

SOUTHERN NEVADA
WATER AUTHORITY

Five-year Conservation Plan 2004-2009

August 2004

Submitted to the US Bureau of Reclamation in fulfillment of the requirements for
Section 210(b) of the Reclamation Reform Act of 1982

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I. Overview of the Southern Nevada Water Authority

The Southern Nevada Water Authority (SNWA or “Water Authority”) was formed in 1991 by a cooperative agreement among the following seven water and wastewater agencies in Southern Nevada:

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Water Reclamation District
- Las Vegas Valley Water District

Collectively, these seven agencies provide water and wastewater services to approximately 1.6 million citizens in Las Vegas, North Las Vegas, Henderson, Boulder City, Laughlin and portions of unincorporated Clark County.

The Water Authority is the wholesale water provider to the municipal water agencies in Southern Nevada. In addition to its wholesale treatment and delivery responsibilities, the Water Authority acquires and manages long-term water resources for Southern Nevada.

The Water Authority’s mission is to manage the region's water resources and develop solutions that will ensure adequate future water supplies for Southern Nevada. The mission encompasses the following major responsibilities:

- Managing all water supplies available to Southern Nevada through an approved water budget.
- Addressing regional water resource management and conservation programs.
- Ensuring regional water quality as determined by EPA standards.
- Presenting a unified position on water issues facing Southern Nevada.
- Operating regional facilities to provide a reliable drinking water delivery system to all member agencies.

The Water Authority plays a critical role in managing water, but does not have the power to regulate water use by end users or to establish customer rates. Such policies, codes and regulations can only be implemented through the Water Authority's member jurisdictions. The role of the Water Authority on regulatory issues is to facilitate information sharing and collaboration among member agencies. Interagency collaboration has been extremely successful in developing community-wide water efficiency policies. Education, outreach and incentive programs are largely handled by the Water Authority.

Interagency collaboration and public participation have been critical to the past successes of the Water Authority. The Water Authority is committed to a philosophy of involving community stakeholders and the public in developing future programs.

II. The Role of Conservation in Resource Planning and Management

In 1996, the Water Authority adopted its first comprehensive Water Resource Plan to identify and prioritize future water resource options for Southern Nevada. The 1996 plan projected demands to 2050 and identified a portfolio of existing and planned water supply options to meet demand. Demand projections were largely based on projected populations, but also anticipated that demand would be suppressed through significant conservation efforts. The Water Resource Plan is reviewed annually and updated as needed to assure it reflects current water resource policies and the ongoing initiatives of the Water Authority.

In 2002 the Water Resource Plan was updated to reflect current demand and water conditions. The 2002 plan included the prospect of surplus water that was projected to be available under the Department of Interior's Interim Surplus Guidelines. This policy allowed urban users to take water from the Colorado in excess of their apportionment when the river system was deemed capable of accommodating additional withdrawals. At the time of the policy's adoption, the Bureau of Reclamation was predicting high potential that surplus water would be available.

The 2002 plan also included a discussion of the critical role conservation plays in the Water Authority's demand forecasts and in efforts to meet future water demands. Conservation effectively provides an additional resource by freeing up water that was previously consumed inefficiently or wasted. In this sense, it is the most cost-effective source of water available to the community. It is also a resource over which the local community has a great deal of autonomy to implement, since it depends on our own efforts and less on influences outside the community.

The Water Resource Plan was updated again in 2004, largely to reflect the Water Authority's strategies for addressing the severe drought in the Colorado River basin. The Bureau of Reclamation's revised forecasts projected a low likelihood that surplus water would be a reliable supply in the near future. As a result, the 2004 plan strongly emphasizes conservation as a tool to maximize the use of currently available resources,

with special attention to responding to drought conditions on the Colorado River. Banked water in Southern Nevada's aquifers and in Arizona are emphasized as contingency resources that can be called upon if needed.

The severe drought has reduced the probability of surplus water and highlighted the need to accelerate development of the additional water rights within the state of Nevada. In addition to expanding the available water supply, the diversity of supplies will afford the Water Authority greater flexibility to develop strategies to adapt to changing conditions.

The Water Authority has identified three distinct projects to develop these water resources, including projects for Three Lakes Valley Groundwater Development, Virgin and Muddy Rivers Surface Water Development and Clark, Lincoln and White Pine County Groundwater Development. To optimize the development, treatment and delivery of Southern Nevada's existing and potential water resources in a manner that promotes responsible resource management, environmental protection and operational efficiency, the Water Authority has initiated a stakeholder process to assist in developing an Integrated Water Plan (IWP). The IWP process will assess the availability of each resource and the combined capacity needs of water treatment and transmission facilities with the input of affected stakeholders. Conservation will play an integral role in the IWP to assure that the Water Authority is using its current and future resources efficiently and responsibly.

Despite the potential to call upon banked water to meet demands, conservation continues to be Southern Nevada's most vital demand management tool. Since the mid-1990's, the Water Authority has developed and deployed one of the most progressive and comprehensive conservation programs in the United States. As a result of the drought, the Water Authority and its member agencies have redoubled their efforts to strengthen community conservation efforts. The SNWA drought plan, which identifies special measures to be taken to reduce water demands under various levels of drought, was developed in 2002 with the participation of all member agencies and input from community stakeholders. The drought plan was formally adopted as an amendment to the Water Resource Plan in January 2003 and updated in February 2004.

III. Conservation Goals, Strategies and Measures

A. Background

The Water Authority's conservation efforts during the 5-year planning period will be heavily influenced by drought. The strategy for reducing demand under drought is somewhat unique in that the majority of the strategies and tactics are expected to produce long-term demand reductions, even after drought conditions have abated. Furthermore, the SNWA Drought Plan made a concerted effort to sustain quality of life and vitality of the economy. This balanced approach has resulted in drought management tactics that the community has overwhelmingly

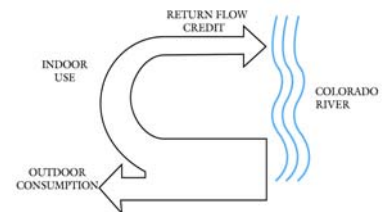
accepted. As a result of this acceptance, many of the lessons learned from drought can be carried into longer-term demand management strategies.

Although the Water Authority supports and promotes water conservation both indoors and outdoors, the preponderance of effort goes into promoting more efficient use of water outdoors. Approximately 60 percent of the water delivered to customers is used consumptively, meaning it can be used just once and is evaporated to the atmosphere. Urban landscape irrigation is the single largest consumptive use of water.

All indoor water use is reclaimed to be either returned to the Colorado River, or delivered to other urban uses, such as irrigation or cooling.

In addition to water reclaimed for return to the Colorado River, the Water Authority's member agencies reclaimed almost 22,000 acre feet of water that was reused within the community in 2003.

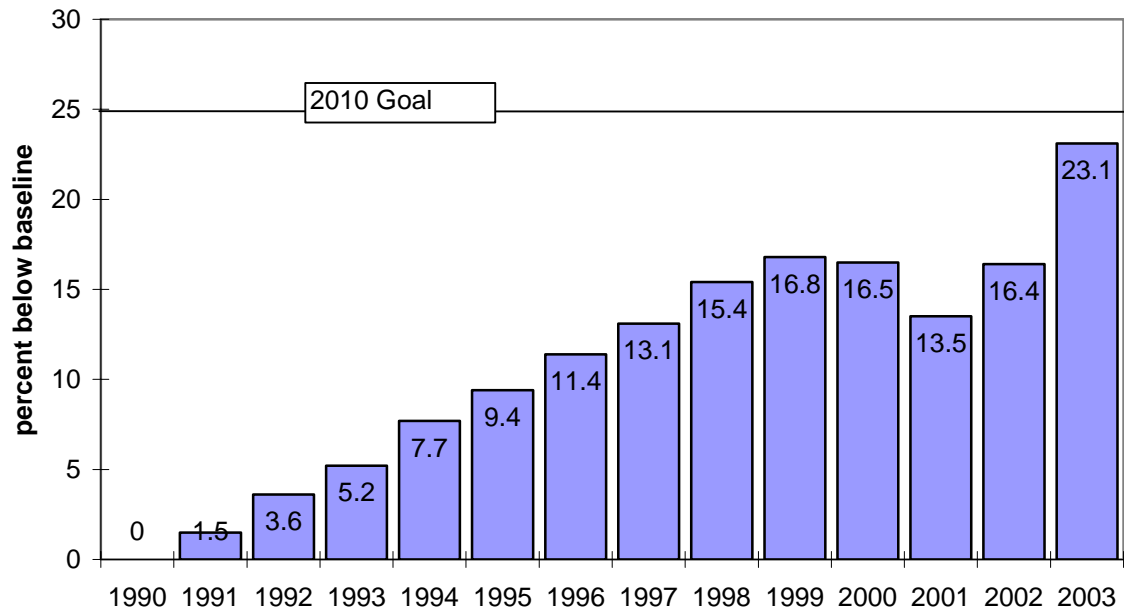
In accordance with Bureau of Reclamation policy, the Water Authority receives credit to withdraw one acre-foot of water from the Colorado for every acre-foot of Colorado River water that was treated and returned. As a result, additional local reuse does not currently enlarge the Water Authority's resource portfolio. It is, however, environmentally responsible by reducing the infrastructure and energy required to move water and wastewater in the valley.



B. Conservation Goals and Strategies

The Water Authority's conservation goal is to achieve 25 percent conservation by 2010. Conservation progress is measured by annually comparing the community's actual water use to the expected water use without conservation measures in effect. Figure 1 shows annual incremental goals and the Water Authority's historic achievement.

Figure 1 - Conservation Goal and Achievement



To measure conservation, the Water Authority uses an explanatory regression model to determine which variables influenced the valley’s water use during the preceding year. Although the model has identified a substantial number of relevant variables, the most significant are related to population, weather and economic indicators. These data are obtained from other agencies on an annual basis.

To meet the 25 percent goal, Southern Nevada was expected to gradually increase conservation each year. Starting in 1991, the community met its annual goals for nine consecutive years. In the three year period 2000 through 2002, however, conservation efforts failed to meet the goal.

The trend of sub-goal performance was halted and dramatically reversed in 2003, when the community achieved 110 percent of the incremental annual goal. The 23.1 percent achievement in 2003 approaches the incremental goal originally set for 2006. This dramatic rebound is thought to be attributable largely to the efforts of the Water Authority and its member agencies to aggressively stimulate conservation through implementation of drought-driven demand management tools.

By applying the conservation achievement to the Water Authority’s actual water use, the estimated volume of conserved water may be calculated. Table 1 shows the estimated 493,800 acre feet of water use estimated to have been averted by conservation during the previous five-year planning period.

**Table 1 - SNWA Member Water Use and Conservation Estimates
1999 to 2003**

Year	SNWA Water Use (acre-feet) ¹	Annual Conservation Estimate	Estimated SNWA Potable Water Use without Conservation (acre-feet)	Estimated volume of conserved water (acre-feet)
1999	429,300	16.8%	516,000	86,700
2000	459,100	16.5%	549,600	90,500
2001	479,600	13.5%	554,700	75,100
2002	500,000	16.4%	598,100	98,100
2003	477,500	23.1%	620,900	143,400

Conservation Strategies - While the list of the Water Authority's individual conservation programs, products and services is diverse and lengthy, each is a tactical measure in support of one of three major strategies:

Education – The Water Authority conducts extensive public outreach efforts to assure that water users understand issues of resource availability and wise use.

Incentives – The Water Authority operates the nation's largest known incentive programs to encourage existing customers to make long-term efficiency improvements.

Regulation and Policy – Although the Water Authority itself has no regulatory oversight, collaborative efforts among the member agencies have resulted in the implementation of highly-effective conservation policies, including landscape and plumbing standards, water waste enforcement and tiered water pricing.

¹ Water use includes deliveries of water from the Colorado River and local groundwater. Does not include reuse water.