



DRINKING WATER



EXECUTIVE SUMMARY

Nearly three-quarters of the population of Nevada lives in the Mojave Desert, a region that receives less than six inches of rainfall annually. The remainder of the state is considered “semi-arid” and can be subjected to intermittent periods of drought. These conditions require long-term planning to ensure that water resources remain renewable, reliable and sustainable. The 6th Drinking Water Infrastructure Needs Survey and Assessment issued by the EPA reported that Nevada will require \$5.316 billion for water system improvements over the next twenty years, three quarters of which will be needed for large capacity systems. Though much of Nevada’s existing drinking water infrastructure is new in relation to the national average, the projected growth for the Las Vegas and Reno areas requires a level of investment that exceeds what has been the trend over the past decade. Nevada’s rural areas have struggled to keep up with their water systems needs due to lack of resources and funding, which is an on-going theme in all aspects of infrastructure in the state.

CONDITION & CAPACITY

SOUTHERN NEVADA

Southern Nevada is served by Southern Nevada Water Authority (SNWA), a water wholesaler, which represents seven member agencies. SNWA is responsible for water treatment and delivery to the individual agencies who then operate distribution systems to their customers. Approximately 90% of water used in the Las Vegas Valley comes from Lake Mead with the remaining 10% coming from groundwater sources.

The Las Vegas Valley Water District (LVVWD) comprises more than 6,500 miles of pipeline, 53 pumping stations, 70 reservoirs/tanks, 76 production wells and approximately 400,000 customer water meters. It is the largest service provider in the area with approximately 1.4 million customers. Starting in 2007 and coinciding with the economic recession, LVVWD switched from construction of new facilities to a robust asset management program, which helps them prioritize necessary repairs. LVVWD also operates the Big Bend Water District that serves a population of 9,000 in Laughlin, Nevada.

The City of Henderson provides about 15% of its community drinking water through a 15 MGD treatment plant. Henderson also receives its water from Lake Mead; the treatment process includes filtration and disinfection with ultraviolet (UV) light which reduces the amount of chlorine needed to maintain water quality.

NORTHERN NEVADA

Truckee Meadows Water Authority (TMWA) is a public authority providing water services in the Truckee Meadows of Washoe County in Northern Nevada, which serves more than 330,000 residents. The Authority is governed by a seven-member Board of Directors, appointed by the cities of Reno and Sparks and Washoe County.

TMWA’s water sources include Lake Tahoe, upstream reservoirs, the Truckee River and tributaries, and wells, all of which provide source water that is of high quality, meeting, and in many cases exceeding, all required standards. A Water Quality Assurance program has been implemented to ensure this high standard continues to be met in the future. While there is a risk to source water reliability from turbidity and toxic spill events, TMWA has sufficient well capacity and distribution storage to meet customer demands during a water quality emergency; additional actions are available to TMWA in the event of extended off-river emergencies. An earthquake in 2008 tested TMWA’s emergency response plan with a loss in water supply and demonstrated TMWA’s ability to respond by having trained staff and available alternate water supplies. TMWA has a robust Source Water Protection Program in place designed to preserve and enhance available surface water and groundwater supplies and to address known and potential threats to water quality.



RURAL NEVADA

In 2017, the Nevada Department of Environmental Protection (NDEP) Bureau of Safe Drinking Water reviewed compliance data from 598 public water systems based on State and Federal regulations. All systems that exceeded maximum containment levels were considered non-compliant. Twenty eight systems were non-compliant with primary drinking water standards and 25 communities were non-compliant with secondary drinking water standards. The table below is the summary of findings from the subsequent report.

Table 1. Non-compliant Water System

Level	Contaminant	Number of Public Water Systems Non-Compliant	Population Size
Primary	Lead	2	36-1040
	Copper	2	40-1512
	Antimony	1	38
	Arsenic	18	40-1024
	Nitrate	5	50-100
	Organic Chemicals	1	40
	Disinfection Byproduct	1	574
	Total Coliform	2	25-40
	E. Coli	1	70
	Secondary	Manganese	8
Total Dissolved Solids		5	25-386
Fluoride		3	38-90
Iron		5	25-60
Chloride		1	41
Sulfate		3	25-150
Odor			250-1240
Aluminum		1	100

The table above illustrates that there is a divide between urban and rural communities in Nevada. The 28 non-compliant communities are all considered rural since their populations are under 10,000 people. Most of these communities rely on well water with limited treatment, and the cost of treatment for some of these items can far exceed the budgets of small community public water systems. Overall, however, Nevada’s public water systems are providing high quality water within stable infrastructure as only 0.05% of the state’s public water systems were out of compliance.



O&M & FUNDING

SOUTHERN NEVADA

To finance capital projects associated with system maintenance and expansion, the LVVWD uses funds generated through a combination of bond proceeds, water rate revenue and low-interest loans from the State Revolving Fund for drinking water systems. These three revenue streams provide access to funds for necessary improvements and save ratepayers money by reducing interest costs, a benefit of the LVVWD's AA Standard & Poor's rating and Aa1 Moody's rating. As economic activity in the Valley has started to pick up again, the 2017 Capital Improvement Projects are valued at \$616 million over a 10-year planning horizon and include new facilities such as reservoirs and pump stations, asset management including rehabilitation, and water quality improvements.

As population growth has rebounded, agencies are completing projects that have been sidelined in previous years. The City of Henderson's 2018-2023 CIP has about \$61 million set aside for water infrastructure, which includes new and replacement pipelines, reservoir rehabilitations and \$500,000 annually for a service line replacement program. In 2017, the Big Bend Water District Board of Trustees, which oversees a community of 7,300 people, approved recommendations made by a citizens' advisory committee on how to fund necessary improvements needed to maintain Laughlin's water system over the next 10 years. These recommendations included pursuing grants, increasing water rates, and phasing them in to avoid rate shock.

Over the next 10 years, Laughlin's public water system requires approximately \$9.2 million in system improvements, pipeline replacements, treatment upgrades and a new emergency well. These capital expenditures are needed to maintain a reliable water system for Laughlin's residents and businesses who depend on quality drinking water supplies.

NORTHERN NEVADA

The TMWA has developed a 5-year Capital Improvement Program (CIP), focused mainly on operation and maintenance. The 2018-2022 CIP envisions a total of \$172.8 million of spending, with approximately 74.9% or \$129.5 million of this total amount dedicated to upgrades or replacement of existing infrastructure, and approximately 17.2% or \$29.8 million allocated to construction of new water system capacity projects,

The 2018-2022 CIP will rely on various funding sources to pay for capital projects/capital outlays. TMWA relies heavily on revenues generated from water sales, hydroelectric, and other operating sales to fund the majority of projects. Developer contributions have historically been an important funding source for certain construction projects of new and expanded water system capacity. Collection of developer fees (aka "new money") have been at historical lows since the inception of TMWA. TMWA has not been reliant on these fees to fund operations or fund annual principal and interest payments on TMWA's outstanding debt. However, in fiscal year 2017, residential and commercial development activity has accelerated, providing additional resources to fund projects listed in the 2018-2022 CIP for new and expanded service. While acknowledged, TMWA's 2018-2022 CIP does not rely solely on funding from new money at this time. Investment income is also available to augment other revenue sources but is minor in relation to other funding sources.

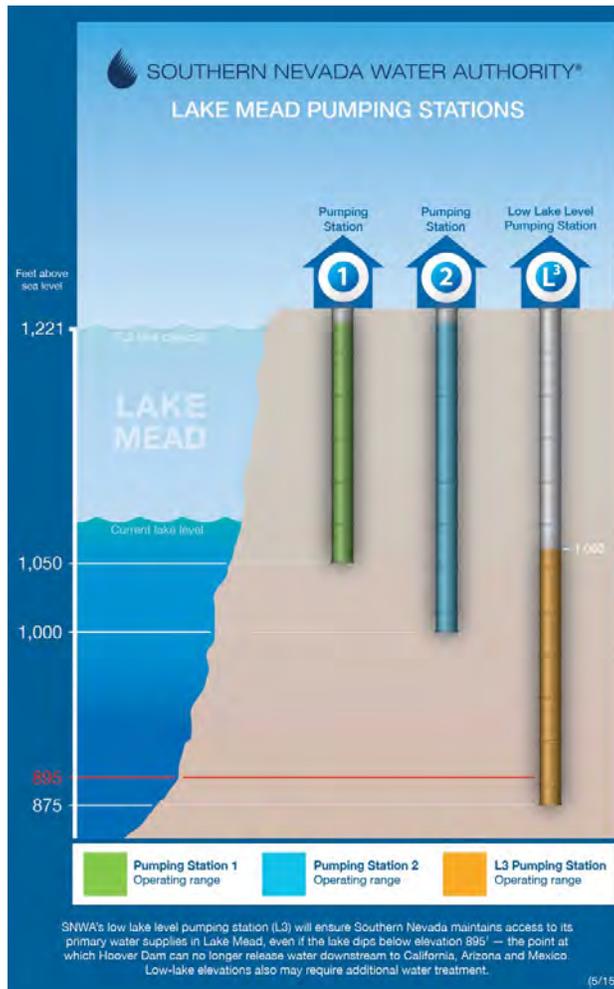


FUTURE NEED

According to the 6th Annual Drinking Water Needs Survey from the Environmental Protection Agency (EPA), Nevada drinking water infrastructure requires a total of \$5.316 billion in needed funding over the next 20 years. Most funding – \$3.964 billion of the total – will be required for large systems.

SOUTHERN NEVADA

SNWA is completing construction on a lower intake, named Intake No. 3, to Lake Mead. Intake No. 3 ensures Southern Nevada’s access to its primary water supply if lake levels continue to decline due to drought conditions. It also protects municipal water customers from water quality issues associated with declining lake levels. In addition to Intake No. 3, construction of a \$650 million low lake level pumping station is underway. This pumping station will ensure Southern Nevada still has access to its primary water supplies in Lake Mead, even if the lake dips below elevation 895’ which is where Hoover Dam can no longer release water downstream to California, Arizona, and Mexico.



Source: Southern Nevada Water Authority



NORTHERN NEVADA

The Truckee Meadows Water Authority's capital improvement plan estimates that there will be upwards of \$172 million for fiscal years 2018-2022. Approximately 74.9%, or \$129.5 million of this total amount, is dedicated to upgrades or replacement of existing infrastructure, and approximately 17.2%, or \$29.8 million, is allocated to construction of new water system capacity projects, conjunctive use construction projects, retrofit of remaining unmetered services, and potential opportunistic acquisition of water rights. However, TMWA may not have sufficient funding to meet all its capital needs each year or may divert funding to meet unexpected capital improvements. If such conditions arise, projects are prioritized based on the effect each project has on TMWA's ability to meet customer demand and maintain water system reliability. They have created three priority categories: Mandatory, Necessary and Contingency.

PUBLIC SAFETY

The public water systems in Nevada have continued to provide very high-quality water to residents within an uncertain water future. Dependence on groundwater sources, especially among rural communities, will need to be monitored as the threat of depleted groundwater sources can threaten communities.

RESILIENCE & INNOVATION

The Las Vegas Valley currently gets 90% of its drinking water from Lake Mead. An innovative approach of return credits has allowed the Valley to grow while not increasing the total volume of water removed. Wastewater from the Valley is treated to very high standards and returned to Lake Mead through the Las Vegas Wash. The volume of water returned is quantified and a credit is given to SNWA. This is indirect reuse of Lake Mead and allows the community to flourish while remaining within the tight water allotment for Nevada. Research already suggests that this method of indirectly reusing wastewater is increasing concentrations of contaminants that might impact the future health of residents. Monitoring and staying in front of the research will be essential to ensure community health for generations to come.

Though record snowfall over the winter of 2016-17 in the mountains surrounding Lake Tahoe in Northern Nevada brought the lake back to nearly full levels, the area remains susceptible to periodic drought. However, with the adoption and success of aggressive conservation programs, Nevada has become a model for sustainability in water supply. This model will continue to be tested, as the quickly growing population and drought will remain to be the two biggest challenges to overcome. These conditions also highlight the elevated importance of a well-maintained and extensive drinking water infrastructure.



RECOMMENDATIONS TO RAISE THE GRADE

- In both Southern and Northern Nevada, conservation efforts have been so effective that revenues from water sales are at all-time lows. Therefore, creative and innovative strategies must be explored to ensure funding sources remain available for capital improvement projects. These may include developer contributions, bonding, or collaboration with other government entities.
- In rural communities, alternative and/or additional treatment methods should be considered to bring drinking water into federally compliant standards.
- In areas of the state that have more abundant watershed resources, improved drainage systems and storage capacity can help preserve water as a resource in particularly wet seasons instead of a hazard due to runoff.

FIND OUT MORE

https://ndep.nv.gov/uploads/water-drinking-consumers-source-docs/2018Q1_PWS_Non-Compliance_Summary.pdf

Truckee Meadows Water Authority (2017). Five Year Capital Improvement Plan: Fiscal Year 2018-2022. Accessed from <https://tmwa.com/wp-content/uploads/docs/financial/2017-2021CIP.Packet.pdf>

<https://tmwa.com/article/where-does-tmwa-get-their-water-supply/>

Truckee Meadows Water Authority (2016). 2016-2035 Water Resource Plan: Volume I Abstract. Accessed from https://tmwa.com/docs/your_water/2035WRP/_2035_WRP_VolumeI_Abstract_Final.pdf

Drinking Water Infrastructure Needs Survey and Assessment - 6th Report to Congress
https://www.epa.gov/sites/production/files/2018-10/documents/corrected_sixth_drinking_water_infrastructure_needs_survey_and_assessment.pdf

