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Executive Summary

Las Vegas Valley is growing rapidly, bringing new people and new opportunities. While this growth has benefited the region and its residents, it also presents new challenges. One of the most significant challenges is satisfying the growing water needs of the Valley in an equitable and sustainable way.

The Pacific Institute and Western Resource Advocates have reviewed Las Vegas' water conservation and efficiency efforts and potential. We commend local water agencies for implementing a number of innovative programs but conclude that considerably more can be done to capture existing inefficient and wasteful water uses, both indoors and outdoors.

Our review of single-family residential customers, hotels, and casinos indicates that installing water-efficient fixtures and appliances could reduce current indoor water demand by 40% in single-family homes and nearly 30% in hotels and casinos. Installing water-efficient landscapes could further reduce current outdoor water demand by 40% in single-family homes. Many of these efficiency improvements can be implemented at a lower cost and with fewer social and environmental impacts than developing new water supplies.

Key Findings

Las Vegas has developed and implemented innovative conservation and efficiency programs in the past. Nevertheless, Las Vegas is falling behind other western United States cities in its efforts to cut wasteful, inefficient uses of water.

Las Vegas has implemented only a small fraction of the various water-efficiency programs being used successfully throughout the western U.S. This is one reason Las Vegas residents use significantly more water per person, both indoors and outdoors, than residents of Tucson, Albuquerque, Los Angeles, and other arid and semi-arid U.S. cities.

Water conservation and efficiency improvements in Las Vegas can defer or eliminate the need for new water supply facilities.

Efficiency improvements are often far less costly to consumers and avoid the social and environmental impacts associated with building new supply and treatment infrastructure. Developing new supply, conveyance, and treatment facilities should be pursued only once more cost-effective options have been implemented.

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While Las Vegas residents have reduced outdoor demand in recent years, outdoor use is still higher than in other arid and semi-arid U.S. cities.

One of the most innovative and well publicized conservation programs in the Las Vegas Valley promotes the removal of turf. Despite the initial success of this program, Las Vegas homeowners continue to use a large proportion of their water outdoors, where it evaporates and is lost from the system. Water utilities can and should expand incentives and education efforts to further reduce outdoor water use.

Water conservation efforts in Las Vegas largely ignore the potential for indoor efficiency improvements, particularly for single-family homes. Those measures targeting indoor water waste have been poorly implemented.

While many water agencies in the western United States offer homeowners rebates and other incentives to replace wasteful fixtures and appliances with more efficient models, these incentives are not available to many Las Vegas residents. The Water Efficient Technologies (W.E.T.) Program provides rebates for some efficient appliances to multi-family, commercial, and industrial customers, but this program has provided rebates for only 30 projects since 2002. Expanding indoor efficiency efforts and improving implementation could provide substantial water savings.

Water agencies in the Las Vegas Valley have failed to prioritize measures that improve indoor water-use efficiency, because these agencies earn return flow credits for wastewater returned to the Colorado River. By putting more emphasis on return flow credits than indoor efficiency, agencies miss opportunities to:

- Reduce energy and chemical costs associated with pumping, treating, and transporting water and wastewater.
- Reduce energy-related greenhouse gas emissions.
- Save the customer money over the life of those improvements through reductions in energy, water, and wastewater bills.
- Permit more people to be served with the same volume of water, without affecting return flows.
- Reduce dependence on water sources vulnerable to drought and political conflict.
- Delay or eliminate the need for significant capital investment to expand conveyance and treatment infrastructure.

Water rate structures in the Las Vegas Valley fail to adequately encourage water conservation and efficiency improvements.

People respond to price signals. Yet water agencies in Las Vegas underestimate the importance of proper water pricing. Las Vegas has relatively high fixed rates

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and lower per-unit rates than many other arid and semi-arid cities in the West. Together, this rate structure does not adequately encourage efficient water use.

Long-term planning efforts fail to include conservation improvements and thus may overestimate future demand.

While progress has been made in recent years, water demand projections for the Las Vegas Valley suggest that future efficiency improvements will be small. Per capita water demand is projected to decline 7% over 30 years. This modest improvement suggests that cost-effective, technically achievable efficiency improvements, including those required in new construction by existing ordinances, are not adequately integrated into future demand projections.

Increasing indoor and outdoor water-use efficiency does not result in demand hardening.

Some water planners argue that extensive conservation removes the slack in the system, hindering their ability to reduce demand in the event of a water shortage—a concept referred to as “demand hardening.” While demand hardening could be a concern in certain situations, its importance has been overstated. Furthermore, this argument ignores a number of key points, discussed in the full report.

Combining the conservation and efficiency strategies this study identifies with programs and policies the Southern Nevada Water Authority (SNWA) has already implemented will reduce vulnerability to future drought and increase overall system reliability.

The SNWA has developed and promoted innovative policies and programs that help make the Las Vegas Valley’s supply more reliable and drought-tolerant. Reducing demand through water conservation and efficiency improvements can improve system reliability further.

In conclusion, we find that Las Vegas could significantly expand efforts to reduce inefficient and wasteful water use.

Water demand in Las Vegas is high, substantially higher than in many other Western communities. While data limitations prevent a full end-use analysis of all water users in the Las Vegas Valley, our review of single-family residential customers, hotels, and casinos indicates that installing water-efficient fixtures and appliances could reduce current *indoor* water demand by 40% in single-family homes and nearly 30% in hotels and casinos. Installing water-efficient landscapes could further reduce current *outdoor* demand by 40% in single-family homes. In total, we estimate that water conservation and efficiency improvements for just these three sectors could reduce current water diversions by more than 86,000 acre-feet per year. Behavioral changes and efforts in other water-using sectors can produce even greater reductions.

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Recommendations

Las Vegas' water planners, managers, and residents can take several steps to reduce water and energy waste.

Improve efficiency in existing homes and businesses.

- Expand efforts to reduce outdoor water demand, using incentives for conservation and penalties for excessive water use.
- Implement a comprehensive set of indoor water-efficiency programs that target older homes and high-volume users, including rebates and audits for residential, commercial, and industrial users; retrofit efforts; education programs; and more.
- Expand efforts to develop a tiered block rate structure that incorporates low fixed costs, low rates for water sufficient to meet basic indoor needs, and a sharply increasing rate for higher-volume outdoor uses.
- Adopt ordinances that target indoor water use, such as retrofit-on-resale ordinances.
- Expand efforts to work with resorts, casinos, hotels, and other businesses to improve their water-use efficiency.

Ensure that new developments are highly efficient.

- Develop more aggressive ordinances to further limit turf area in new developments.
- Provide better financial incentives to builders and developers who install water-efficient landscapes and devices that exceed current indoor water-efficiency standards.
- Encourage developers to install community pools rather than private pools.

Continue to develop educational programs.

- Create a culture of conservation by developing a consistent message about the importance of indoor and outdoor conservation.
- Offer public awards for innovative conservation programs.

Develop alternative, local supplies where cost-effective.

- Institute a market-based system by which casinos or other users can conserve water from private wells and sell it to the SNWA.
- Estimate the quantity of shallow groundwater, or nuisance water, currently in use. Treat and use nuisance water where the quality and costs permit.
- Manage urban runoff and floodwaters so as to improve groundwater infiltration and recharge.



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