirsty urban communities.

Mulholland and Eaton encountered their first major obstacle with the newly established Federal Bureau of Reclamation, which had pledged to initiate a program to help the farmers and ranchers of Owens Valley improve their

irrigation system. Eaton pulled strings on both the state and federal level, and met with advisers to the environmentally-conscious President Theodore Roosevelt to convince them that the Owens River would serve a greater good by flowing from Los Angeles faucets rather than into Owens Valley orchards and fields. Their efforts proved successful, and the Bureau of Reclamation project was cancelled. The land reserved for this project was then held in abeyance and not reintroduced into the public domain for resale. This allowed the Los Angeles Water Department to buy up the land with no competition.

During this time, Eaton travelled to the Owens Valley to purchase water rights and land options for the city, falsely claiming he was there on behalf of the Bureau of Reclamation to help with the soon-to-be-cancelled irrigation project. As if that wasn't enough, Eaton proceeded to purchase large parcels of Owens Valley land for himself, with the hope that he would cash in when the city of Los Angeles had to buy his land to complete the project. This brazen bid for personal financial gain led to a rift with Mulholland that eventually destroyed their relationship.

Despite the questionable means by which they were procured, now with the legislation, financing and land rights in place, construction of the project could finally begin.

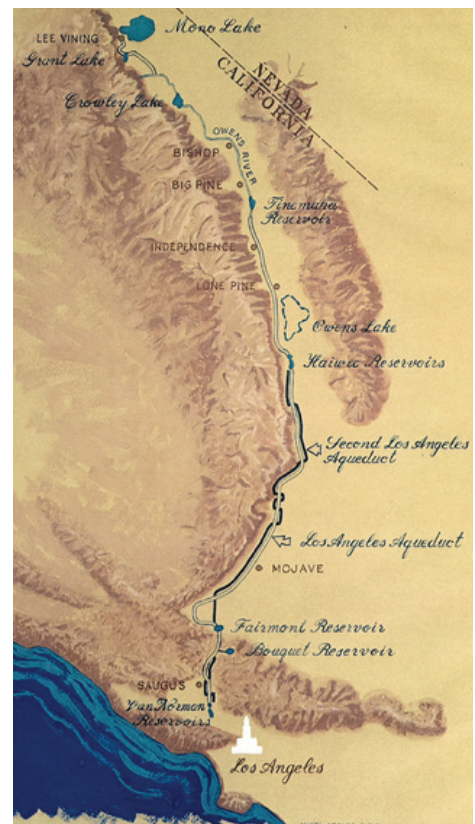
## A Force of Gravity

Construction started in 1908, and at times the sheer enormity of the project made it seem like an impossible feat. The original aqueduct infrastructure consisted of 24 miles of open unlined canal, 37 miles of lined open canal, 97 miles of covered concrete conduit, 43 miles of concrete tunnels, 12 miles of steel siphons and three reservoirs. During construction, engineers erected 120 miles of railroad track, 170 miles of power lines, 240 miles of telephone lines and 500 miles of roads to support the project and move workers and supplies to and from job sites. The plan was, once the water

reached the L.A. area, it would be stored in the San Fernando Valley aquifer, which extends 226 square miles and has a total storage capacity of almost 3.7 million acre-feet.

Even opponents of the project couldn't argue with its brilliantly simple concept. The water makes its long trip south simply by the force of gravity. The system is also cost-efficient as the water generates electricity along the way. The Los Angeles Department of Water and Power (then the Bureau of Water Works and Supply) first offered municipal electricity services in 1917, with a hydroelectric power plant that received its power from the aqueduct. This plant is still in operation today.

The original plan called for a project speed of 16 feet of tunnel dug per day, but construction moved more quickly than anticipated, and the project finished 20 months early. In November 1913, 30,000 celebrants showed up from all



The 233-mile aqueduct winds its way from the Owens River Valley in eastern California, down to the densely-populated city of Los Angeles.

over the west to see the opening of the last tunnel of the aqueduct. As Mulholland opened the tunnel and the water surged down into the awaiting development of suburban Los Angeles, he uttered perhaps the most famous words in city history as he turned the aqueduct over to the mayor – “There it is. Take it.”

## Mitigation Efforts

The population in Los Angeles soon skyrocketed, and the city started pumping more groundwater from beneath the Owens River Valley. Furthermore, soon after Los Angeles began diverting the water that fed Owens Lake, the lake went dry and the dust of the lakebed was exposed to the fierce winds of the valley. The lakebed area spanned nearly 100 square miles, and the resulting dust pollution caused serious damage to the area’s air quality. Today, Owens Lake remains the greatest single source of dust pollution in the United States.

As Fred Eaton’s secret land deals and legal maneuverings that laid the groundwork for the aqueduct became public knowledge, a culture of mistrust among valley residents soon arose. In May 1924, tensions boiled over when local farmers dynamited the Alabama Gates, a portion of the aqueduct where operators could divert water in case of an overflow. Six



Crews constructing the aqueduct in 1910. Thousands of workers were involved with the project, thanks to high turnover due largely to the harsh living and working conditions that came with the job.



This photo of Owens Lake shows the white deposits at the bottom of the lake, as well as the portions being mitigated to reduce dust (blue and green areas).

months later, valley residents occupied the gates and opened the emergency spillway - thus diverting the Los Angeles water supply back into the scorched bed of Owens Lake. Mulholland dispatched armed guards to the area, and the conflict eventually subsided. However, as no mitigation efforts were put into place, the problems persisted, and in 1976, violence erupted again, after Los Angeles announced plans to further increase its groundwater pumping. The Alabama Gates were bombed yet again, followed by dynamite launched into the Mulholland Memorial fountain near Los Angeles. These altercations became known as the California Water Wars.

Eighty years after the dust storms began and following 30 years of legal battles, Los Angeles established a dust mitigation project in the Owens Valley. In July 1998, Los Angeles and the Air Pollution Control District entered into an agreement to reverse some of the damage to Owens Lake. As of 2013, the Los Angeles Department of Water and Power (LADWP) has controlled dust at Owens Lake primarily by flooding the lakebed using excess water from the aqueduct, at a total cost of more than \$1 billion. In other portions of the lake, gravel has been used to keep the dust down. In April 2013, LADWP proposed a new conservation plan that would reduce the water used for these efforts by at least 50 percent. Under the new plan, dust will be controlled through other measures such as tillage, vegetation, water from groundwater sources, as well as the use of additional gravel and brine.

## A City Reborn

In the San Fernando Valley, the aqueduct water shifted farming from wheat to irrigated crops, and farming continued until the next phase of development converted the land use and post-World War II suburbanization took hold in the area. The advent of three new industries – motion pictures, automobiles and aircraft – also spurred urbanization and population growth in the valley. World War II production and the subsequent postwar boom accelerated this growth, and by 1960, the valley had a population of well over one million. Today, that number has nearly doubled.

And there is no denying the powerful effect the L.A. Aqueduct had on developing the City of Los Angeles. Within 20 years of completing the project, the city boasted a population of 1.2 million people, and grew from 61 square miles to 400 square miles. Today, Los Angeles is the second largest city in the United States, and includes many outlying areas that annexed to the city once it became clear that the move would allow their communities to have better access to reliable, clean water.

While the aqueduct project resulted in a devastating outcome for the Owens River Valley, there is now renewed hope that the region can be healed. Modern ethical practices and protective policies have gone a long way toward righting the wrongs of the past. Still, one certainty that remains is that there is no question as to the lasting success of the aqueduct and the tremendous growth it facilitated in Southern California. 🌱