

Crestline-Lake Arrowhead Water Agency

San Bernardino County, California

Fact Sheet

Crestline-Lake Arrowhead Water Agency (CLAWA) is a public agency created in 1962 by a special act of the California State Legislature to provide supplemental water to a portion of the San Bernardino Mountains. CLAWA's boundary contains more than 50,000 acres, including approximately 25,000 acres of United States Forest Service (USFS) land. The Agency's Board of Directors is elected, one from each of 5 Directorial Divisions within CLAWA's boundary. The Agency's revenues are from water sales, connection fees, standby (water availability) charges and taxes. It has always been CLAWA's policy not to compete with other water purveyors for retail water service within the Agency.

Prior to drilling the San Bernardino Tunnel on the East Branch of the State Water Project, the Department of Water Resources (DWR) paid the interest on the early (1967) sale of CLAWA's bonds, facilitating the early construction of portions of the Agency's permanent transmission system facilities. This early construction allowed for replacement of local water lost due to State tunnel drilling in the Crestline area, and provided early use of Agency pipelines and a storage reservoir in the Running Springs area to store local water before imported water from the State Water Project (SWP) was ever available to CLAWA.

An initial feasibility report confirmed that local well water supplies were deficient within the San Bernardino Mountain area. The need for supplemental water, as documented in the initial feasibility report, led to the legislation creating CLAWA, confirmed at an election within the Agency's boundary in 1962. A subsequent election in 1965 authorized the sale of \$7,500,000 in General Obligation Bonds for construction of a supplemental water transmission system. Given the mountainous terrain within the Agency, elevations vary from 3300' to over 7300' above sea level, requiring special high-pressure water pumping units to boost the water at 4 main booster stations up to as much as 1800' vertically each lift. Both natural gas engine-driven pumps and electric motor-driven pumps have been installed or are proposed, by phased construction, at each main booster station, for system reliability and to maximize readiness in the event of fire, earthquake or other emergency. Transmission pipelines through and adjacent to USFS lands contain fire hydrants at locations where pressures allow and vehicle access is available. This provides a unique level of protection against wildland fire. In 1969, CLAWA constructed a high-pressure test facility for the development of special pressure-reduction equipment and high-pressure valves rated up to 800 pounds per square inch (psi) for use in the Agency's water transmission system. The Agency's initial transmission system construction was completed by

1971, at which time supplemental water deliveries of SWP water commenced upon DWR's completion of filling of Silverwood Lake.

As a State Water Contractor, CLAWA sells imported water wholesale to approximately 25 retail water purveyors for domestic use and fire protection purposes. This water supply benefits the permanent population within CLAWA's boundary, along with the many additional people who visit within CLAWA seasonally or during weekends. CLAWA's maximum entitlement for SWP water is 5,800 acre feet per year, and the Agency has delivered more than 2,200 acre feet per year. The present 2024 rate for wholesale water is approximately \$1642 per acre foot.

Project related construction activities included preliminary engineering, surveying, right-of-way document preparation, preparation of construction plans and specifications, and construction staking for the Agency's entire water system from Silverwood Lake to Green Valley. CLAWA obtained all rights-of-way, performed construction inspection, and now operates and maintains the water system facilities. The Agency's water facilities (utility plant in-service) presently have a book value of almost \$53,000,000, including subsequent additions to the transmission system and construction of the Agency's distribution water systems supplying water to more than 1,000 retail services. ID A water facilities were funded in 1972 by a one-time cash contribution per lot; the 6 ID B water systems service 8 areas and were funded in 1978 by a federal grant from the Farmers Home Administration, State DWR Safe Drinking Water Bonds and a tax rate; ID C water facilities were funded in 1983 by State DWR Safe Drinking Water Bonds and a special tax; and ID D water facilities were funded in 1988 by a loan from CLAWA's General Fund, which was repaid by capacity charges.

The Agency's sole source of supply is surface water from Silverwood Lake, which is on the East Branch of the State Water Project. Maximum system design capacity of CLAWA's transmission system is 15 cubic feet per second (6,750 gallons per minute).

The quality of the Agency's potable water supply is superior, and satisfied every standard established by the State Department of Health Services and the Environmental Protection Agency. In January of 2003 the Agency placed four granular activated carbon (GAC) vessels in service at its treatment plant site to reduce the level of trihalomethanes (THMs) in the drinking water supply and to improve the taste of the treated water. That proved to be an outstanding success, reducing THMs to levels far below the levels permitted by the Health Department. In June of that same year, the Agency installed a second set of four additional GAC vessels at the treatment plant site to accommodate increased flows resulting from the increased demand experienced during the summer. In March of 2004, the Agency installed the third set of four additional GAC vessels, for a total of 12 GAC vessels at the treatment plant site to handle current maximum plant design capacity. The GAC treatment provides a permanent solution to the THM problem.

In 1978, CLAWA made application to appropriate local water from Houston Creek which is tributary to Silverwood Lake, and in 1991 the State Water Resources Control Board issued two (2) diversion permits which allow appropriations of up to 1,302 acre feet per year. Actual diversion quantities vary depending upon annual amounts of precipitation and are limited to the

amount of return flow to the Mojave watershed each year. As an example, reports for water years 1992-93 and 1996-97 filed with the State Water Resources Control Board list 617 and 608 acre-feet of water, respectively, appropriated pursuant to these permits. This local water appropriated by CLAWA is in addition to its SWP entitlement water.

Three million gallons of Agency water were used to stop the 1981 Panorama Fire, thereby protecting Rimforest and other mountain communities and forest areas within CLAWA. During Fall of 2003, more than nineteen million gallons of Agency water were used in fighting the massive Old Fire, which helped to limit fire damage to the mountain communities and forest areas within CLAWA.

Under current regulations of the South Coast Air Quality Management District, CLAWA is not assured that permits will be issued for construction/operation of additional natural gas engine-driven pumping units which CLAWA believes are necessary to maximize protection to life and property. CLAWA continues efforts to obtain permits to install and utilize these natural gas engine-driven pumping units. By phased construction beginning even before 2001, CLAWA has installed stationary natural gas engine-driven electric generator units at all six booster stations, the main office site, and at the water treatment plant, which provide electricity to critical water facilities during power failure events.

The Agency's existing water transmission facilities presently include a 14' diameter x 105' high intake tower in Silverwood Lake containing three raw water pumping units totaling 175 horsepower, a 5 million gallon per day water treatment plant with a 4,500 gallon per minute solids contact reactor clarifier; five 720 gallon per minute multi-media pressure filters with surface-wash feature; two Clearwell reservoirs totaling 3.8 million gallons; granular activated carbon (GAC) system facilities; with appurtenant chemical feed, dual on-site salt-generated mixed oxidant chlorination, clarifier alum sludge dewatering facility, and backwash water reclamation facilities; approximately 30 miles of 10" – 24" diameter transmission pipeline, Class 100-800 psi, with valves, fire hydrants, pressure reduction equipment and other appurtenances; 6 booster stations containing 21 pumping units totaling 3,735 horsepower (1,075 horsepower natural gas engine-driven pumps, and 2,660 horsepower electric motor-driven pumps); 6 transmission storage reservoirs from 0.2 – 5.0 million gallons of capacity; 1 regulating (surge control) reservoir, 36' diameter x 90' high; 2 housed on-site salt-generated mixed oxidant re-chlorination stations; a SCADA telemetering system; 8 standby generator installations from 115 – 1,250 kilowatts; and 5 high-pressure fire hydrant installations which include special pressure-reducing equipment.

In 1999, DWR completed construction of a new tunnel intake structure in Silverwood Lake, and CLAWA participated with provisions for installing up to 3 raw water pumps. Accordingly, CLAWA immediately installed two 100 horsepower pumps in DWR's new lake-outlet structure. This enables CLAWA to pump water from the second intake facility, even in the event of a lower lake level, which is a vital feature especially during emergency conditions.

The San Bernardino Mountains have suffered from inadequate precipitation in recent years, causing water shortages in areas located outside of the Agency which do not have access

to imported water. The community of Lake Arrowhead is one such area. When the Agency was originally formed, decades ago, its boundaries included Lake Arrowhead and the surrounding community. At the last minute, however, the major property owners in Lake Arrowhead elected to exclude the Lake Arrowhead community from the Agency's boundaries, confident that local water supplies in Lake Arrowhead would be sufficient to satisfy the consumptive needs of that community. But the level of Lake Arrowhead had dropped dramatically, prompting the investigation of alternative water supplies. Among the alternatives under consideration was a proposal to utilize current available capacity in the Agency's treatment plant and transmission system to treat and transport non-Agency water from Silverwood Lake to the retail system of the Lake Arrowhead Community Services District (LACSD). Every gallon of water delivered from Silverwood Lake to the LACSD system is a gallon which the LACSD does not have to take from Lake Arrowhead to satisfy consumptive demand within its service area. This does not involve the use of Agency water, and thus does not threaten the supply currently available to existing customers of the Agency. They only use system capacity not utilized to satisfy the demands of Agency customers during the year, and thus does not affect service to Agency customers. The LACSD paid a charge calculated to recover a pro-rata share of the Agency's capital facilities.

Future projects presently planned include about \$44,000,000 of phased improvements, including projects required by regulatory agencies, scheduled major maintenance work and additions to system for increased capacity for future growth.

Alber A. Webb Associates of Riverside, California has been the consulting, engineering firm for CLAWA since the Agency was formed. CLAWA's legal counsel is Best, Best, and Krieger of Riverside, California; and Rodgers, Anderson, Malody and Scott of San Bernardino, California are the Agency's certified public accountants. CLAWA is a member of the American Water Works Association. These affiliations assist the Agency in continuing to keep abreast of matters vital to the water industry and California's State Water Project in particular.