WATER CONSERVATION & PROTECTION

GOALS

- Decrease water consumption in County operations.
- Improve area water quality by reducing impacts from County operations.
- Support policies, programs, and regional collaboration for improved water quality, water conservation, and drought management.

Located in the Mojave Desert and serving more than 2.3 million residents and 45.6 million visitors per year,[15] Clark County understands that water supply, use, and management, including ***stormwater management***, are essential to supporting life in the valley. That's why the County became a leader in water conservation and management efforts – to ensure not only long-term viability, but prosperity for the County, its operations, and all those that it serves. It has transitioned to xeriscaping on County facilities and adopted and implemented numerous water waste ordinances, including Chapter 24.30 (wasting water), 24.34 (water use restrictions), Title 30 (unified development code), and Las Vegas Valley Water District Service Rules.[16]

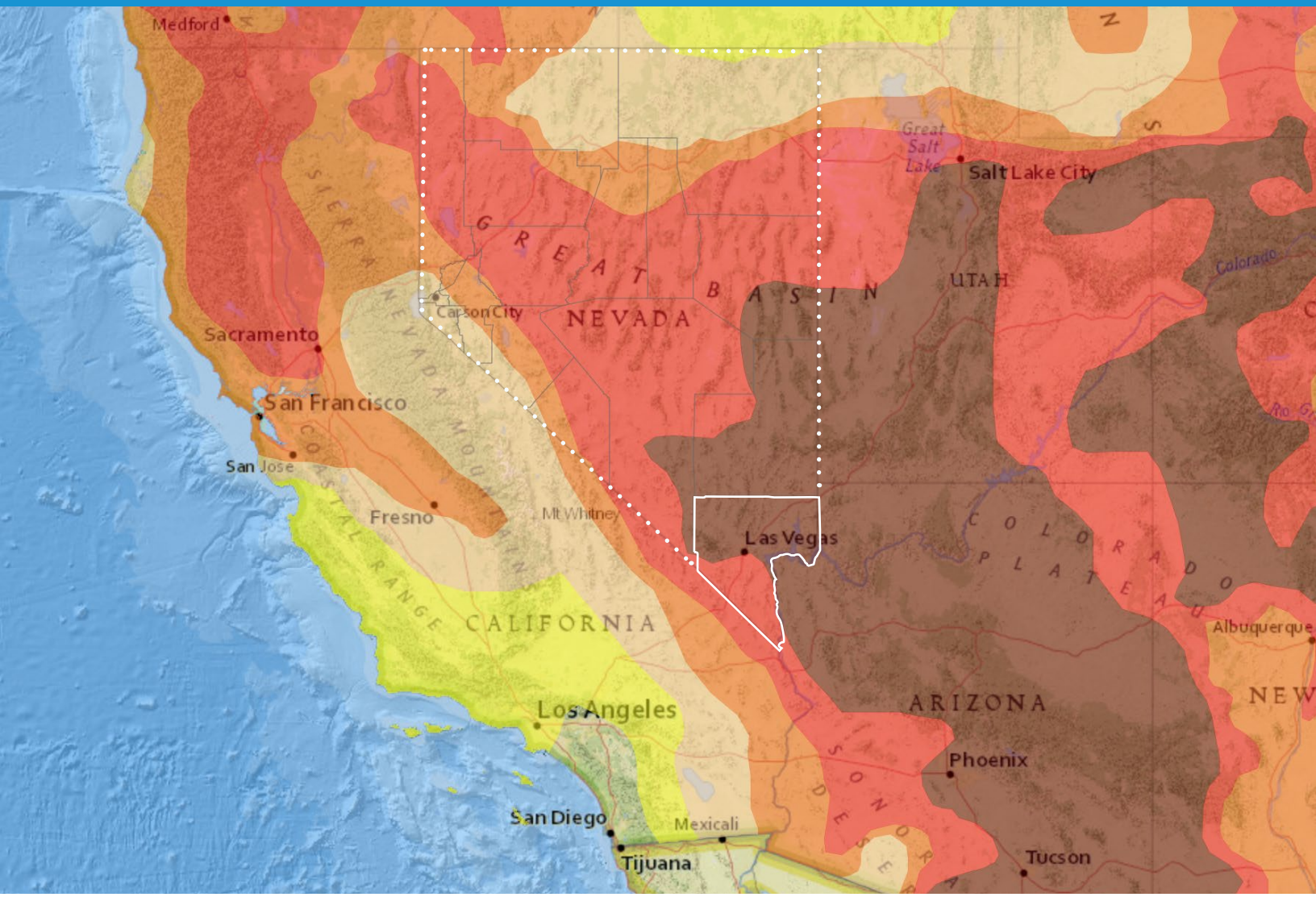
In 2018, Clark County came together with the Southern Nevada Water Authority and the six municipalities and water districts in the valley to develop a joint water conservation plan to reach its conservation goal of 105 gallons of water per capita per day by 2035, among other goals. With a single main source of water – Lake Mead, fed by the Colorado River – Clark County understands the critical nature of conserving a resource that has continued to decline in the face of booming population growth and drought impacts from the effects of climate change. Significant work will be required to maintain water supply and quality with the addition of approximately 400,000 more residents by 2030 and 820,000 residents by 2060.[3]

Stormwater
noun

Stormwater is water runoff from rain events that flow over land or impervious surfaces and does not reabsorb back into the ground.

DID YOU KNOW?

In November 2020, the Southern Nevada Water Authority (SNWA) released its latest annual Water Resource Plan. The plan provides a comprehensive overview of water resources available to meet regional water demands over a 50-year planning horizon and analyzes potential impacts, including those related to climate change, that could influence water resource availability as well as water demands over the next 50 years.



2020 DROUGHT LEVELS IN CLARK COUNTY AND ACROSS NEVADA

Source: National Integrated Drought Information System.

D0 - Abnormally Dry
- Short-term dryness slowing planting, growth of crops
- Some lingering water deficits
- Pastures or crops not fully recovered

0.6% of State | **100.0%** D0-D4

D1 - Moderate Drought
- Some damage to crops, pastures
- Some water shortages developing
- Voluntary water-use restrictions requested

16.2% of State | **99.4%** D1-D4

D2 - Severe Drought
- Crop or pasture loss likely
- Water shortages common
- Water restrictions imposed

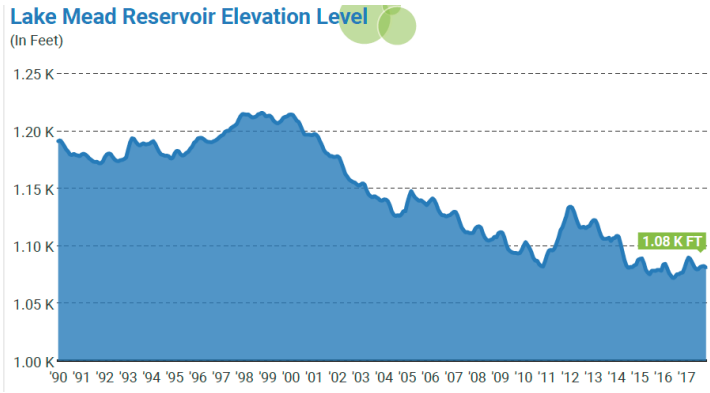
13.5% of State | **83.2%** D2-D4

D3 - Extreme Drought
- Major crop/pasture losses
- Widespread water shortages or restrictions

52.2% of State | **69.7%** D3-D4

D4 - Exceptional Drought
- Exceptional and widespread crop/pasture losses
- Shortages of water creating water emergencies

17.5% of State



Source: 2018 Southern Nevada State of Sustainability Report

1.8%
Share of Colorado River Water Allocated to Nevada

Source: Southern Nevada Water Authority

SOUTHERN NEVADA CURRENTLY RECEIVES NEARLY 90% OF ITS WATER FROM THE COLORADO RIVER

THE OTHER 10% IS DRAWN FROM GROUNDWATER PUMPED THROUGH WELLS IN CLARK COUNTY

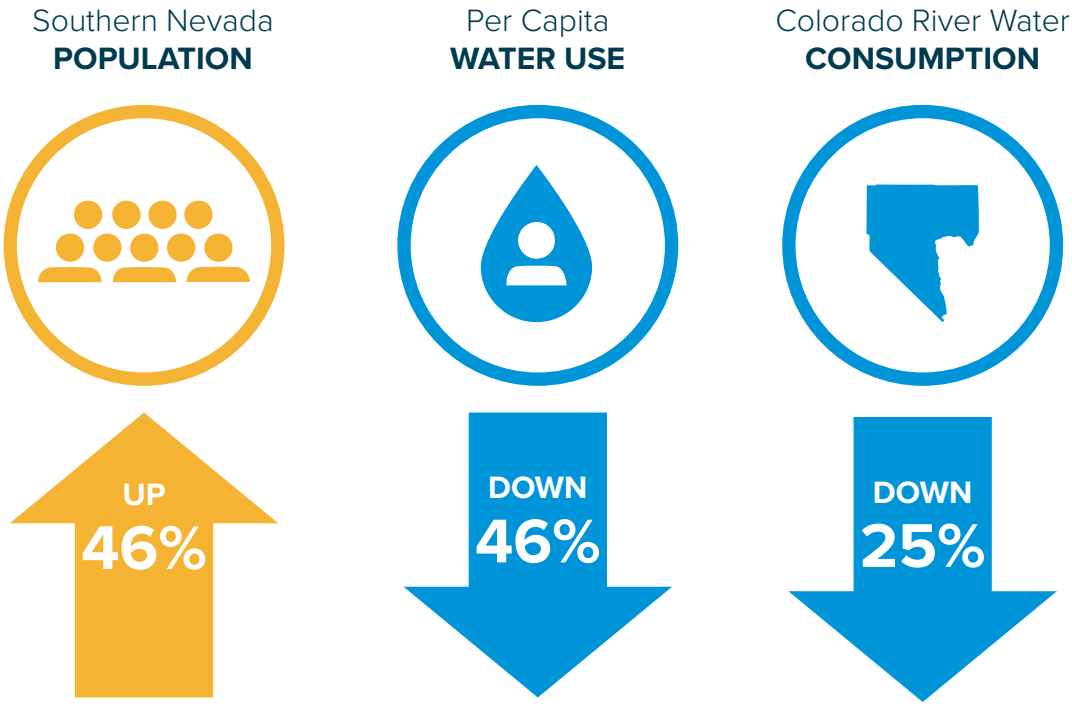
Source: 2017 UNLV - Environment and Sustainability in Nevada

Photo Source: medium.com

THE LAKE AT BELLAGIO HOLDS 22 MILLION GALLONS OF WATER

The Clark County Water Reclamation District is the largest clean water agency in Nevada, collecting, treating and producing more than 105 million gallons of clean water each day.[16] That's the equivalent of 420 million Nalgene bottles OR almost 5 of Bellagio's famous lake, home to the Fountains of Bellagio!

Source: Reno Gazette Journal



Source: SNWA Conservation Progress (2002-2018)

SNWA's water conservation work to-date has resulted in decreased per capita water use and consumption from the Colorado river even while the local population has increased.

WATER SUPPLY, USE, AND CONSERVATION

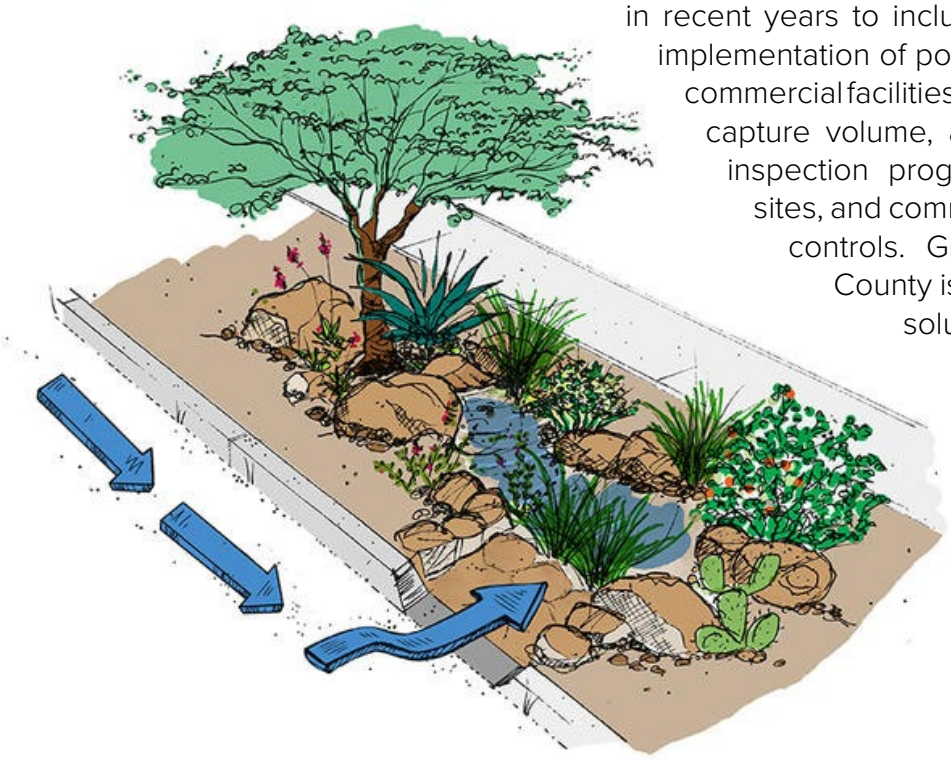
With projections indicating that days over 115°F in Clark County are set to increase 10-fold by the end of the century, heat stress on critical water infrastructure combined with increased demand for water supply puts the valley at risk of system failure.[12] At the operations level, Clark County is continuing to pursue water conservation and management strategies, not only to reduce its water demand and conserve a precious natural resource, but also to demonstrate thought leadership on smart and effective large-scale water management. To-date, Clark County has adopted aggressive County codes on low-flow and low-flush water fixtures and installed master valves and flow sensors in all urban Clark County parks to regulate irrigation needs alongside weather conditions. It also complies with SNWA's regulations on xeriscaping where non-functional turf may have otherwise been installed. To take the next step in making the County more water resilient, the County will need to build on these achievements and incorporate new technologies, policies, and programs to further reduce its operational impacts. The County will also need to simultaneously provide training to its employees on personal water use awareness and how to best operate low-flow, low-flush, and other new water fixtures to optimize their effectiveness in water reduction. This training can help staff think critically about their roles within the County and the direct or indirect impacts they may have on water use.

DID YOU KNOW?

At 2.36 gallons per passenger, McCarran Airport, operated by the County's Department of Aviation, used the least amount of water per passenger compared to any other airport in the country in 2018. This was measured by adding up all water meter totals and dividing by the number of passengers for that year. One key measure incorporated by the airport is the conversion of existing turf to drought-tolerant xeriscaping.

STORMWATER MANAGEMENT

Stormwater management is also a critical component of managing the water system in Clark County. By ensuring stormwater is appropriately captured and managed, the County can prevent nutrient and pollution run-off as well as flooding during storms. It also ensures the County continues to comply with Municipal Separate Storm Sewer Systems (MS4) regulations. The MS4 program has expanded significantly in recent years to include dry and wet weather monitoring, implementation of post-construction stormwater controls at commercial facilities, valley-wide expansion of water quality capture volume, and a broad-based nonpoint source inspection program of construction sites, industrial sites, and commercial facilities with post-construction controls. Green infrastructure is one way the County is utilizing a low-cost and nature-based solution to stormwater management. In a 2013 assessment, it was estimated that 7.7 million gallons of stormwater are filtered by the County's park trees annually.[17] The County has a unique opportunity to expand the use of its green infrastructure and explore options such as xeriscaped bioswales to extend the stormwater management benefits received.



Source: Watershed Management Group

CLARK COUNTY WETLANDS PARK

Did you know that the Las Vegas Wash, on its 12-mile flow downstream to Lake Mead, runs straight through the Clark County Wetlands Park? Aside from providing water services to support the numerous habitats and diversity of wildlife that thrive in Wetlands Park, the Wash helps transport over 180 million gallons of reclaimed water daily from five water treatment plants in the Valley. The Wash also receives some flows intermittently from urban runoff, stormwater, and shallow groundwater.[18] The Wetlands Park in turn provides biological uptake, which has a positive impact on downstream water quality.

Image Source: Philip DeManczuk

Image Source: Clark County Wetlands Park

WHAT IS GREEN INFRASTRUCTURE?

Green infrastructure refers to measures that leverage plants, soil systems, and landscaping to store, treat, and evapotranspirate stormwater, reducing flows to sewer systems and bodies of water.[19]

Image Source: Bernalillo County Green Stormwater Infrastructure Low Impact Design Strategies for Desert Communities

POTENTIAL ACTIONS

Building on Clark County's water management leadership to-date will enhance the benefits to the region's water supply and water quality. The following actions have been identified to help the County achieve its goals for water management.

ACTION	DESCRIPTION
Continue to retrofit existing County facilities with water smart fixtures and technology.	By updating existing interior and exterior County fixtures with up-to-date water fixtures and technology, the County can easily reduce its water use as well as detect issues such as leaks and losses early on.
Assess areas on County facilities where existing ornamental turf can be converted to xeriscaping.	Clark County has already converted more than a million square feet of non-functional turf (21 properties) through the Water Smart Landscaping program, but opportunities remain to convert additional turf areas to xeriscaping. Since 2001, the County has been removing turf in non-essential areas. The County will assess and prioritize the removal of ornamental turf and replace these areas with xeriscaping.
Reduce non-point source pollution at County facilities by ensuring the County is meeting National Pollutant Discharge Elimination System (NPDES) permit requirements.	The National Pollutant Discharge Elimination System requirements are set in place by the US EPA to protect water quality by regulating point sources that may discharge pollutants into water bodies. By ensuring Clark County complies with permit requirements, it can safeguard local and regional water quality as well as avoid costly fines.
Promote SNWA's Joint Water Conservation Plan (2019).	As a collaborative partner in SNWA's plan and a large water user in the valley, Clark County has the ability to support the achievement of regional water conservation and water quality efforts by widely promoting the comprehensive plan and its implementation steps.
Revise Title 30 during Transform Clark County to strengthen water conservation requirements during land use approval.	Goals for water use reduction can be better achieved through strengthening water conservation requirements and also minimizing opportunities to use ornamental turf or install water features.

ACTION

DESCRIPTION

Continue to enhance the tracking of water consumption to analyze consumption trends at the building level and create a dashboard to educate staff and encourage conservation.

While Clark County's water use as a whole is metered by SNWA, the County would benefit from a better understanding of the ways it uses water. Documentation of the existing end uses for each account and additional submetering at facilities with unique water demands would identify opportunities for improvement. The County should also consider tracking facility level water consumption within its Portfolio Manager software to streamline and centralize data management. This data can then be developed into an educational tool for County employees and empower individuals to take action on conservation. Further, offering incentives to employees to find and implement water use and cost savings strategies can promote participation and simultaneously achieve operational results.

Continue to modify design guidelines for County facilities, as necessary, that emphasize locally appropriate green infrastructure and low-impact design techniques and require adoption for all new County facilities.

By developing and adopting desert-specific design guidelines for green infrastructure and low-impact design, such as natural buffers along flood control channels and washes, Clark County can reduce contributions to stormwater runoff as well as urban heat island. The County can further extend these benefits by retrofitting existing landscapes to comply with these guidelines.

METRICS AND TARGETS

To ensure the County can track its progress towards effective water management, the following metrics and targets have been identified. Note, where possible, ***All-In Clark County*** has aligned its metrics and targets with existing County, state, or regional plans to ensure efforts for sustainability and climate resilience are aligned.

Metric	Baseline	2030 Target	2050 Target
Total potable water consumption in County operations	1,277,790 kgals (FY20)	15% reduction	30% reduction
% of County building fixtures upgraded	New metric	30%	100%
% of ornamental turf converted to xeriscaping	1,117,343 sq. ft. across 21 properties	Upward trend	100%