



UTAH'S RIGHTS TO COLORADO RIVER WATER & THE LAKE POWELL PIPELINE

University of Utah | March 11, 2021



Panelists



- David Clark
 - Former Speaker of the House, Utah House of Representatives
 - Sponsor of the Lake Powell Pipeline Development Act
 - Former Senior Vice President of International Trade and Finance at Zions Bank



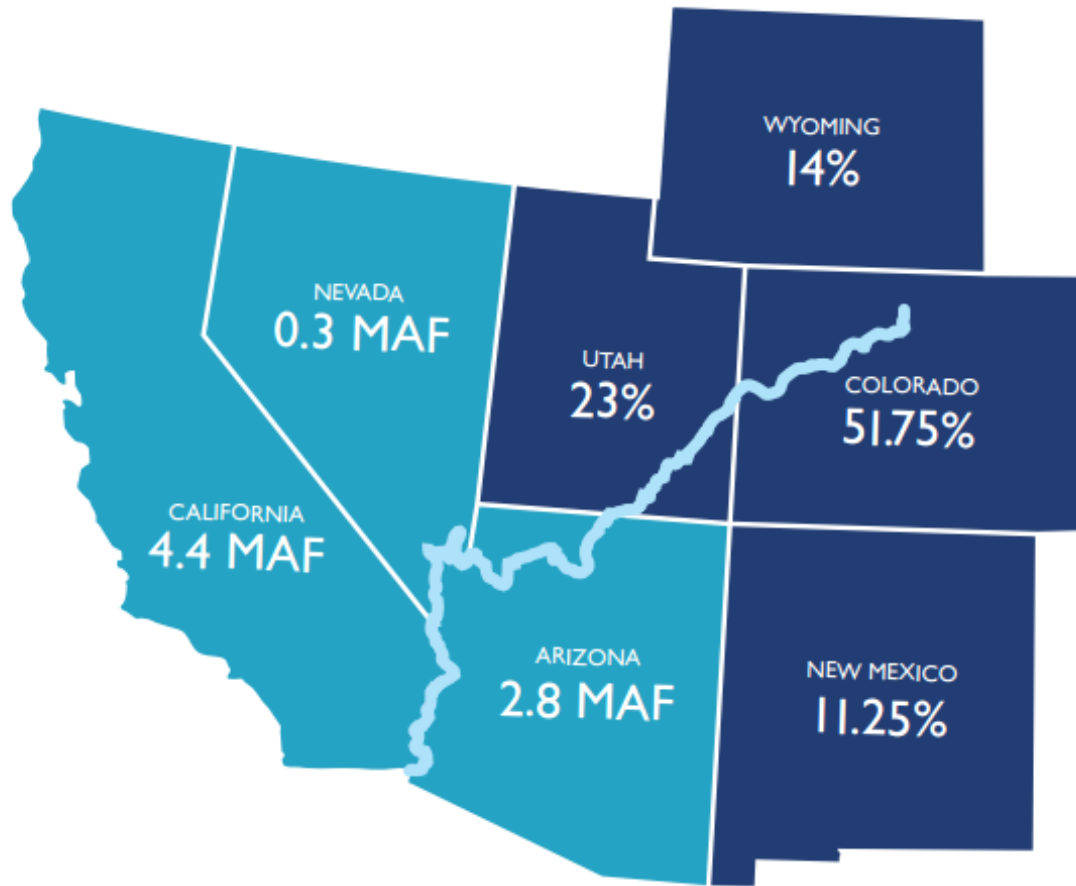
- Zach Renstrom
 - General Manager of the Washington County Water Conservancy District, beneficiary of the Lake Powell Pipeline
 - Attorney
 - Licensed professional and structural engineer



The Law of the River

- 1922 Colorado River Compact
 - Created an Upper Basin (Colorado, New Mexico, Utah and Wyoming) and a Lower Basin (Arizona, California and Nevada)
 - Appropriated 7.5 million acre feet of water annually to each basin

The Colorado River's Allocations



■ Upper Basin – 7.5 million acre feet
■ Lower Basin – 7.5 million acre feet

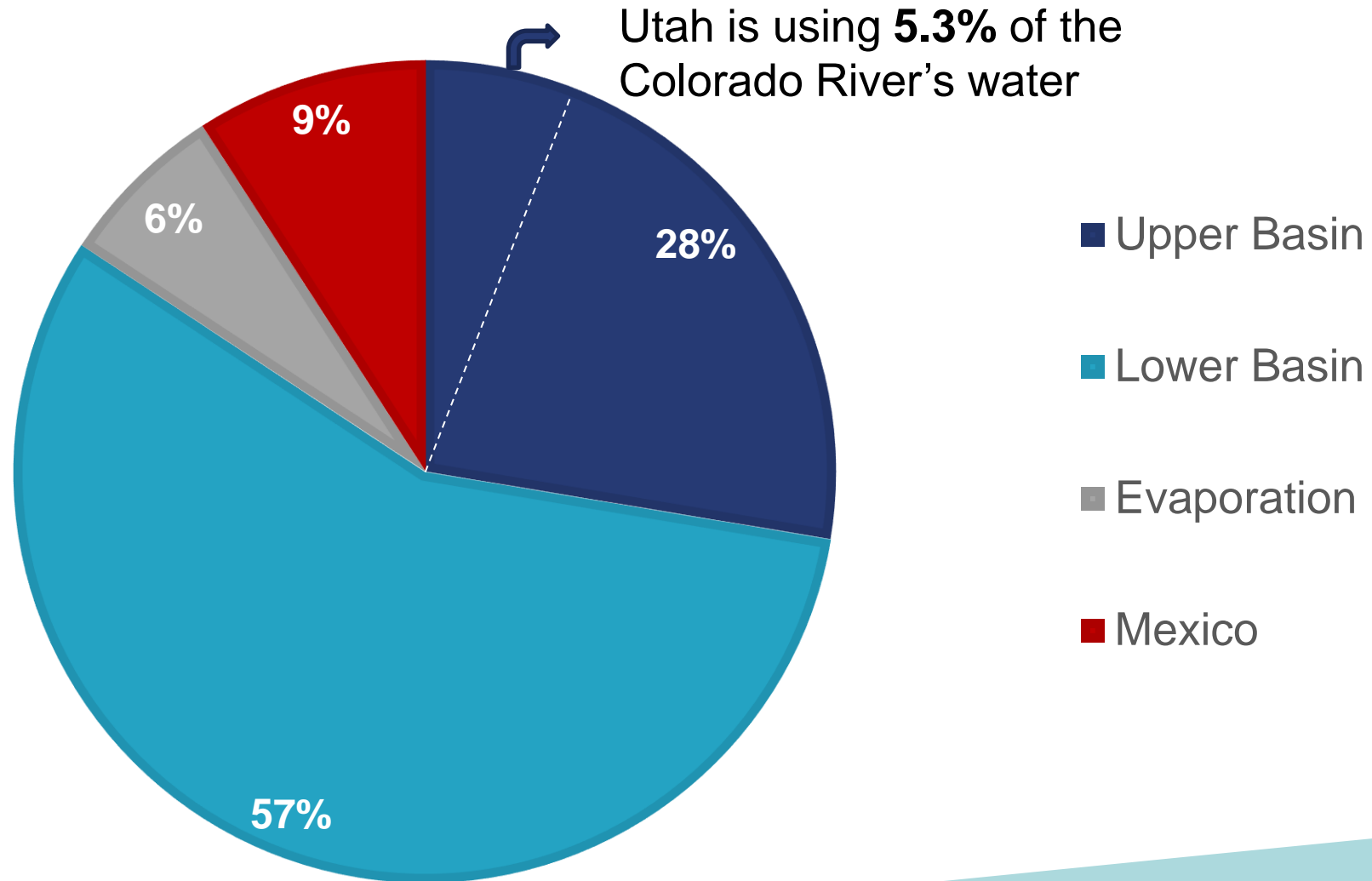
State Water Appropriations

- The Boulder Canyon Project Act of 1928
 - Apportioned the Lower Basin's water right on a fixed acre foot volume
- Upper Colorado River Basin Compact of 1948
 - Apportioned the Upper Basin's water right as a percentage

Developing Colorado River Water

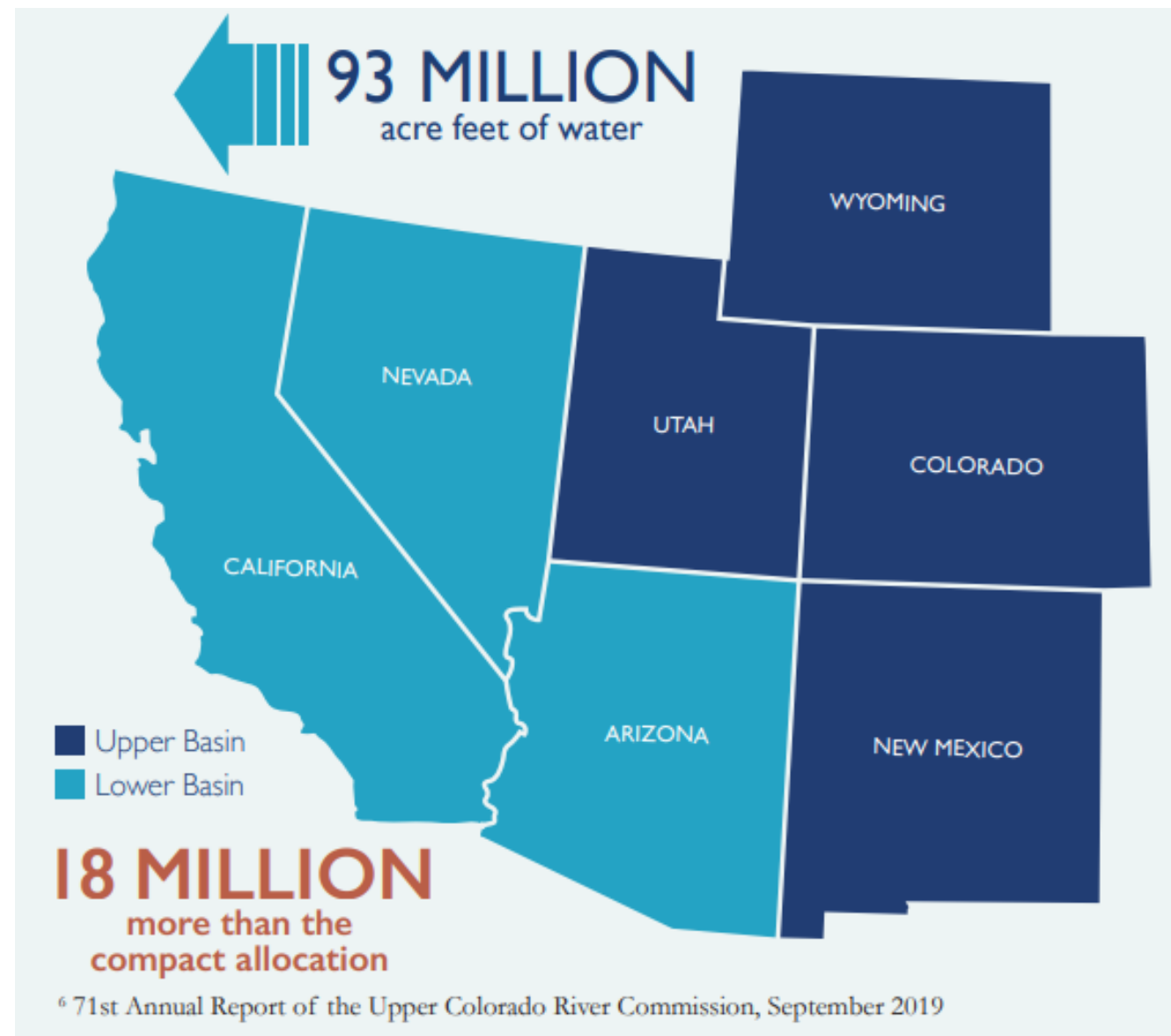
- All seven basin states have the right to develop and beneficially use their Colorado River water
- The Law of the River does not allocate water rights on a “first in time, first in right” basis
- The compacts were expressly developed to ensure that faster growing states would not be able to claim all the available basin water

Colorado River Actual Water Use



Upper Basin Deliveries to the Lower Basin

- From 2009 to 2019, some of the driest years on record, the Upper Basin states delivered 93 million acre feet of water to the Lower Basin states.
 - That's **18 million acre feet more than required by law.**



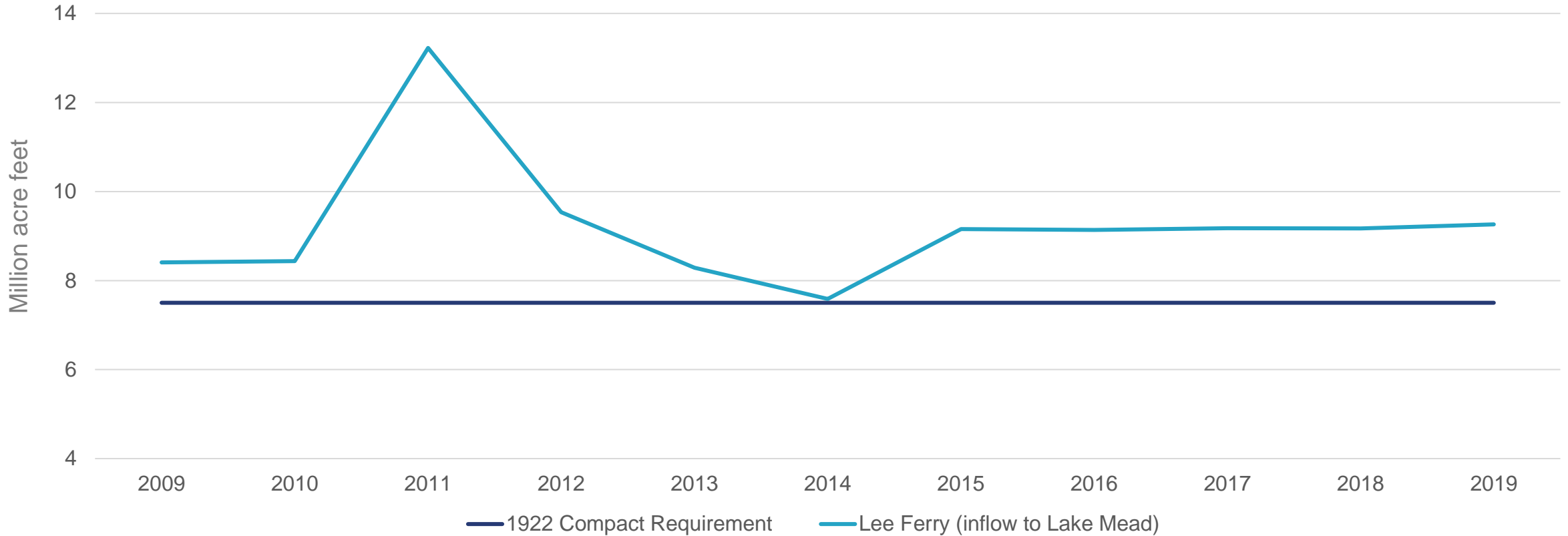
Lake Levels

So, if Lake Mead is receiving more water than appropriated in the Colorado River compact, why is the lake level decreasing?



Inflow to Lake Mead

Average annual inflow to Lake Mead is 9.3 million acre feet



LAKE MEAD WATER BUDGET

Abbreviations: maf (million acre-feet)

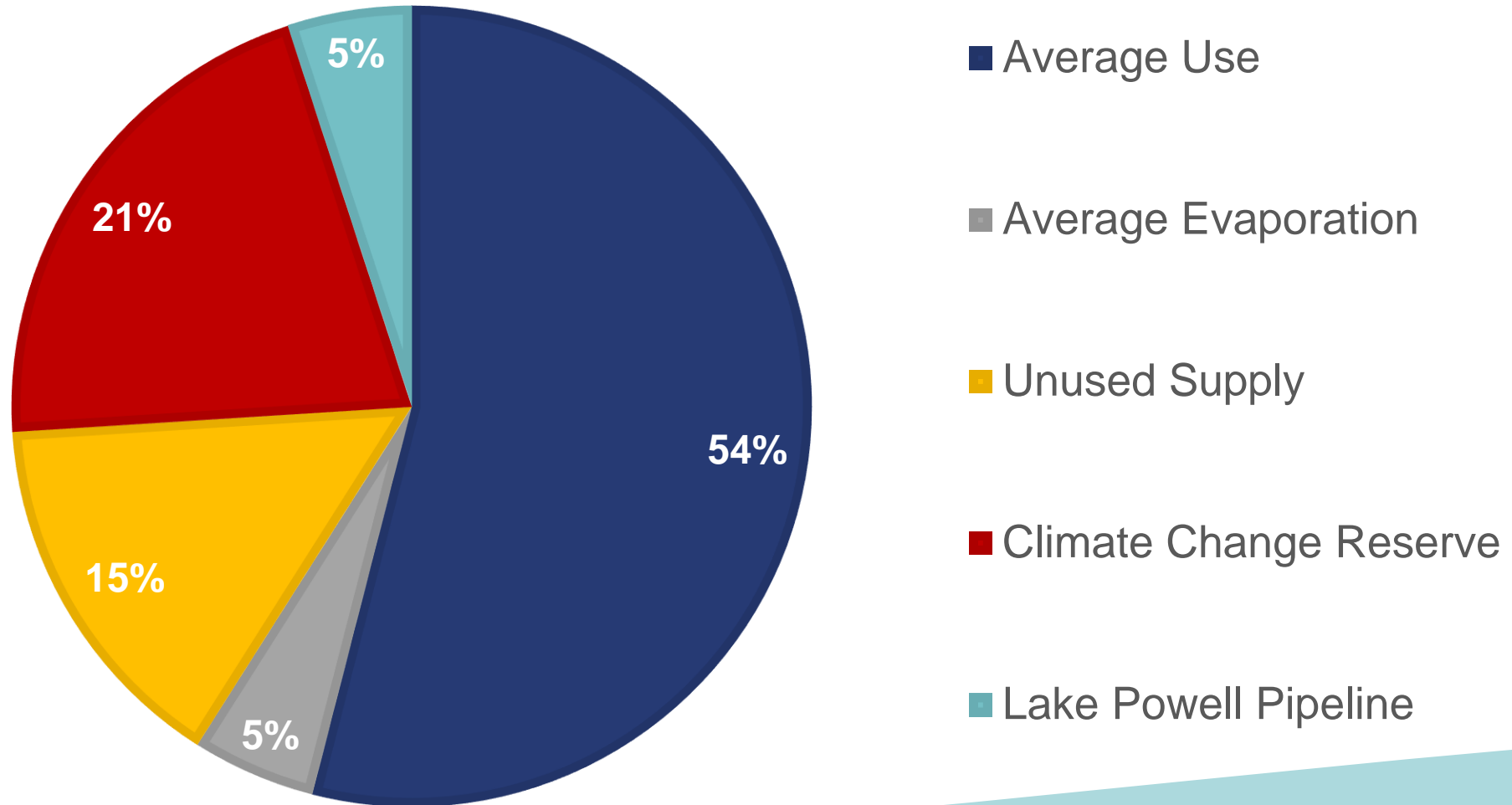
Approximate annual inflow into Lake Mead (8.23 maf release from Lake Powell plus average intervening flows between Lake Powell and Lake Mead)	9.0 maf
Approximate annual outflow from Lake Mead (Lower Basin apportionments to States and Mexico Treaty allocation plus downstream regulation including side inflows, evapotranspiration, transmission losses, etc.)	-9.6 maf
Approximate annual Lake Mead evaporation loss	-0.6 maf
Water balance	-1.2 maf[†]

“Lake Mead storage is reduced on average by about 1.2 million acre feet each year, which is the equivalent of about 12 feet in elevation.”

[†]Given current average water demands over the past 10 years in the Lower Basin and Mexico, and a minimum objective release from Lake Powell (8.23 maf), Lake Mead storage is reduced on average by about 1.2 maf each year, which is the equivalent of about 12 feet in elevation at Lake Mead.

Data from Bureau of Reclamation

Utah's 1.725 MAF Colorado River Appropriation



Utah's Expanding Economy

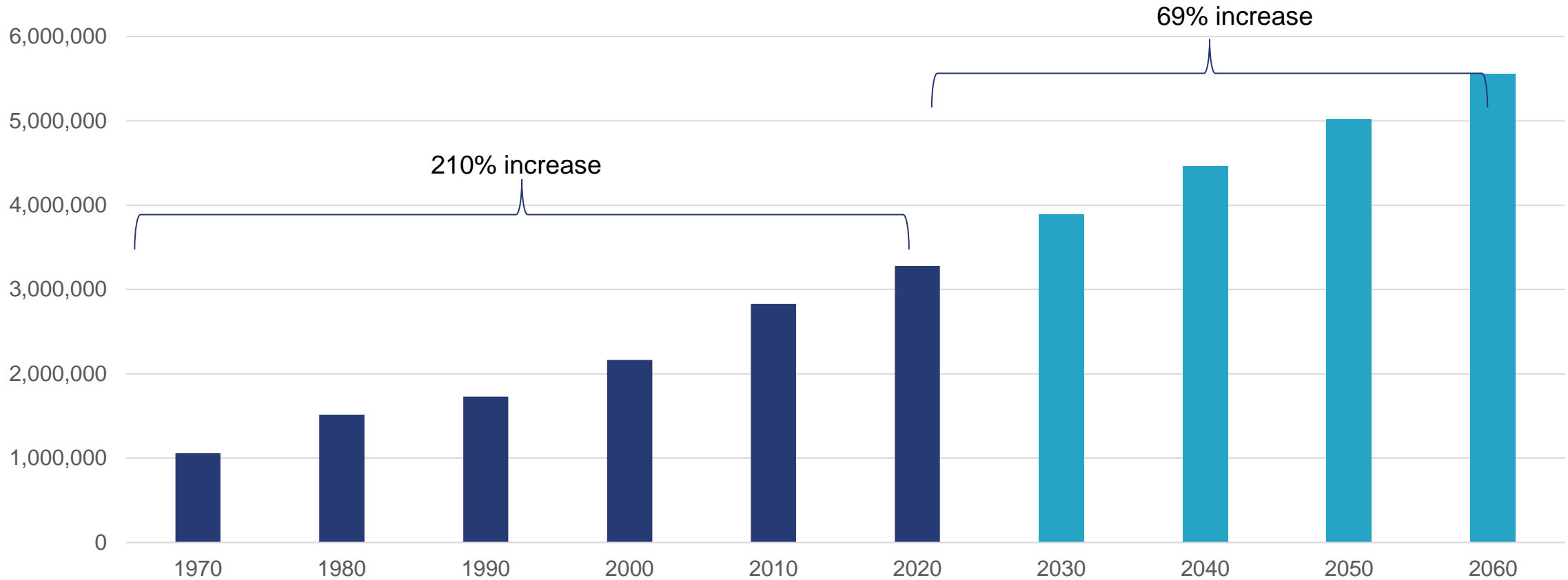
		% increase vs prior year
• Gross Domestic Product	\$188 billion	6%
• Population	3.2 million	2%
• Personal Income	\$155 billion	6%
• Taxable retail sales	\$7 billion	21%
• New single-family home permits	2,000	68%
• New multi-family home permits	830	111%

Utah

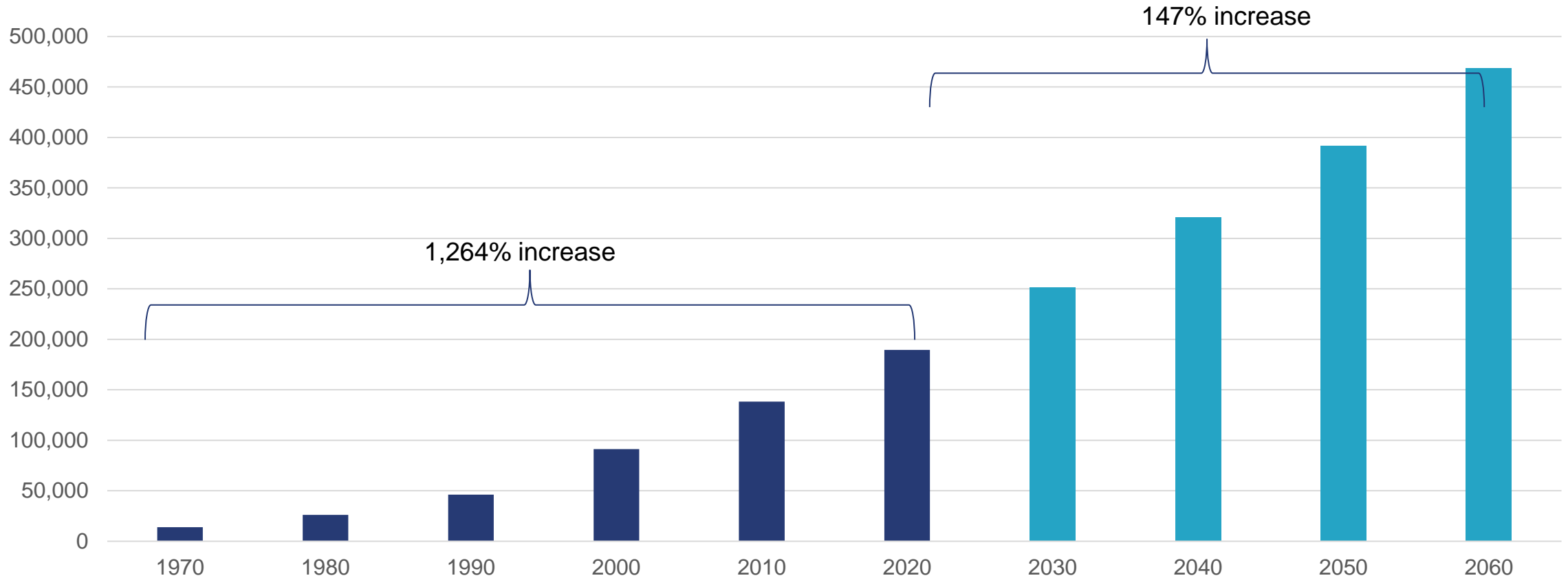
- Best State to Live
- Best State for Economy
- Best State for Families
- Best Place to Start a Business
- Best State to Find a Job
- Best State to Retire
- Best State to Visit



Utah's Population Growth



Washington County, UT's Population Growth



Washington County, UT

- Fastest growing
- Hottest
- Driest
 - One water source, the Virgin River basin
 - Basin is closed to further water appropriations



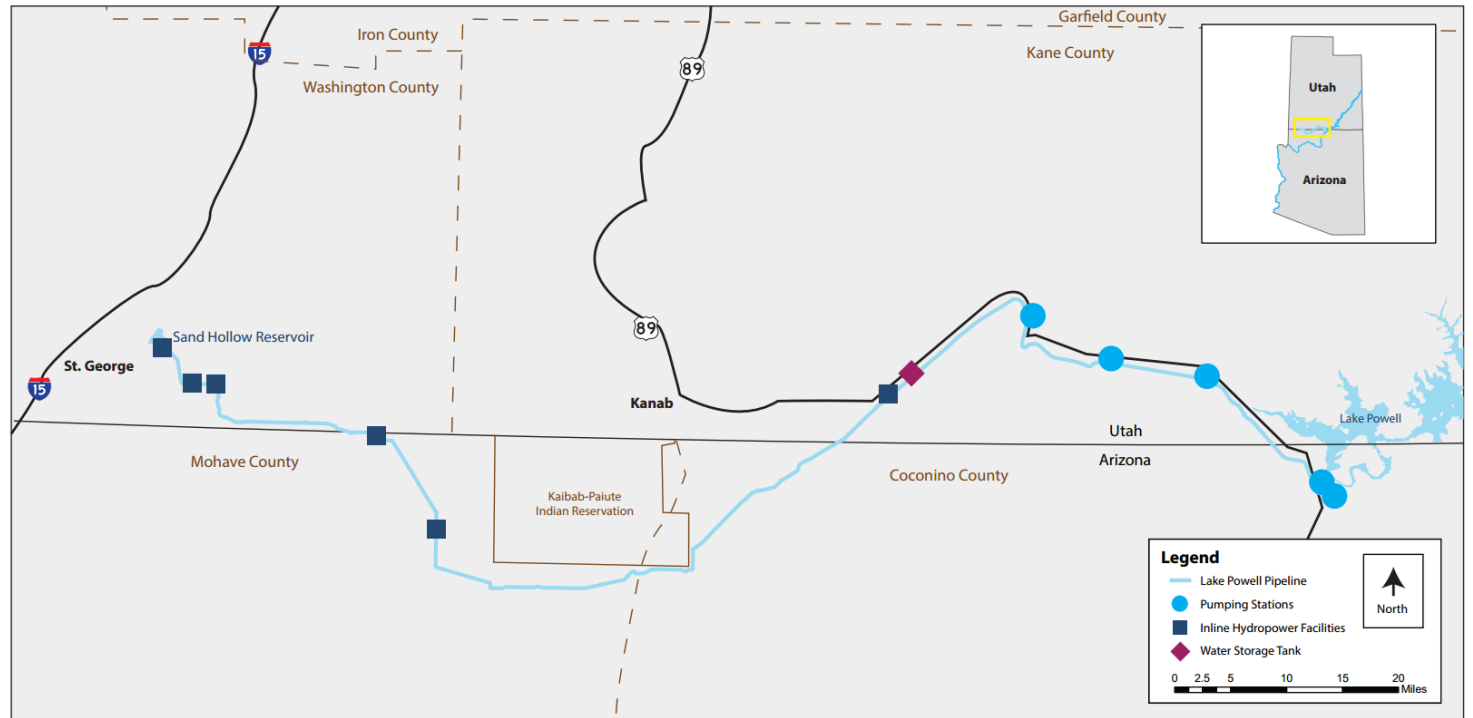
2006 Lake Powell Pipeline Development Act

- In 2006, Utah legislators passed the Lake Powell Pipeline Development Act authorizing the Board of Water Resources to “construct the project.”
- The bill passed 96 to 1.



Lake Powell Pipeline (LPP)

- Utah state project
- Delivers up to 83,756 AF of water annually
- Approximately 140 miles buried pipeline
- 5 pump stations
- 6 hydropower stations



LPP Diversion, Storage, Treatment and Delivery



Diverted at Glen Canyon Dam



Stored at Sand Hollow Reservoir



Treated at Quail Creek Water Treatment Plant



Delivered to 10 communities

Why the LPP?

- Only option for a 2nd water source
- Largest available supply
- Protects the economy
- Lower cost per acre foot than other options
- Most environmentally responsible
- Uses existing water rights
 - The LPP will use 5% of Utah's Colorado River appropriation



Provides the Region Another Water Source



**THE VIRGIN RIVER
BASIN**



**LAKE POWELL/
COLORADO RIVER WATER**

Provides Drought Protection

- Southern Utah has experienced drought 12 out of the 20 past years
- Climate variability
- Stores water in Sand Hollow Reservoir, closer to local communities



Protects the Economy

The LPP will support:



Population
282,400¹



Employment
106,000²



Households
102,250¹



Annual personal income
\$9.3 billion³



Private businesses
9,200²



Annual wages and salaries
\$3.6 billion²



Annual gross metropolitan product
\$9 billion^{3,4}

1. Kem C. Gardner Policy Institute 2. U.S. Bureau of Labor Statistics 3. U.S. Bureau of Economic Analysis 4. St. George Metropolitan Statistical Area, coterminous to Washington County, UT

Complements Water Conservation



- Washington County has decreased its water use by more than 30% since 2000
- First county to meet the statewide water conservation goal
- More than \$70 million invested in recent conservation efforts

Conservation, Rebate and Education Programs

Washington County

- Universal metering
- Secondary water meters
- Smart controller irrigation technology
- Discounted impact fees for water wise landscapes
- Tiered water rates
- Landscape ordinances
- Time of day watering ordinances
- Requirement of a water conservation plan for municipal customers
- Water efficient landscape workshops
- Public information programs/school education
- System water audits, leak detection and repair
- Free outdoor irrigation efficiency audits for residences and businesses
- Water Smart irrigation rebate program
- Water Smart commercial upgrades equipment rebate
- Training and certification of landscape training professionals
- Financial incentives for irrigation upgrades
- Large landscape conservation programs and incentives
- EPA WaterSense appliance rebates
- Statewide water-wise plant list and tagging program
- Public athletic fields conversion to artificial turf grant program
- WaterSense toilet/urinal rebates
- Multi-family high-efficiency washer rebate program
- Funding for local and statewide media campaigns

Southern Utah Landscapes

- Southern Utah is home to the most water-efficient landscapes in Utah
 - 2018 GOMB Water and Land Use study
 - Salt Lake County: 44% vegetative cover; 70% turf
 - Washington County: 17% vegetative cover; 35% turf

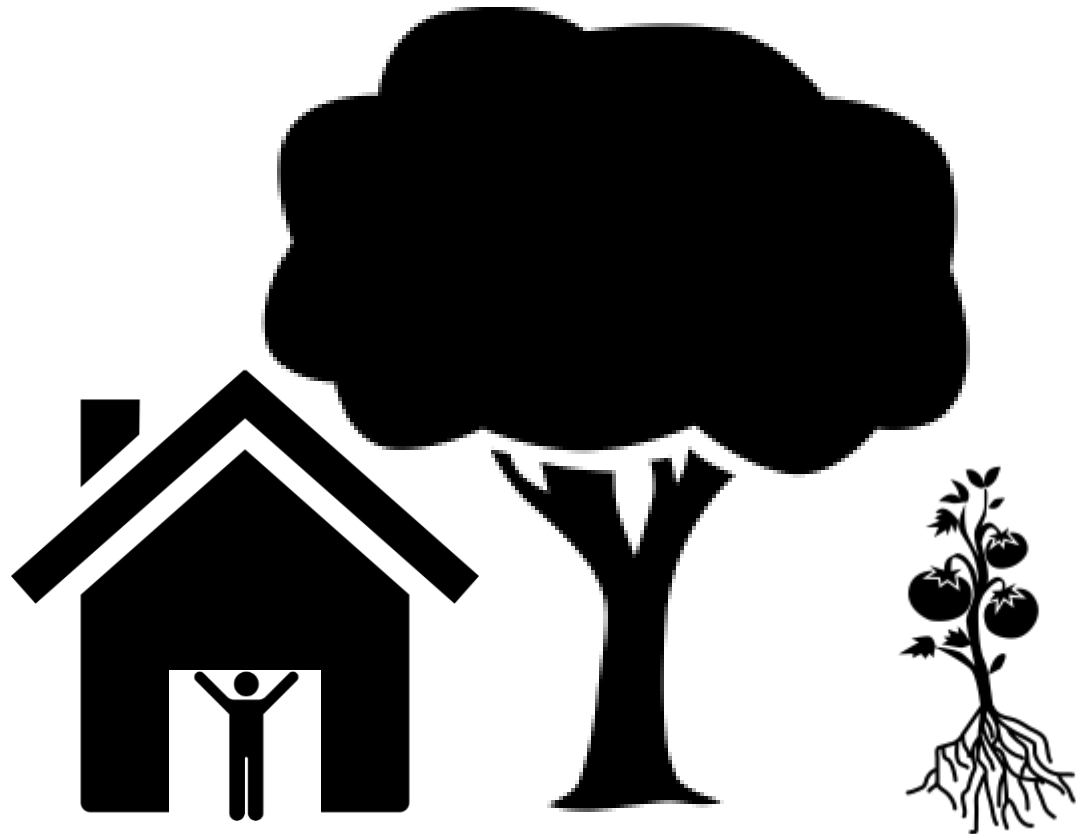


Water Use

- Water Use is measured in gallons per capita (or person) per day (GPCD)
- There are vast differences in how cities and states calculate water use and population that drastically alter GPCD



Reporting Water Use: the Numbers Game



5 gallons of treated water used indoor

5 gallons of treated water used outdoor

5 gallons of untreated water used outdoor

How much water did I use?

- A. 15 gallons
- B. 10 gallons
- C. 5 gallons
- D. 3.3 gallons

Flaws of GPCD as a Comparative Metric

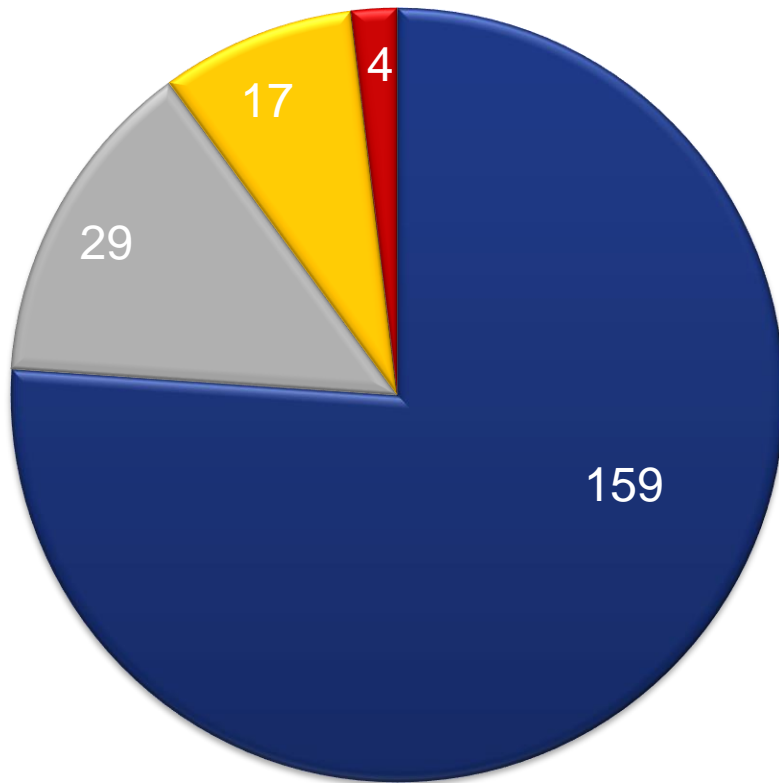
- Water providers nationwide discourage using GPCD as a measurement to compare a community's water efficiency
 - EPA: GPCD is not “appropriate for comparing utilities to each other”
 - Southern Nevada Water Authority (Las Vegas, NV): “GPCD varies across communities due to several factors... as such, it is difficult to compare GPCD rates for different communities for the purpose of evaluating efficiency”
 - New Mexico Office of the State Engineer: “GPCD should not be used to compare drinking water suppliers”
 - Texas Water Development Board: “A simple comparison of per-capita use...may lead to inaccurate conclusions about comparative water use efficiencies”

Utah's GPCD Accounting Process

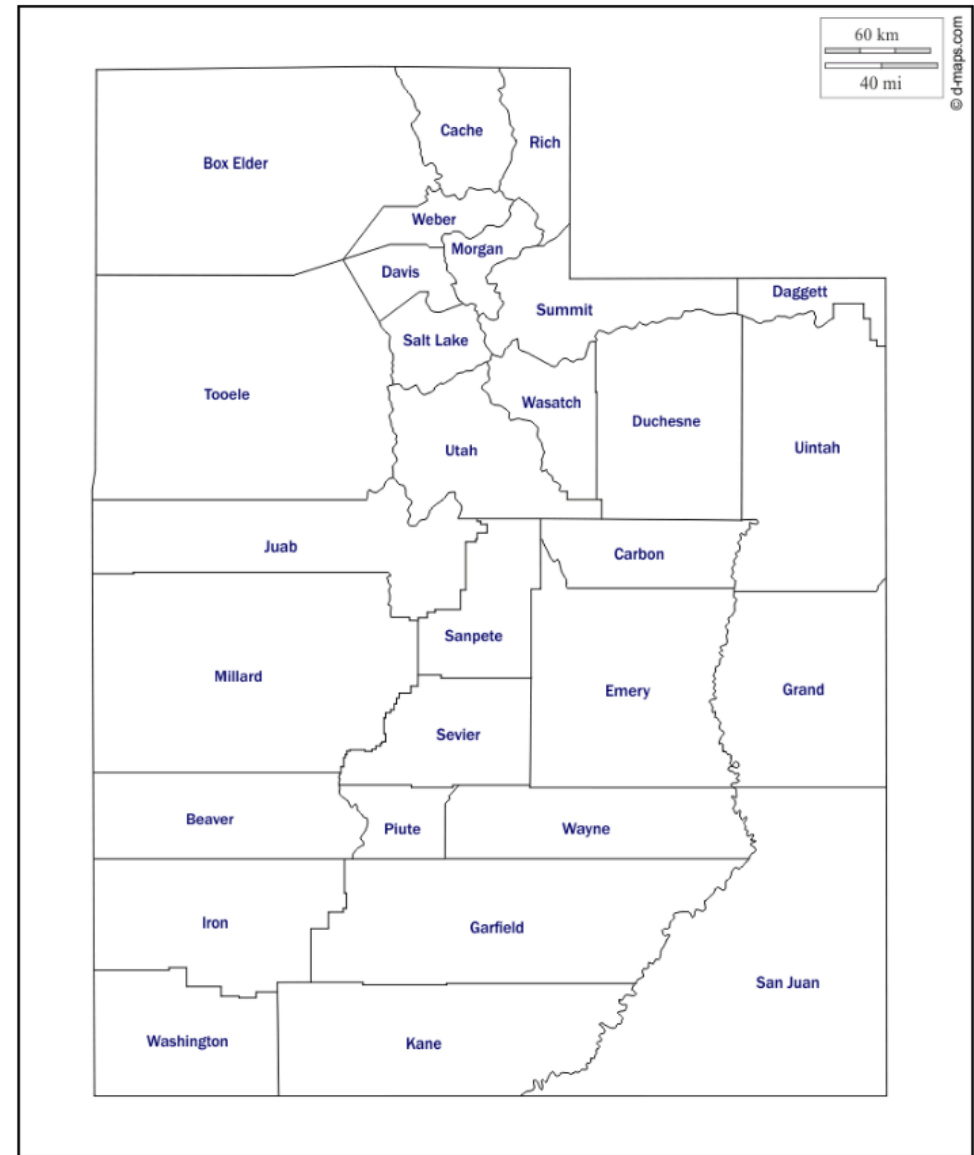
- Utah has one of the most comprehensive water accounting practices in the United States
 - Includes all potable, secondary and reuse water
 - Includes the use by all industries: residential, commercial, institutional and industrial
 - Includes the use of temporary residents and visitors
 - Does not apply return flow credits
- GPCD can be an effective tool for water resource planning and to assess the effectiveness of water conservation programs

Washington County's Water Use

2019 Potable GPCD



■ Residential ■ Commercial ■ Institutional ■ Industrial



Southern Utah's Comprehensive Water Plan



Existing Sources



Conservation and Reuse



Local Projects



Ag Conversion

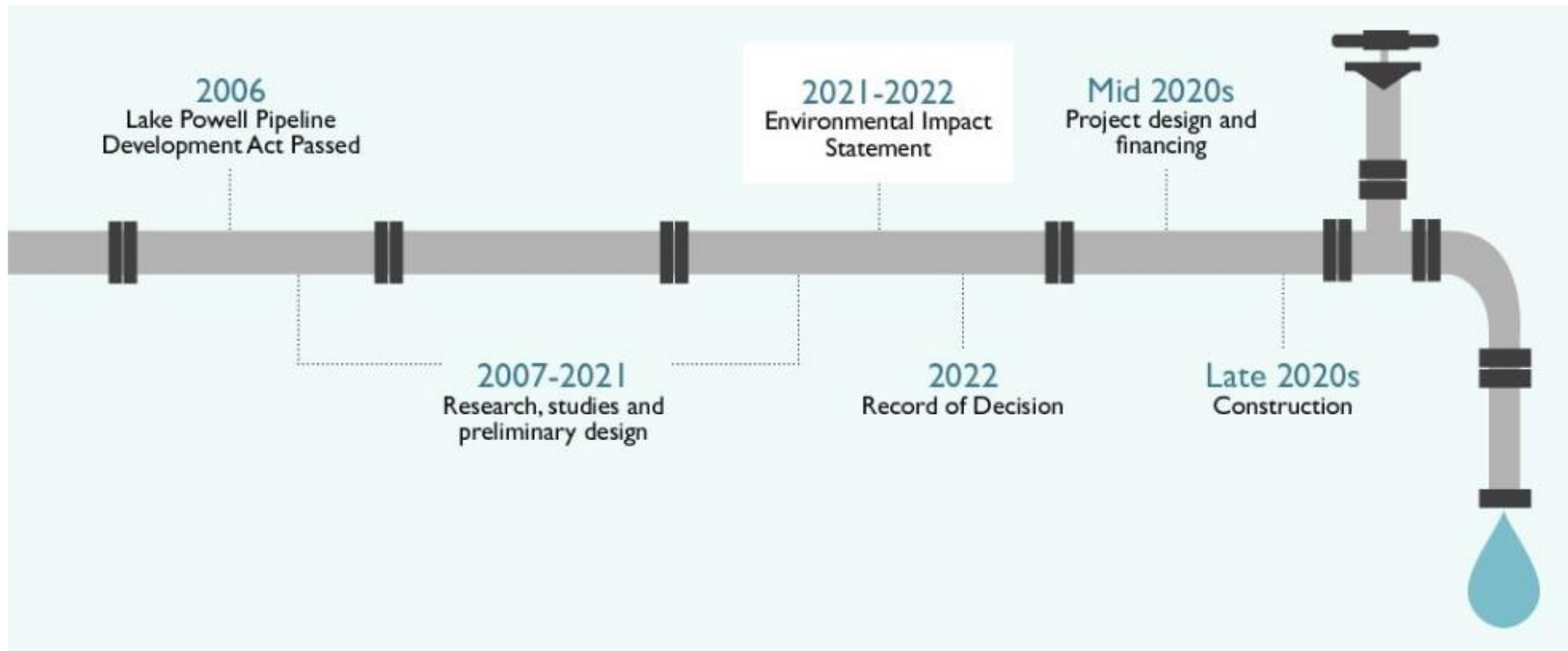


Lake Powell Pipeline (LPP)



LPP Reuse

LPP Anticipated Timeline



Costs and Financing

District Revenue Sources



WATER
RATES



PROPERTY
TAXES



IMPACT
FEES

- 2006 Lake Powell Pipeline Development Act reads the state will finance the project and water users will repay the state
- Preliminary cost estimate \$1.1-1.9 billion (2020 dollars)

The LPP Provides Water for Generations

- Provides water for economic vitality for current and future generations
- Protects against drought
- Reduces the risks of single water source reliance
- Allows Utah to beneficially use a small portion of its Colorado River right



More Information at www.LPPUtah.org

