

Water Resources Plan: Lake Havasu City, Arizona

A popular retirement community and tourist destination, Lake Havasu City called on Brown and Caldwell to develop a plan to meet the water demands of its rapid growth.



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Brown and Caldwell developed a plan to meet Lake Havasu City's water demands during the retirement community and resort destination's recent rapid growth.

BACKGROUND

Lake Havasu City grew from 2,000 residents in 1964 to more than 45,000 in 2000, and the population boom continues. Providing water for year-round residents and tens of thousands of seasonal tourists is a major challenge. The city needed a Water Resources Plan to project water supply demands, address potential Colorado River shortfalls and find options for future water supply development.

PERFORMANCE

Brown and Caldwell's water-demand forecasting quantified growth projections and water supply demands for Lake Havasu City through the year 2060 and addressed short-term (seasonal) shortages. Our budget projections incorporated ongoing and future water conservation.

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Identifying and Ranking Options

To address projected supply deficits, we developed an exhaustive list of potential short- and long-term options, covering four main categories: purchase and exchange of water rights, additional groundwater supplies, additional surface water supplies and reclaimed water. We identified and evaluated a total of 15 options, working with outside legal counsel to evaluate legal availability. And we prepared technical opinions on the potential for long-term utilization.

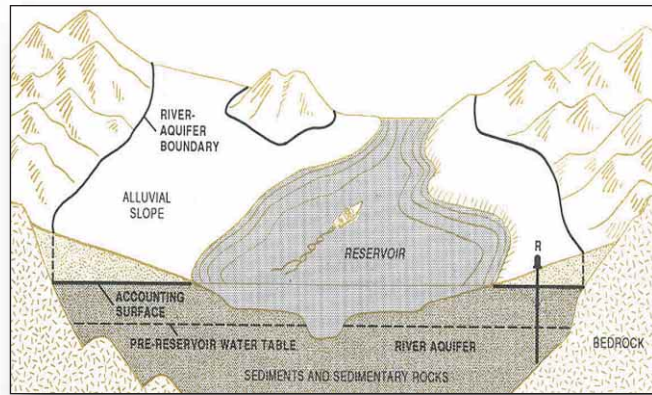
We ranked the options with a matrix analysis based on availability, as well as infrastructure requirements and potential impacts from related issues. This last category provided a means to account for uncertainty in the calculation of the score for each of the options. The result was a tool for city staff to quantify and rank potential water supply options, with enough flexibility to update the analysis in coming years.

Cost Analysis

The initial ranking indicated the preferable options to be recharge and recovery utilizing reclaimed water, Colorado River water transfers and construction of irrigation conservation devices in exchange for the water saved. To provide a basis for cost comparisons and to facilitate water-supply decisions, Brown and Caldwell provided conceptual engineering costs for water supply options that included substantial infrastructure. The engineering options included importation of groundwater from an adjacent sub-basin, aquifer recharge and recovery and use of reclaimed effluent in wetland recharge.

Education

Through a series of presentations to the city council, Brown and Caldwell educated council members on the water supply issues that the city will face in the future. Since the process of developing a water resource typically takes seven to 10 years, Lake Havasu City is now in a position to address its future water shortages in a timely manner.



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Water Conservation Plan

The U.S. Bureau of Reclamation mandates water conservation in Lake Havasu City as part of the obligation for receiving an allocation of Colorado River water. The city has practiced water conservation for many years, yet it did not have a formal plan in place. Its first attempt at submitting one was bounced back, unapproved and with several pages of comments. In 2000, Brown and Caldwell was enlisted to update certain sections of the plan—water supply, water demand, wastewater infrastructure and wastewater reuse—and to address all the Bureau's comments.

The revised plan summarized existing conservation measures, quantified the impacts of conservation on water demand, and assessed additional conservation policies for applicability to Lake Havasu City. Brown and Caldwell also demonstrated the efficacy of the city's existing conservation policies, such as its pricing policy. Our analysis of the history of the pricing policy and its effects on water demand clearly showed success.

The study also identified domestic users as the target population for maximum potential conservation, specifically during the summer season. Conservation measures already in place were formally acknowledged in the Conservation Plan, and additional measures were incorporated to target domestic and seasonal water demands, including Xeriscape workshops, a feasibility study of a summer surcharge pricing policy, a formal drought/water shortage contingency plan, an expanded information and education program and a Water Conservation Coordinator. The Conservation Plan was communicated to the city council in a series of presentations and was approved without changes.

The revised plan was resubmitted to the Bureau of Reclamation in 2001. The Bureau approved it and awarded Lake Havasu City grant money to implement the new policies.

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