

WATER RESOURCE UPDATE

Mitch Bishop

PUBLIC SERVICES



SOUTHERN NEVADA WATER AUTHORITY®

SNWA Responsibilities

The Southern Nevada Water Authority is the regional agency responsible for maintaining Southern Nevada's water resources.



CONSERVATION

Incentives, Programs,
Regulation and Pricing



WATER SUPPLY PLANNING

Developing and managing
regional water supplies



WATER QUALITY

Maintaining and
protecting water quality



INFRASTRUCTURE

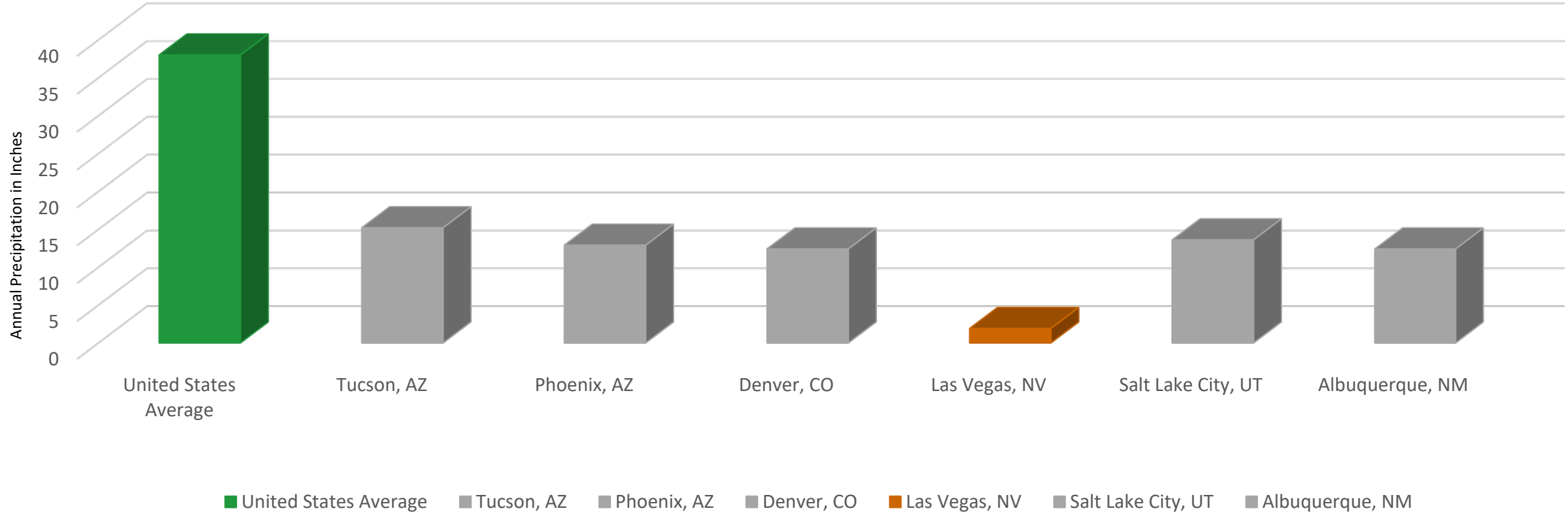
Building and operating
major facilities



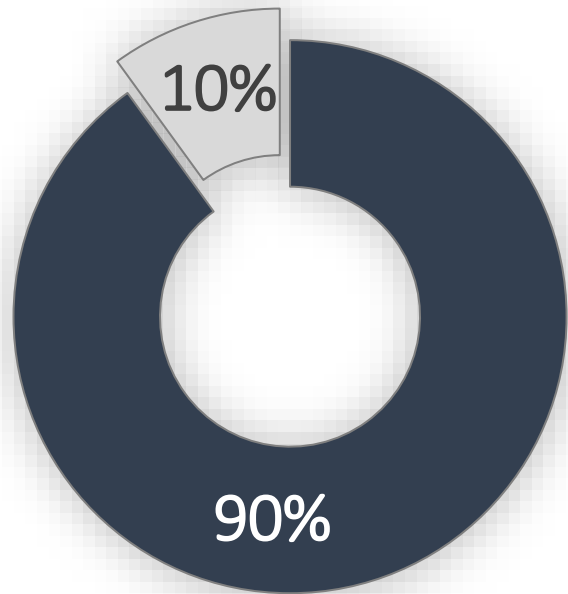
STEWARDSHIP

Protecting
environmental resources

Las Vegas is the driest metropolitan area in the United States.



Las Vegas is nearly fully dependent on Colorado River resources.



■ Colorado River □ Groundwater



Drought conditions have significantly depleted Lake Mead storage.

1999



95%

2004



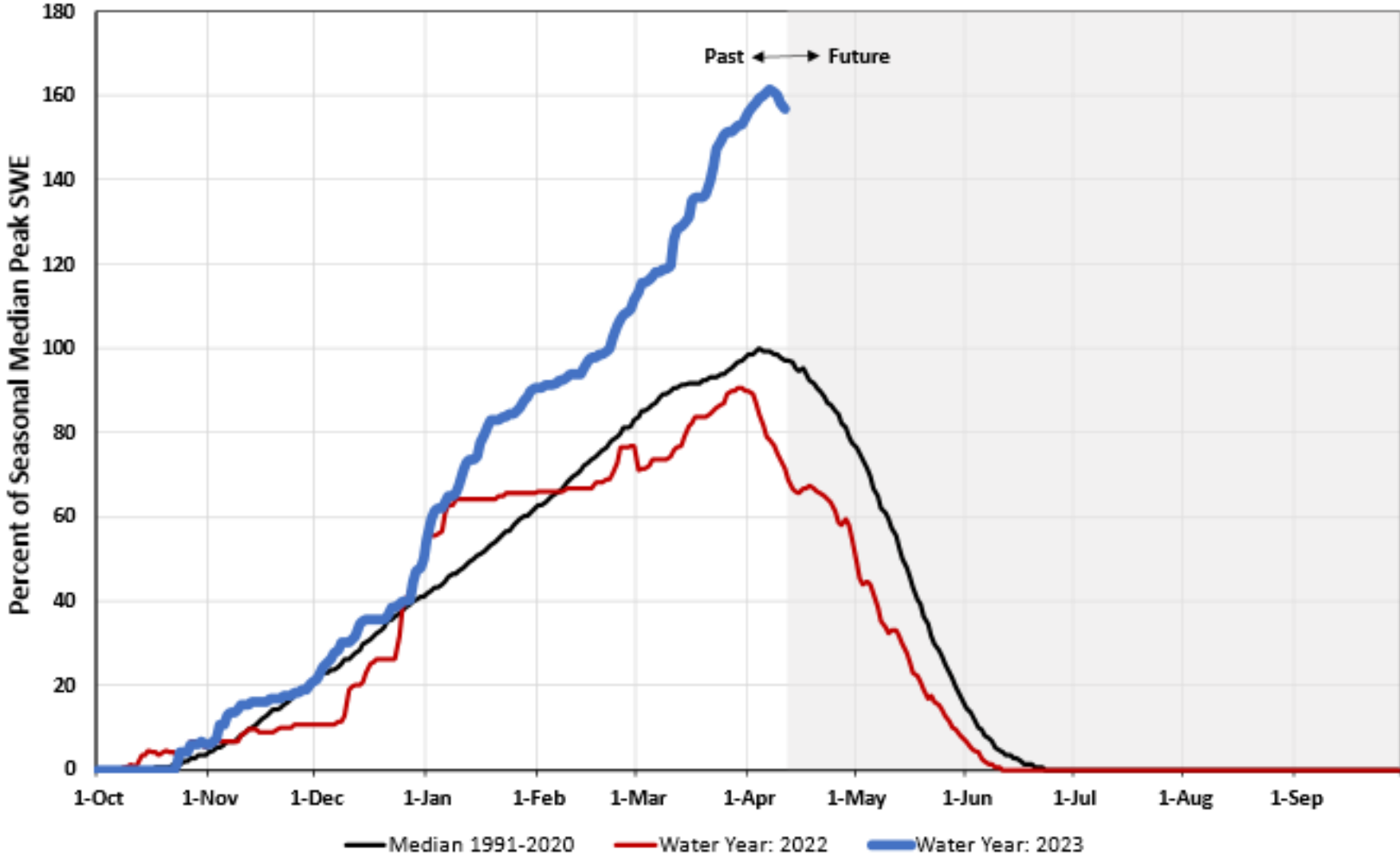
46%

2023

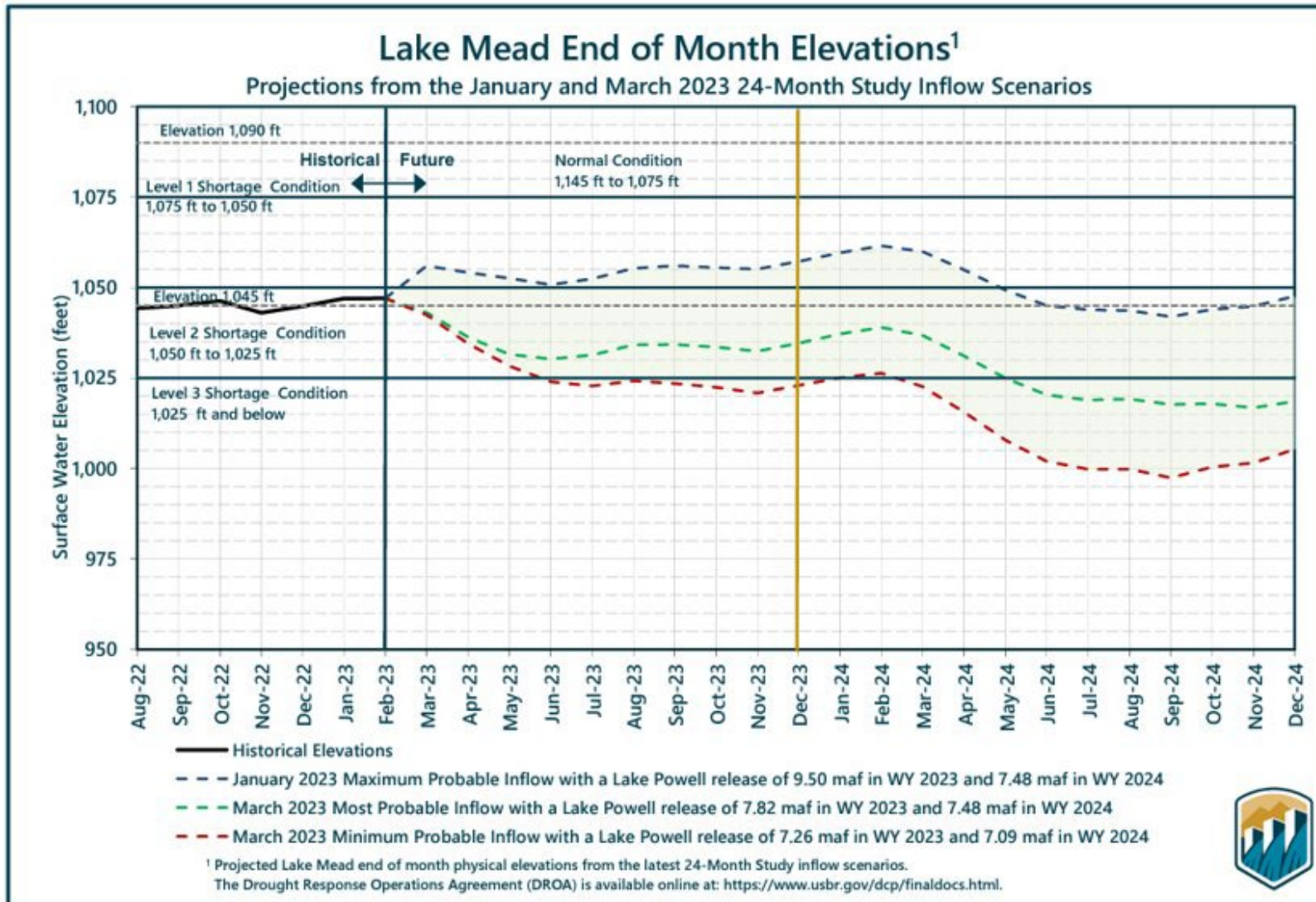


29%

Colorado River Basin Snowpack



Lake Mead's water elevations are projected to decline.



Declining water levels:

- Reduce water storage
- Reduce availability of water supplies for Lower Basin States (Shortages)
- Renders portions of Southern Nevada's water infrastructure inoperable
- Reduces hydropower production
- Increases treatment costs
- Jeopardizes downstream releases to Arizona, California or Mexico

Climate Change

“Las Vegas is fastest-warming city in US, climate report says.”

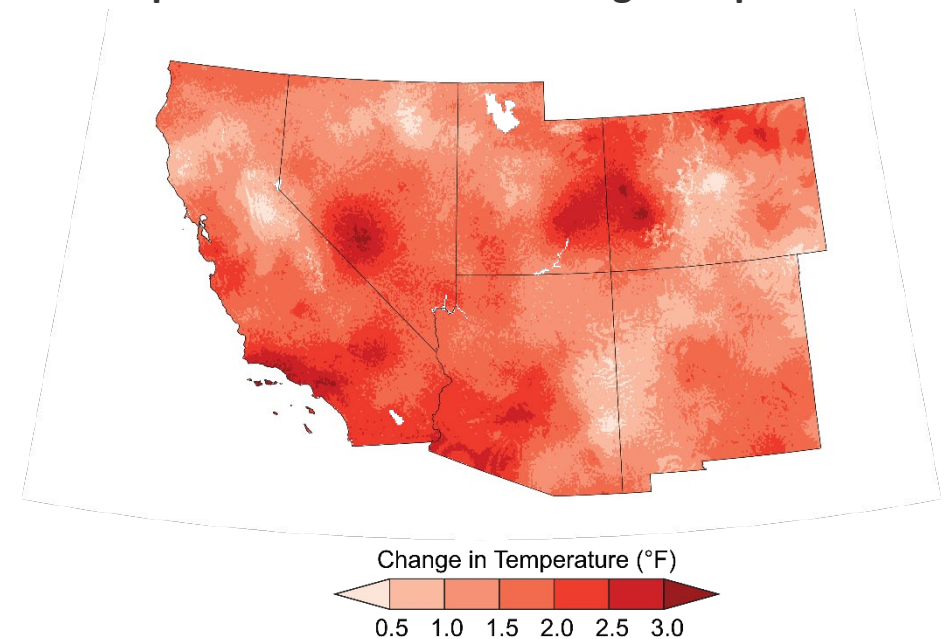
Las Vegas Review-Journal, April 2019

America's 20 Fastest-Warming Cities

City	Temperature Change (1970-2018)	City	Temperature Change (1970-2018)
1. Las Vegas, NV	5.76°	11. Ft. Smith, AR	3.92°
2. El Paso, TX	4.74°	12. St. Louis, MO	3.85°
3. Tucson, AZ	4.48°	13. Boise, ID	3.84°
4. Phoenix, AZ	4.35°	14. Minneapolis, MN	3.72°
5. Burlington, VT	4.13°	15. Milwaukee, WI	3.70°
6. Chattanooga, TN	4.11°	16. Duluth, MN	3.67°
7. Helena, MT	4.11°	17. Fresno, CA	3.66°
8. Erie, PA	4.06°	18. Odessa, TX	3.59°
9. McAllen, TX	4.03°	19. Houston, TX	3.58°
10. Las Cruces, NM	4.01°	20. Medford, OR	3.51°

Reno, NV excluded. See methodology.

U.S. Southwest 1986–2016 average temperature compared to 1901–1960 average temperature



Lake Mead is at significant risk of falling below 900 feet.



At that elevation:

- Reservoir storage is less than 10 percent of capacity
- The SNWA's first two intakes are above the surface
- Hoover Dam is unable to release water downstream to Arizona, California or Mexico
- Hoover Dam can no longer generate power
- **Nevada's allocation will be further reduced by an undefined, potentially significant quantity**

The federal government asked Colorado River users to reduce use.

On June 14, the U.S. Bureau of Reclamation Commissioner asked that all seven Colorado River Basin States reduce their diversions from the Colorado River **by 2 to 4 million-acre feet.**



Reducing demands will require participation from every state and every sector.



Basin states have submitted modeling assumptions that, if utilized, would help stabilize water elevations in lakes Powell and Mead.

Nevada's Response

On August 15, SNWA sent a letter to the Department of the Interior, acknowledging the lack of action among states to develop a plan.

The letter also outlined workable actions to prevent further declines to Lake Mead. Among them:

- **Basin-wide municipal turf removal programs**
- **Expand agricultural efficiency**
- **Eliminate nonfunctional turf and require seasonal irrigation schedules basin-wide**
- **Invest in reuse, recycling and desalination programs**
- **Incentivize conversions to lower water-use crops**
- **Account for evaporation losses**

Colorado River Basin's Response

The screenshot shows a news article from the Las Vegas Review-Journal. The page header includes the website name, a temperature of 41°F, and navigation links for NEWS, LOCAL, SPORTS, BUSINESS, OPINION, CRIME, LIVE WELL, and ENTERTAINMENT. The article title is "California lags as other Colorado River states agree on water cuts". The byline is "By Colton Lochhead Las Vegas Review-Journal" dated January 30, 2023. The article features several logos: USBR, SILVER SKY, BUREAU OF RECLAMATION, and the U.S. DEPARTMENT OF THE INTERIOR seal. A social media-style bio for "VOICE OF JAMES SCHAEFFER" is also present.

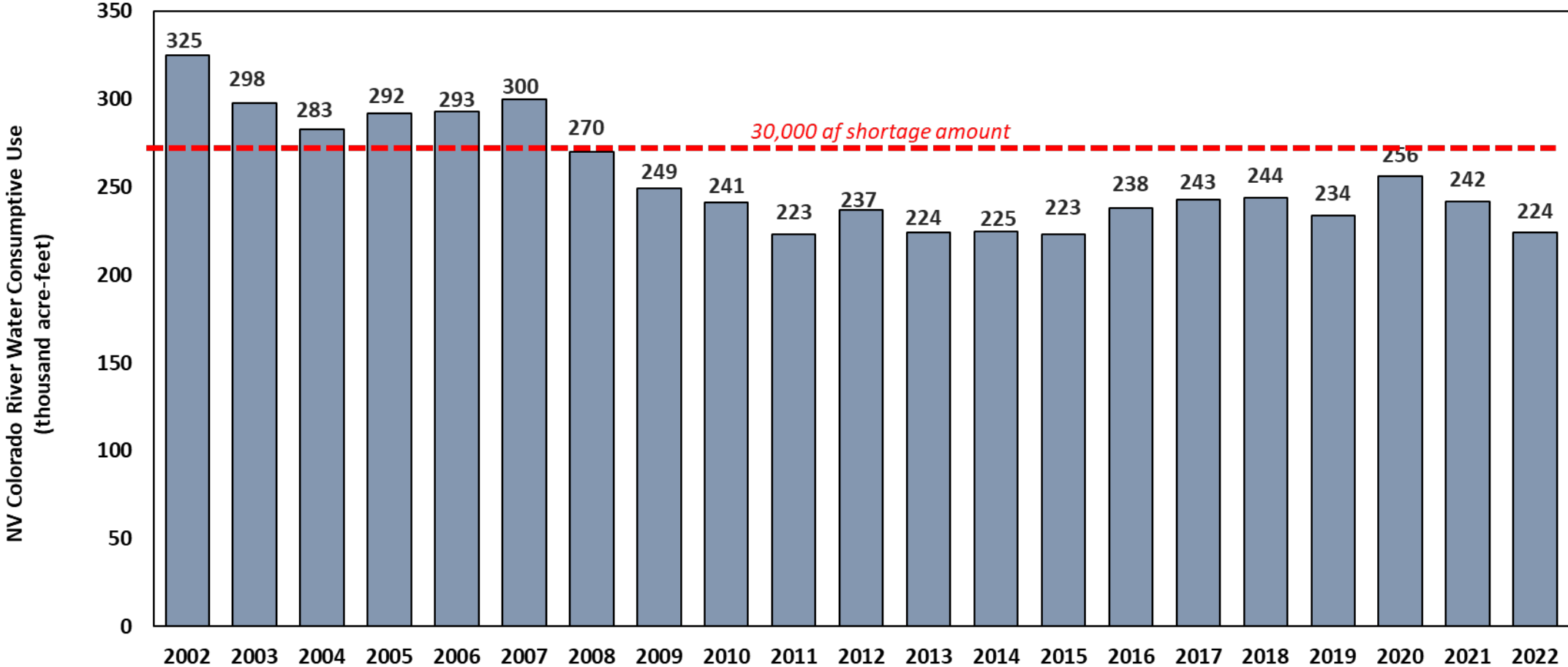
“Six out of seven Colorado River basin states have settled on a proposed set of cuts aimed at saving the crumbling river system and preventing Lake Mead and Lake Powell from crashing...”

Lower Basin states are subject to Tier 2 shortages in 2023.

Lake Mead Elevation	Shortage Reduction	Available
1,090+ feet	0	300,000 AFY
1,075 – 1,090 feet	-8,000 AF	292,000 AFY
1,050 – 1,075 feet	-21,000 AF	279,000 AFY
1,045 – 1,050 feet	-25,000 AF	275,000 AFY
1,025 – 1,045 feet	-27,000 AF	273,000 AFY
< 1,025 feet	-30,000 AF	270,000 AFY

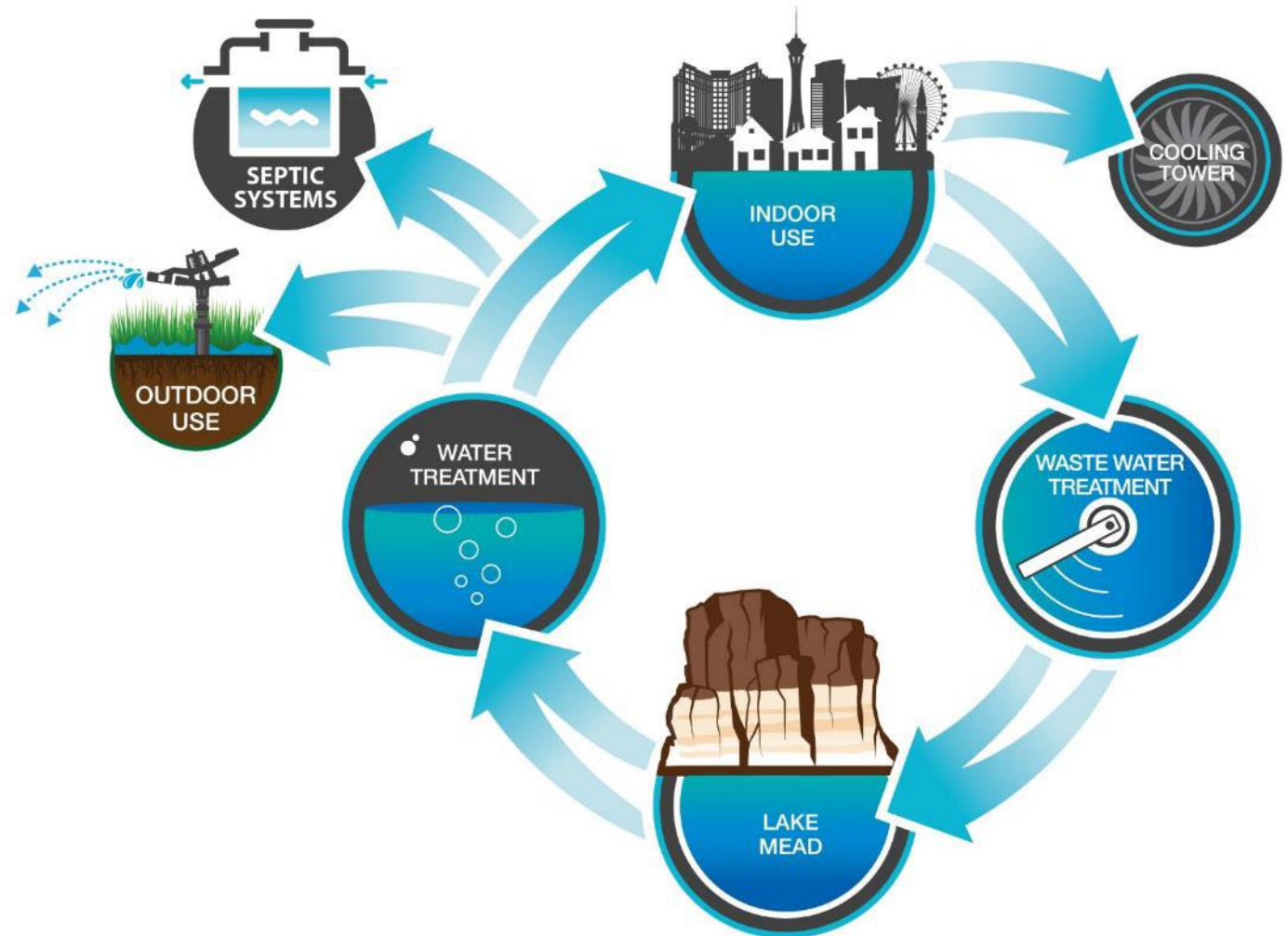
Thanks to conservation, shortages have been mitigated in the near term.

Nevada Colorado River Consumptive Use (Thousand Acre-Feet Per Year)

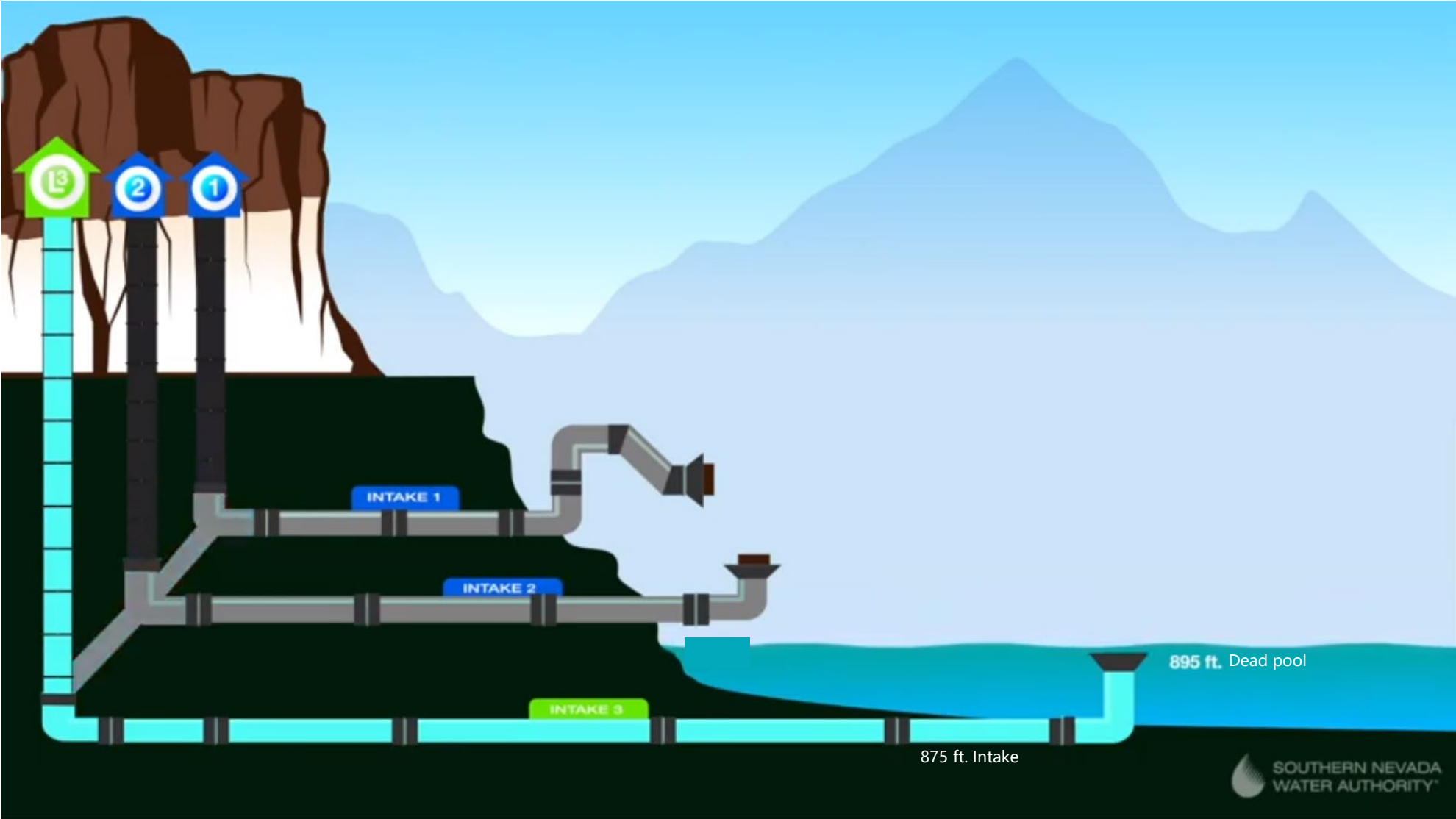


NEVADA'S ADVANTAGE: Indoor water recycling

Southern Nevada recycles 99% of water used indoors, thereby extending the availability of its resources.



NEVADA'S ADVANTAGE: Infrastructure



NEVADA'S ADVANTAGE: Decades-long commitment to conservation

- Mandatory watering schedule
- Water efficient development codes
- Water waste fees
- Tiered water rate pricing
- Golf course water budgets
- Rebate programs
- Significant investments in public outreach



NEVADA'S ADVANTAGE: Consistent regional policy with policy makers enabled to make tough decisions

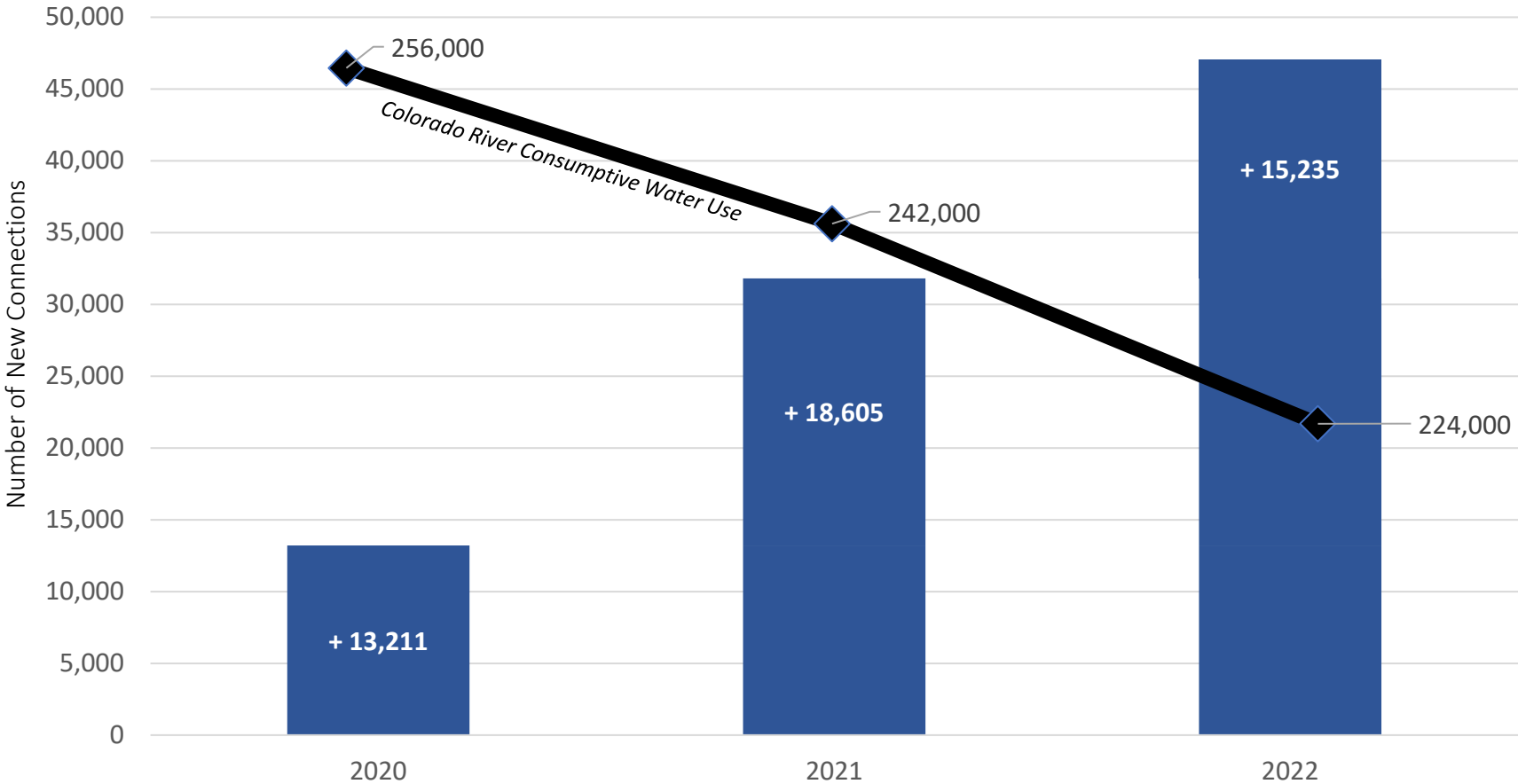


SNWA MEMBER AGENCIES

- **Big Bend Water District (Laughlin)**
- **Boulder City**
- **City of Henderson**
- **City of Las Vegas**
- **City of North Las Vegas**
- **Clark County**
- **Las Vegas Valley Water District**

Conservation matters.

Despite the addition of more than 47,000 new connections since 2020, water use has declined by 12% in the same time period.



Since 2002, Southern Nevada has been able to reduce water use while its population grew.

Southern Nevada
POPULATION



Per Capita
WATER USE



Colorado River Water
CONSUMPTION



Building to the conditions – Water Scarcity

No one would question developing to earthquake safety standards in San Francisco or hurricane standards in Florida.

In Southern Nevada, water scarcity is our natural disaster



Lake Mead - Calville Bay Marina, 2022

Recent initiatives curb consumptive and inefficient water uses.



NONFUNCTIONAL GRASS: AB356 prohibits nonfunctional grass by 2027



NEW GRASS: New grass installations are limited to parks, schools and cemeteries



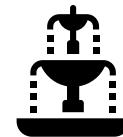
SEPTIC: Municipal water supplies cannot be discharged in septic tanks



GOLF COURSES: Golf course water budgets were reduced by one-third. No new golf courses.



EVAPORATIVE COOLING: New buildings are prohibited from using evaporative cooling



FOUNTAINS: New ornamental water features are prohibited, including resorts

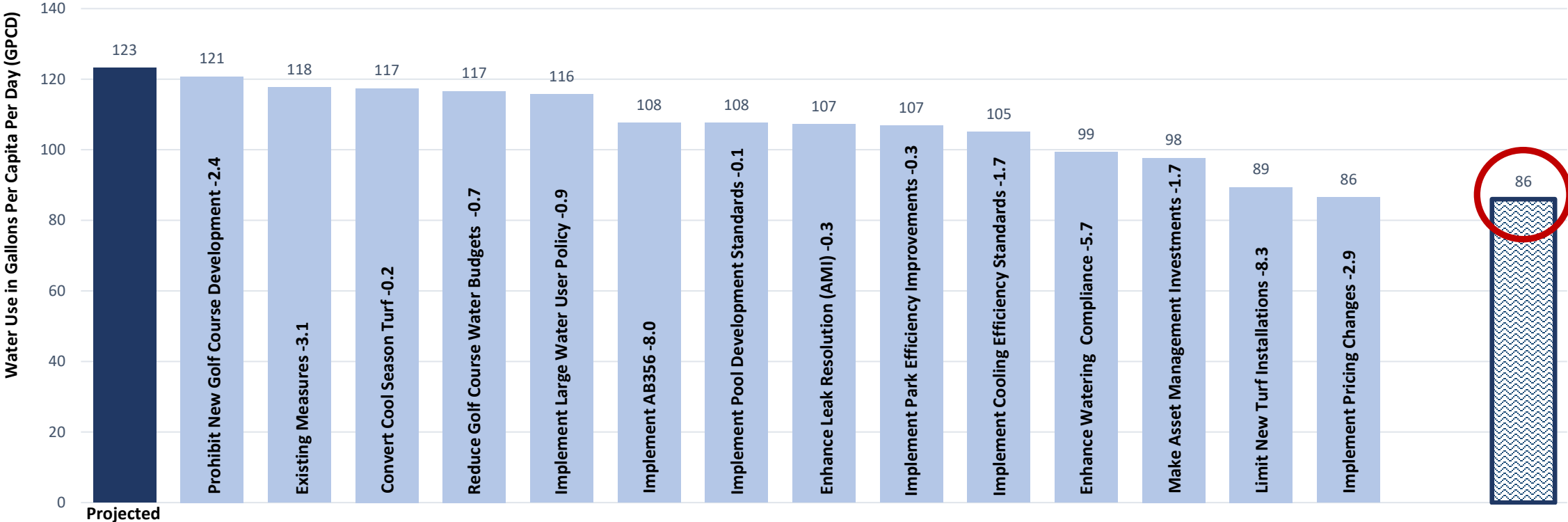


SWIMMING POOLS: New pools are limited to 600 sq. ft. surface area



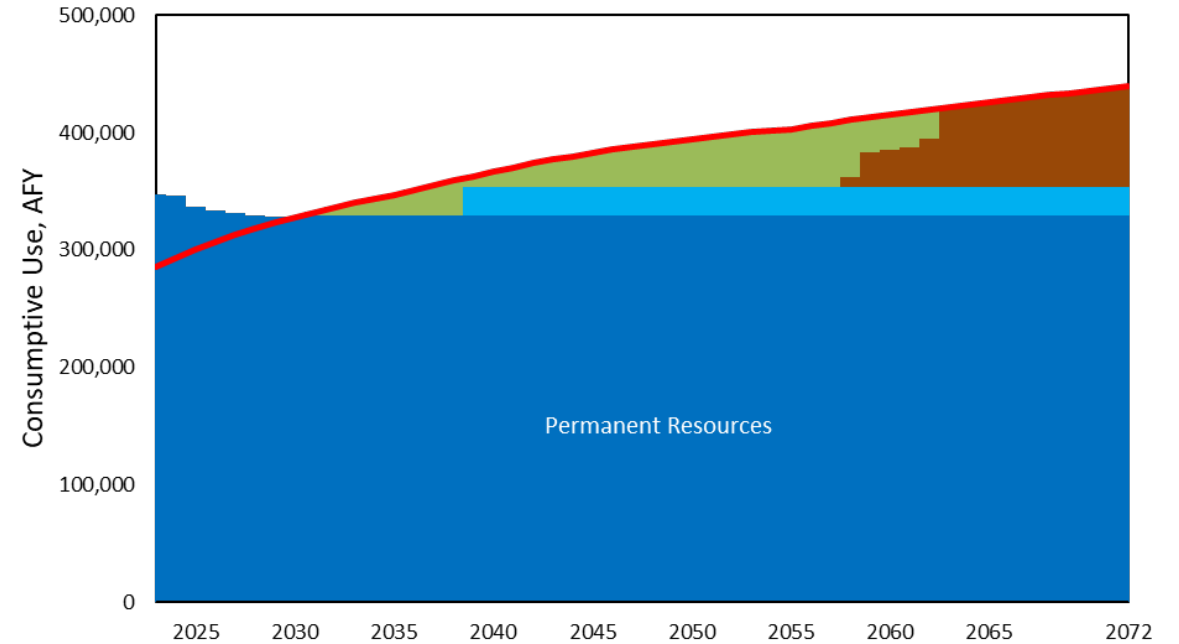
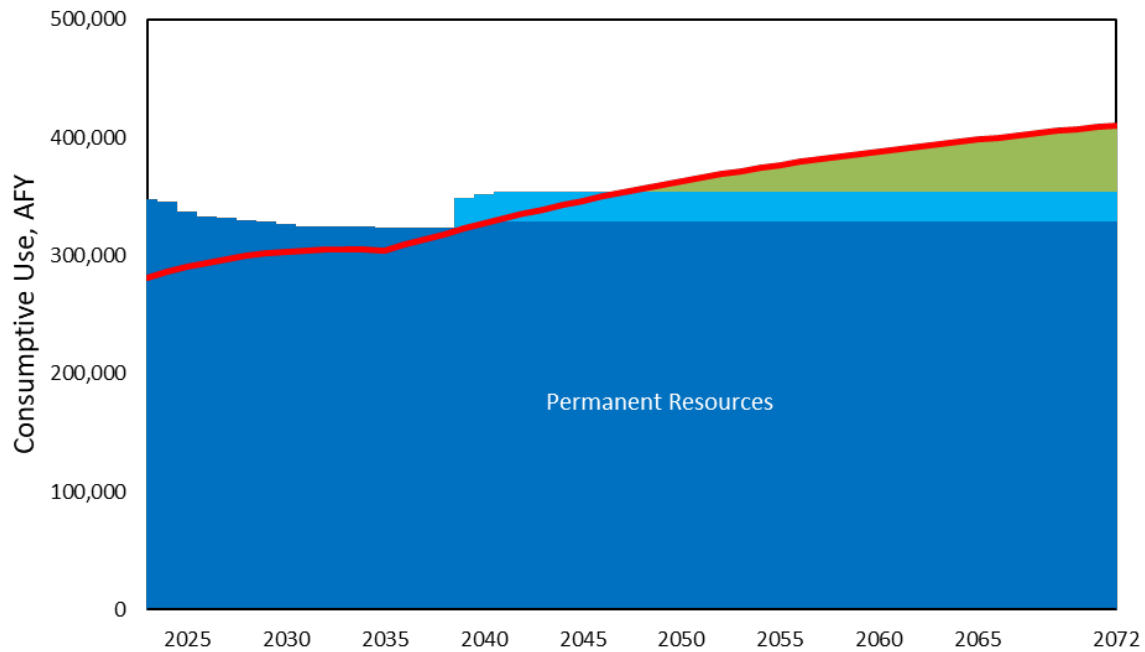
WATER PRICING: Punitive water rates for top 10% of single-family residential users

Meeting the Conservation Goal



Reducing demands now delays need for future resources.

Supply and Demand Scenarios (11.0 MAFY Natural Flow)



* Scenarios assumes Permanent Future Supply comes online in 2039.

**Working together, we can
navigate this crisis.**

**However, our success
depends upon our
willingness to adapt.**





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