Integrating Water & Land Use

APA 2021

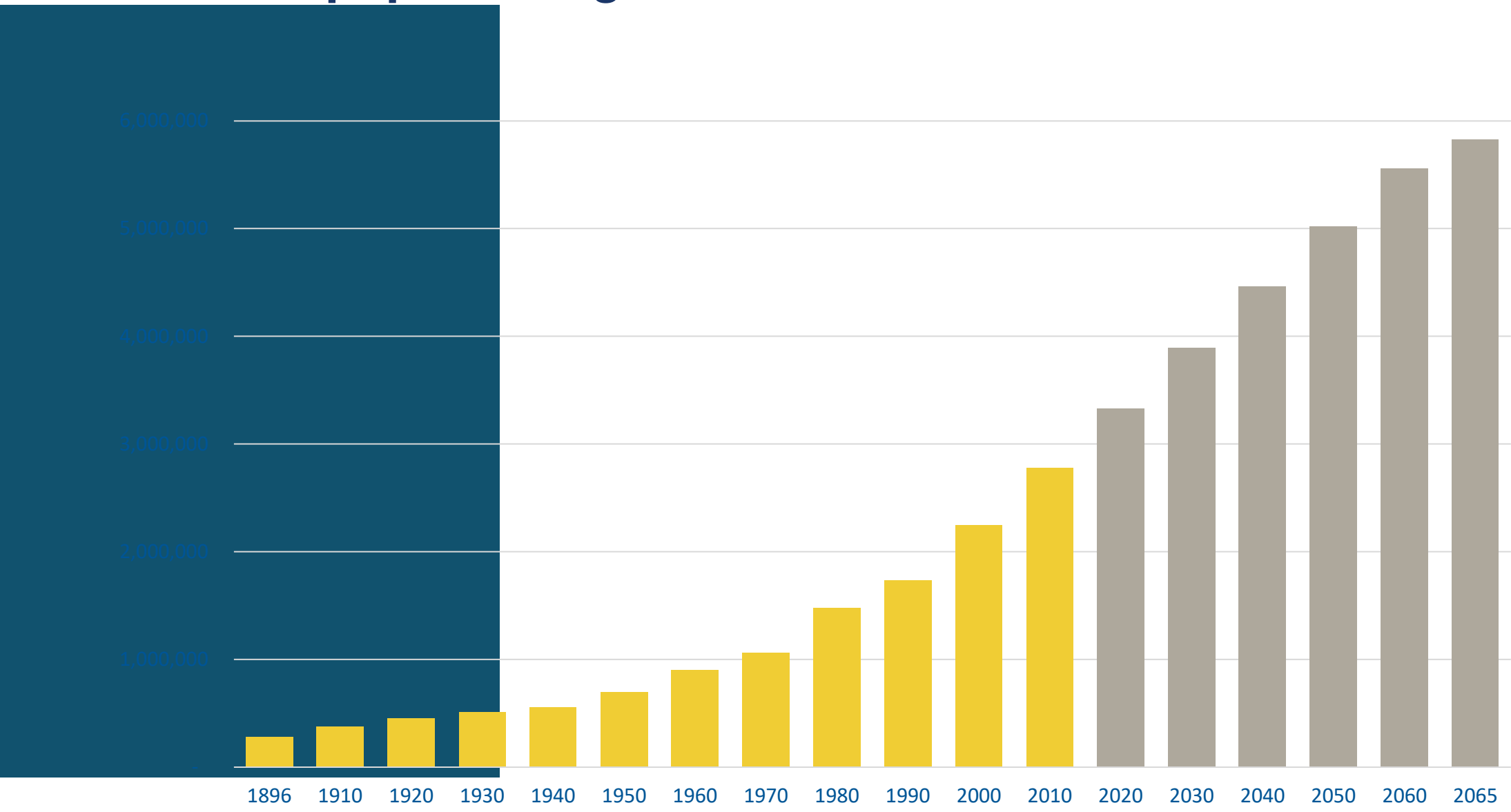
Jake Young, SLCo Regional Development
Alan Packard, Jordan Valley Water Conservation District
John Berggren, Western Resources Advocates

SALT LAKE COUNTY REGIONAL DEVELOPMENT

JORDAN VALLEY WATER CONSERVANCY DISTRICT

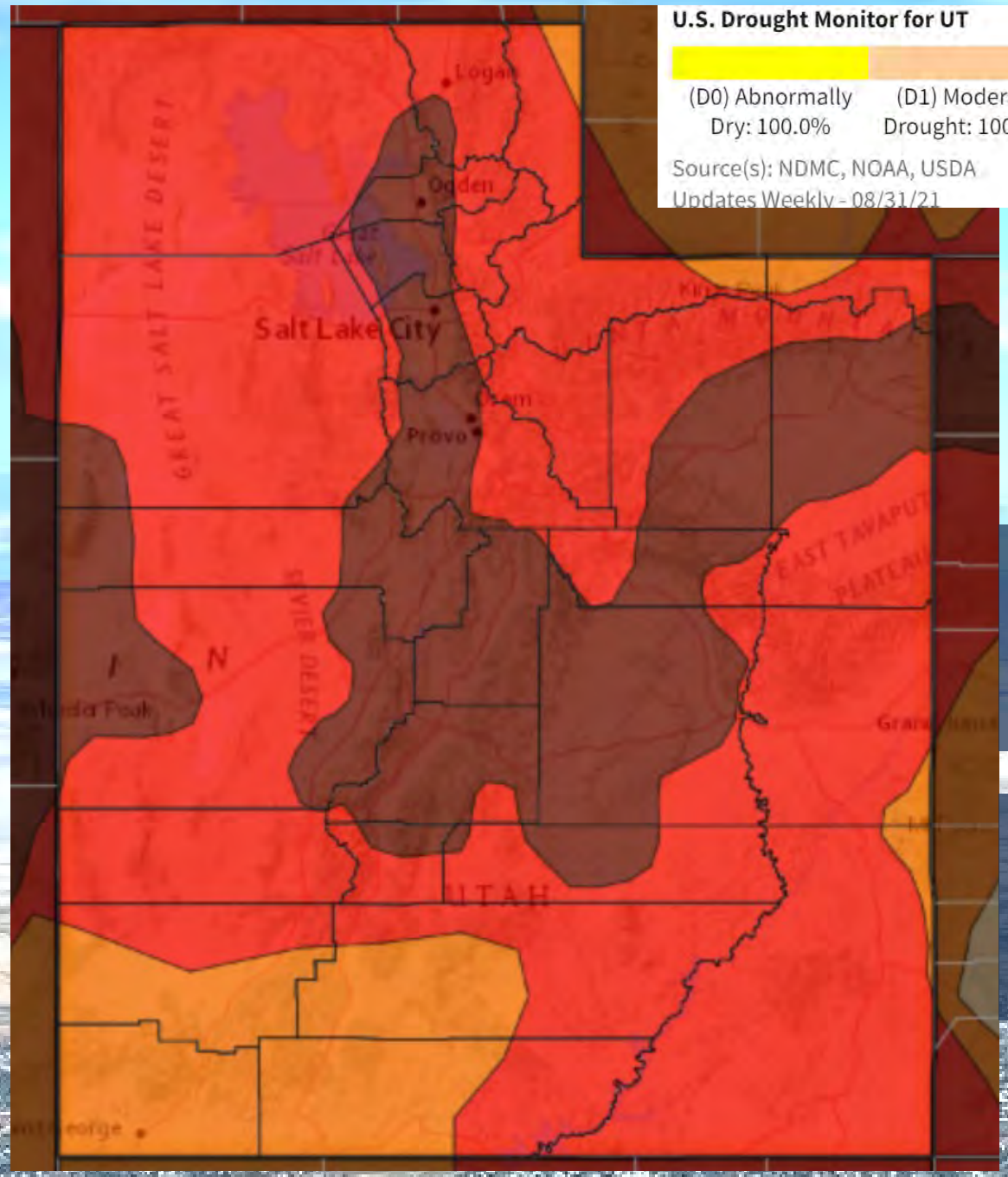
WESTERN RESOURCE ADVOCATES
PROTECTING THE WEST'S LAND, AIR, AND WATER

- **Utah's population growth**



PREPARE 60
SECURING UTAH'S ECONOMIC FUTURE

Sources: Governor's Office of Management and Budget and Kem C. Gardner Policy Institute



The drought has our attention.

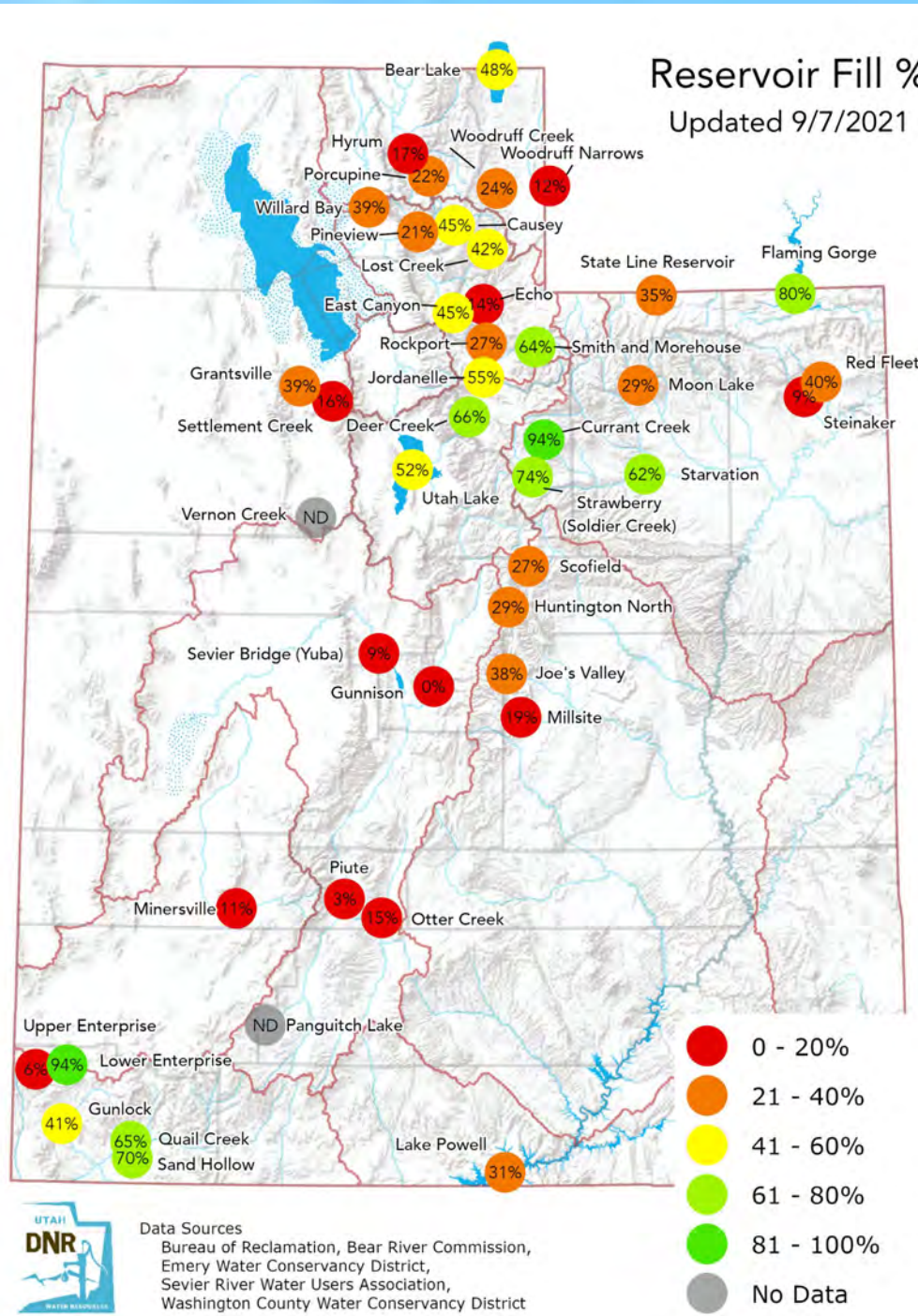
12th
wettest August was in 2021, over the past 127 years

23rd
driest year to date was in 2021, over the past 127 years

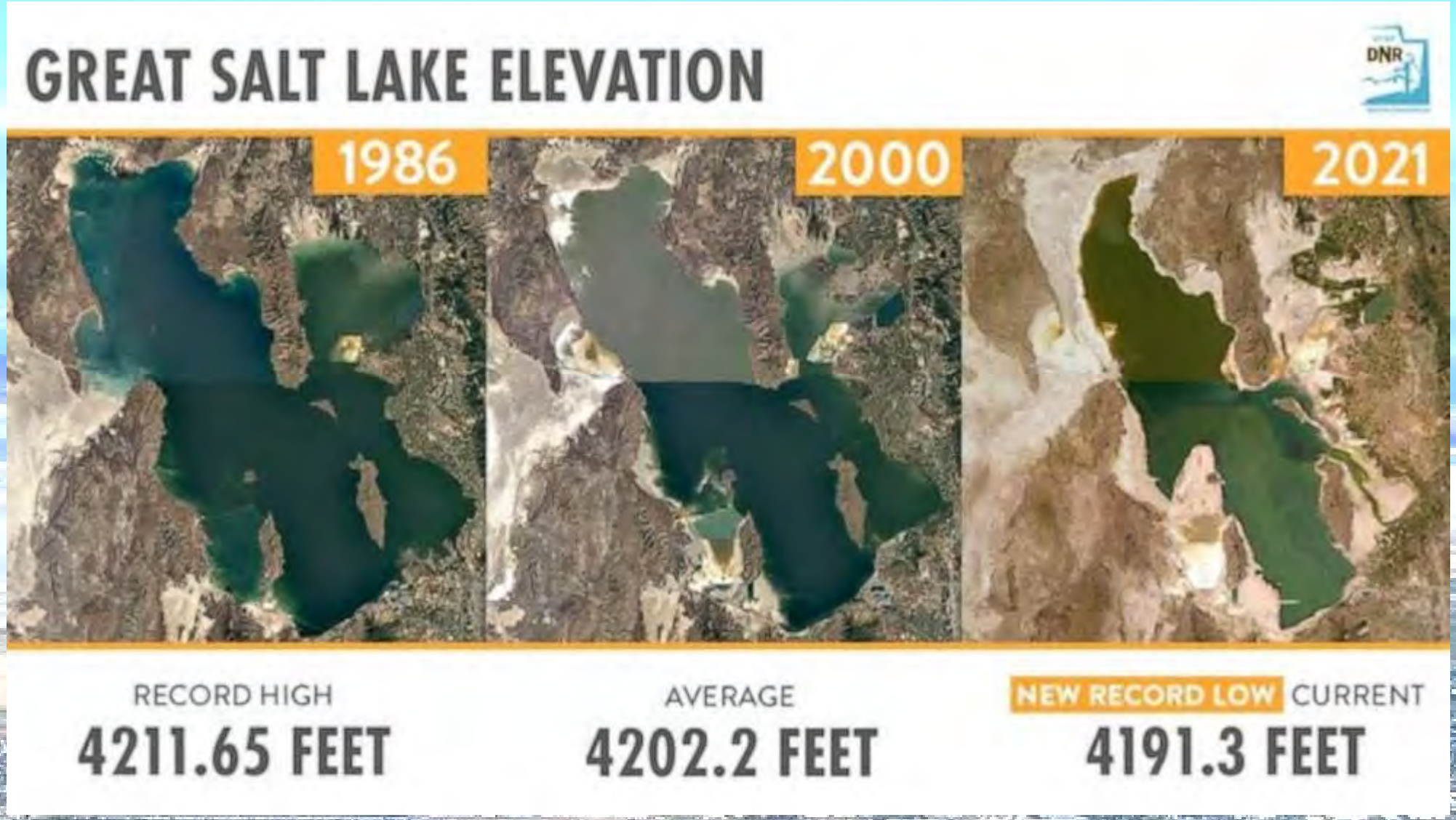
2.8 Million
people in Utah are affected by drought

29
counties with USDA disaster designations

Drought


Reservoir Fill %
Updated 9/7/2021
Bear Lake 48%
Hyrum 17%
Woodruff Creek
Woodruff Narrows 12%
Porcupine 22%
24%
Willard Bay 39%
Pineview 21%
45% Causey
42%
Lost Creek
State Line Reservoir 35%
Flaming Gorge 80%
East Canyon 45%
14% Echo
Rockport 27%
64% Smith and Morehouse
Red Fleet 40%
Grantsville 39%
Jordanelle 55%
29% Moon Lake
9%
16%
Settlement Creek
Deer Creek 66%
Steinaker
94% Currant Creek
52%
74%
62% Starvation
Utah Lake
Strawberry
(Soldier Creek)
Vernon Creek ND
27% Scofield
29% Huntington North
Sevier Bridge (Yuba) 9%
38% Joe's Valley
Gunnison 0%
19% Millsite
Piute
3%
Minersville 11%
15% Otter Creek
Upper Enterprise
ND Panguitch Lake
6% 94% Lower Enterprise
Gunlock
41%
65% Quail Creek
70% Sand Hollow
Lake Powell
31%
0 - 20%
21 - 40%
41 - 60%
61 - 80%
81 - 100%
No Data
UTAH DNR
Data Sources
Bureau of Reclamation, Bear River Commission,
Emery Water Conservancy District,
Sevier River Water Users Association,
Washington County Water Conservancy District

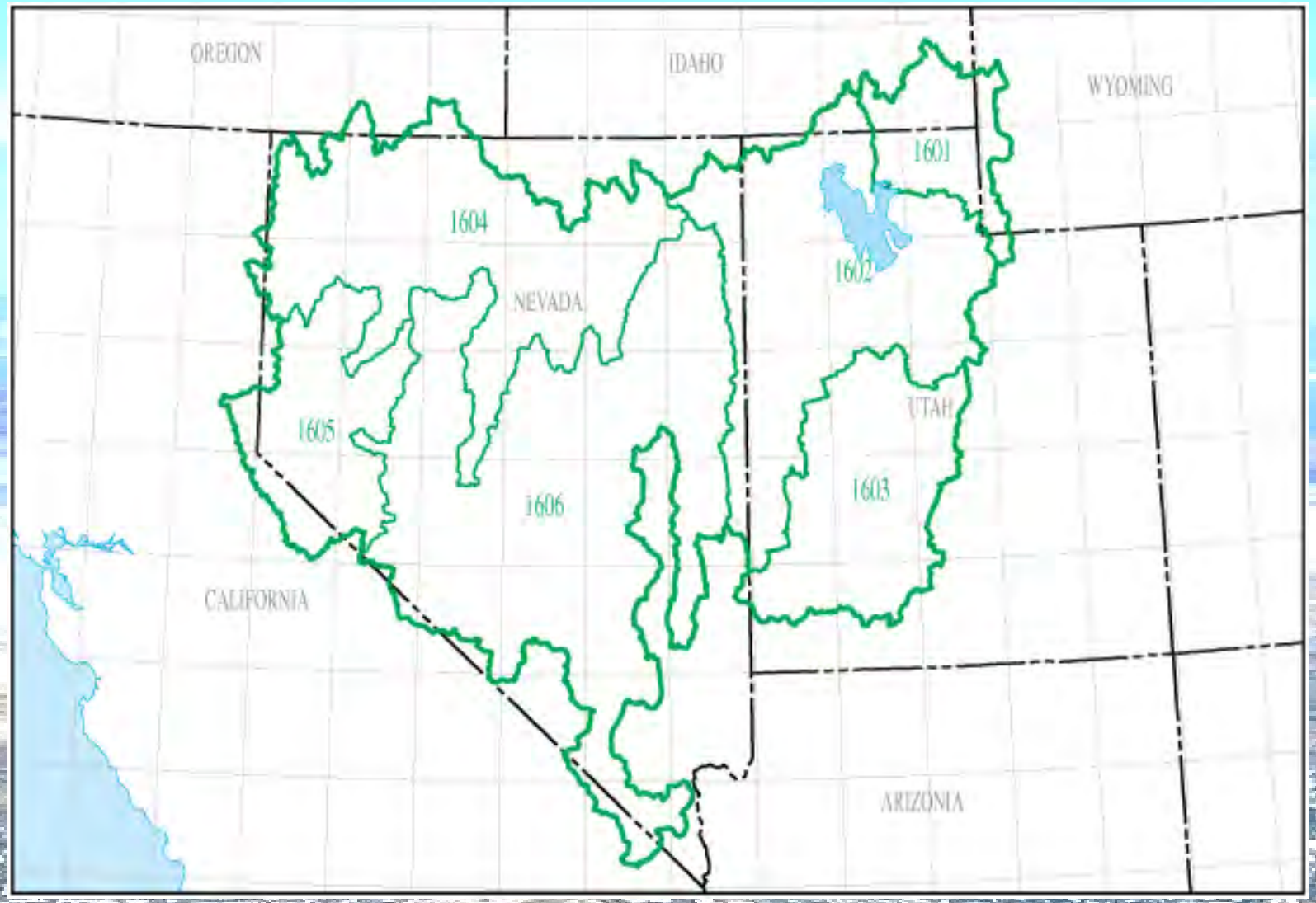
Great Salt Lake



Impacts of drying Great Salt Lake

- Western hemisphere flyways & birds
- Air pollution
  - Dust (arsenic soil)
- Economic
  - Snowpacks & ski industry (1 billion)
  - Brine shrimp industry (57 million)
  - Our natural heritage

Great Salt Lake & Great Basin



Great Salt Lake & Great Basi

Surface inflow ~ 64%

Groundwater ~ 3%

Direct precip ~ 33%

~ 100%

Major surface inflows:

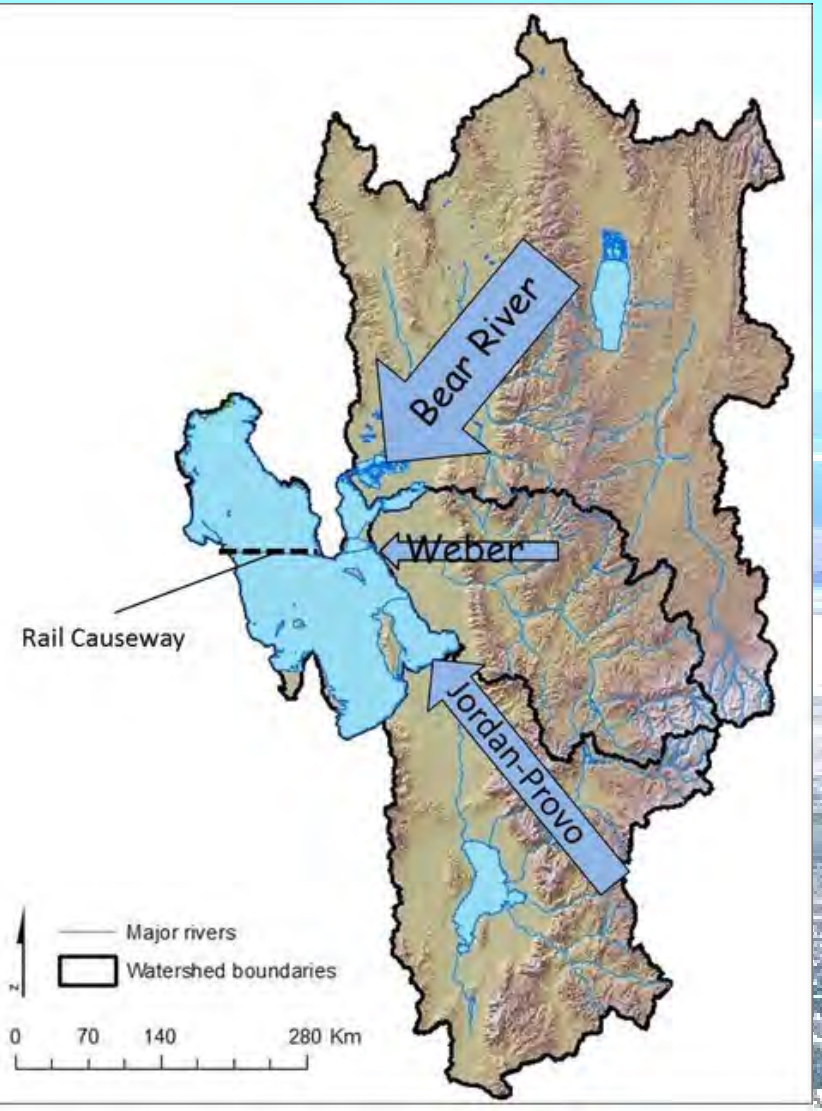
Bear River ~ 55%

Weber River ~ 12%

Jordan River ~ 26%

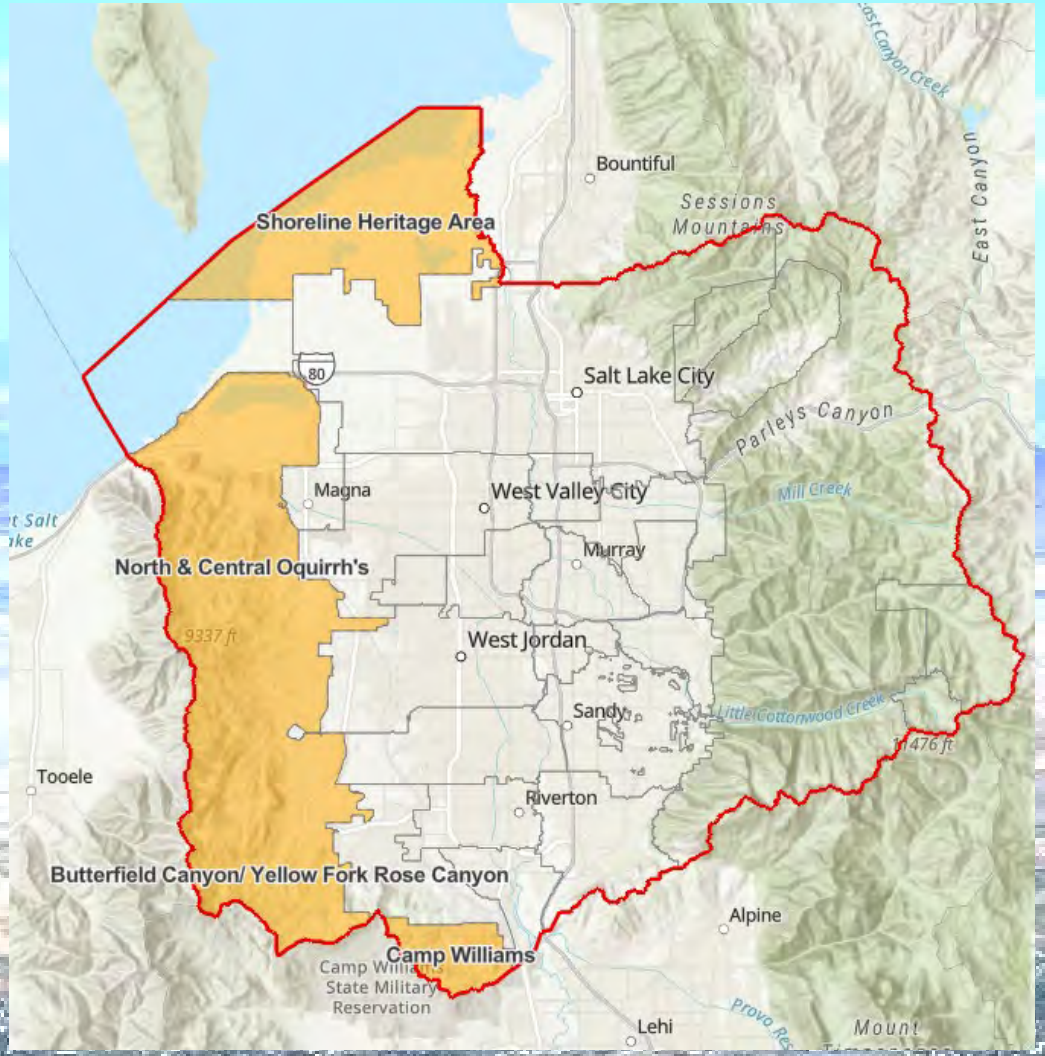
Ephemeral streams ~ 7%

~ 100%



Colorado Basin

SLCo West General Plan



Jordan Valley Water Conservation District is on the steering committee

JORDAN VALLEY WATER
CONSERVANCY DISTRICT

JORDAN VALLEY WATER
CONSERVANCY DISTRICT

Integrating Water and Land Use Planning

Water Supply, Demand, and Planning

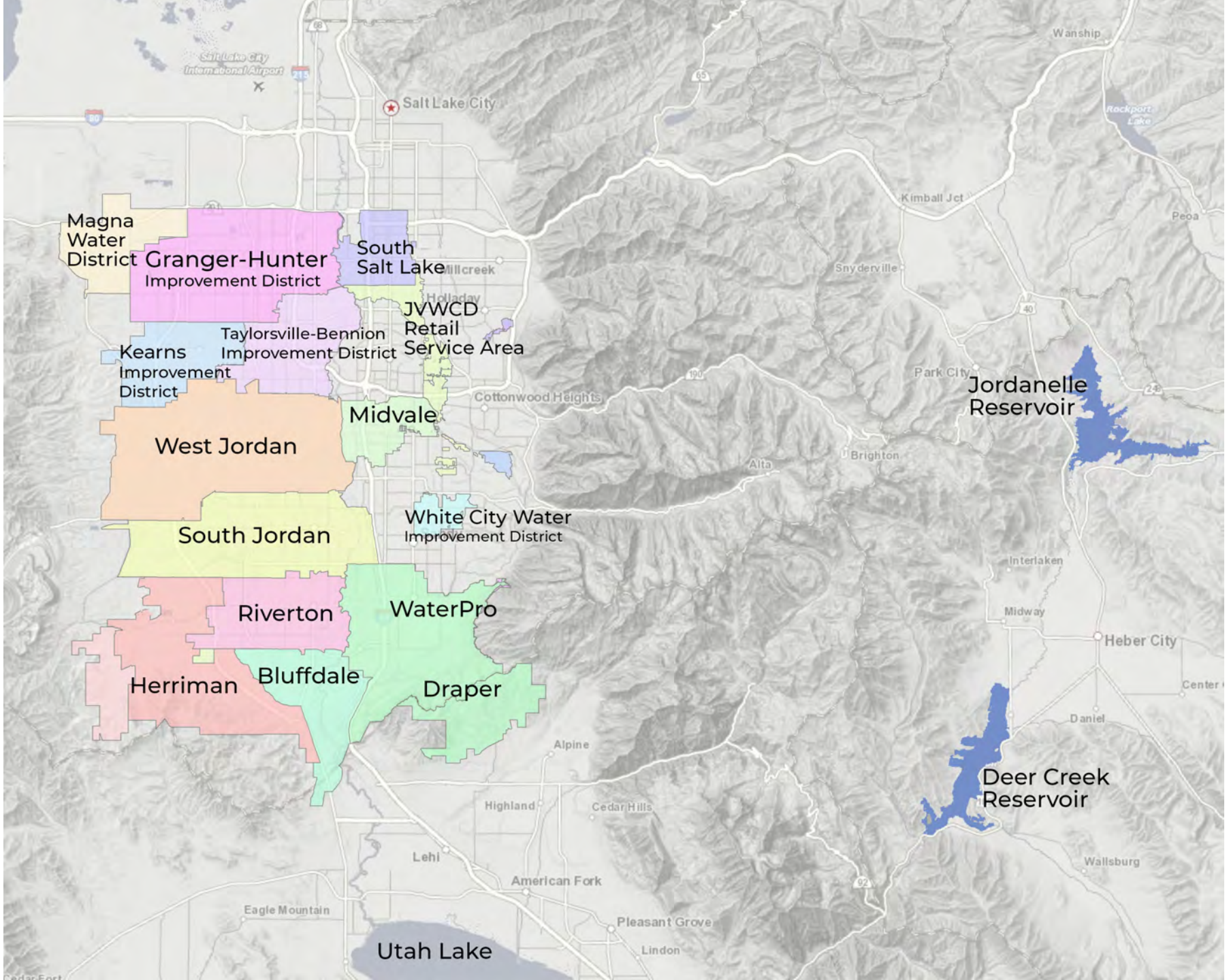
September 2021

The highlighted areas on the map show JVWCD's service area, which includes the following cities and water providers:

- Bluffdale City
- Draper City
- Granger-Hunter Improvement District
- Herriman City
- Kearns Improvement District
- Magna Water District
- Midvale City
- Riverton City
- City of South Jordan
- City of South Salt Lake
- Taylorsville-Bennion Improvement District
- Waterpro, Inc.
- City of West Jordan
- White City Water Improvement District

JVWCD's retail service area also includes smaller portions of the following locations:

- City of Holladay
- Cottonwood Heights City
- Murray City
- Millcreek City
- Sandy City



Statewide Water Planning

JVWCD is one of the water conservancy districts that participates in Prepare60

WHO IS PREP60?

The Center established by the four largest water conservancy districts to protect what we have, use it wisely, and provide for the future.

PREPARE 60
SECURING UTAH'S ECONOMIC FUTURE

Prepare60 districts provide water service to 85% of the state of Utah

WEBER BASIN WATER CONSERVANCY DISTRICT

CENTRAL UTAH WATER CONSERVANCY DISTRICT

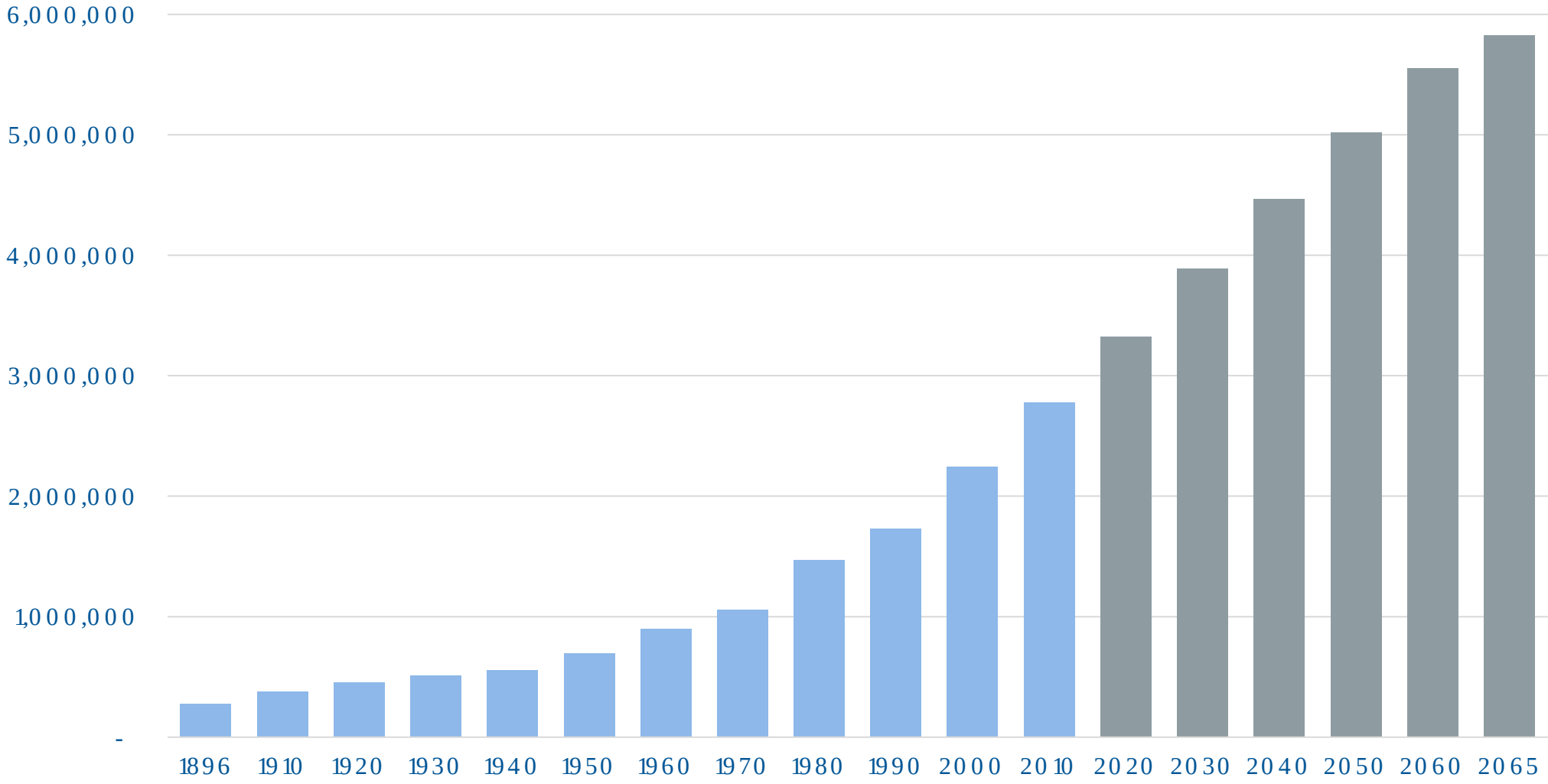
JORDAN VALLEY WATER CONSERVANCY DISTRICT

WASHINGTON COUNTY WATER CONSERVANCY DISTRICT

Prepare60 Focus

- Repair and replace aging infrastructure
- Reduce water use; integrate new technology
- Develop infrastructure to meet demand

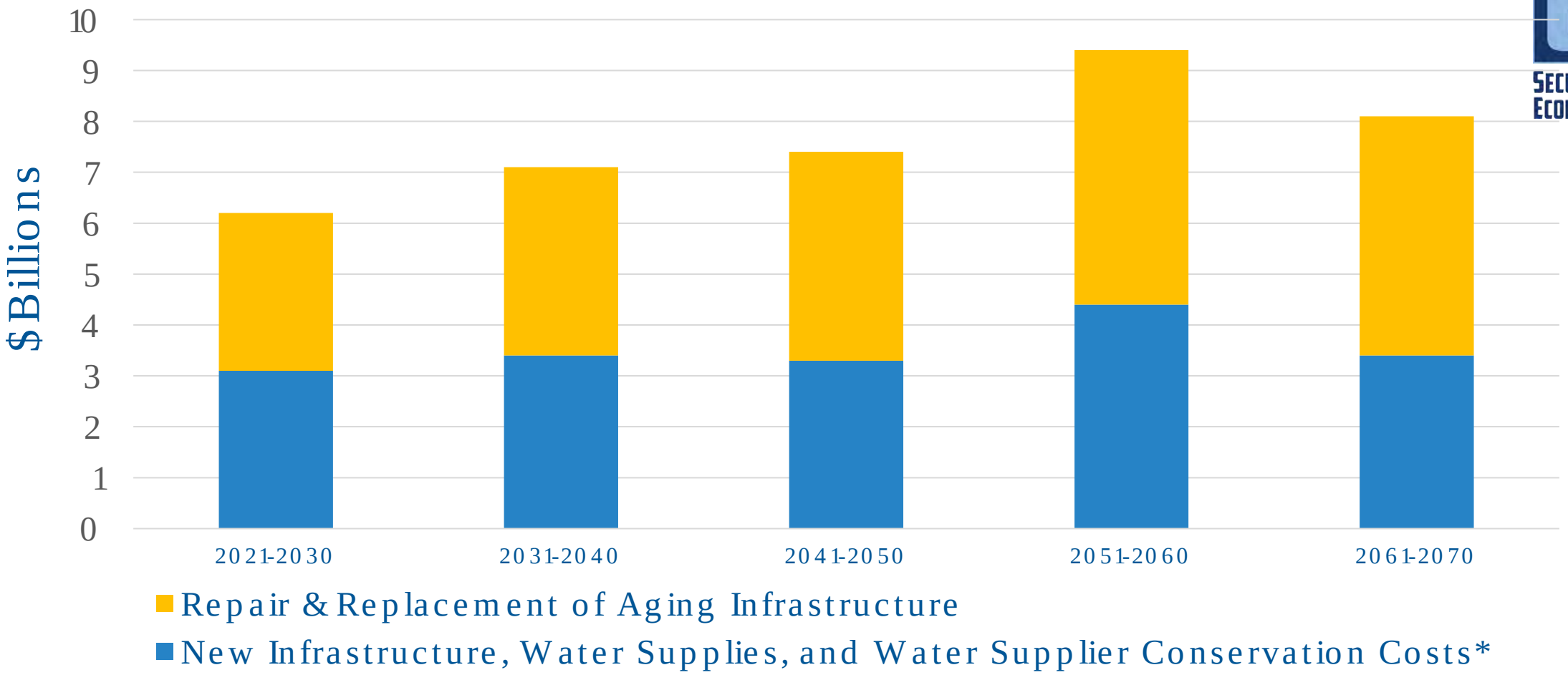
Utah's population growth



PREPARE 60
SECURING UTAH'S ECONOMIC FUTURE

Sources: Governor's Office of Management and Budget and Kem C. Gardner Policy Institute

Decade costs statewide



**Not including $9.5B in conservation costs paid by businesses and homeowners.*

EXPANDED TURF

BUYBACK PROGRAM

Outdoor water use makes up 60% of our municipal and industrial use.

60%

Expanded turf removal programs show we are serious about water conservation.

INTEGRATED LAND USE &

WATER PLANNING

Land and water use planning are currently done separately.

Adopting water efficiency standards is proactive and more cost effective than future turf replacement.

WATER CONSERVATION MEASURES

STATEWIDE INSTALLATION OF

SECONDARY WATER METERS

1/3 of Utah uses secondary or untreated water. Systems with meters have saved between 20% and 30%.

Very few of these connections are metered.

You can't manage what you don't measure.

AGRICULTURAL OPTIMIZATION

75%

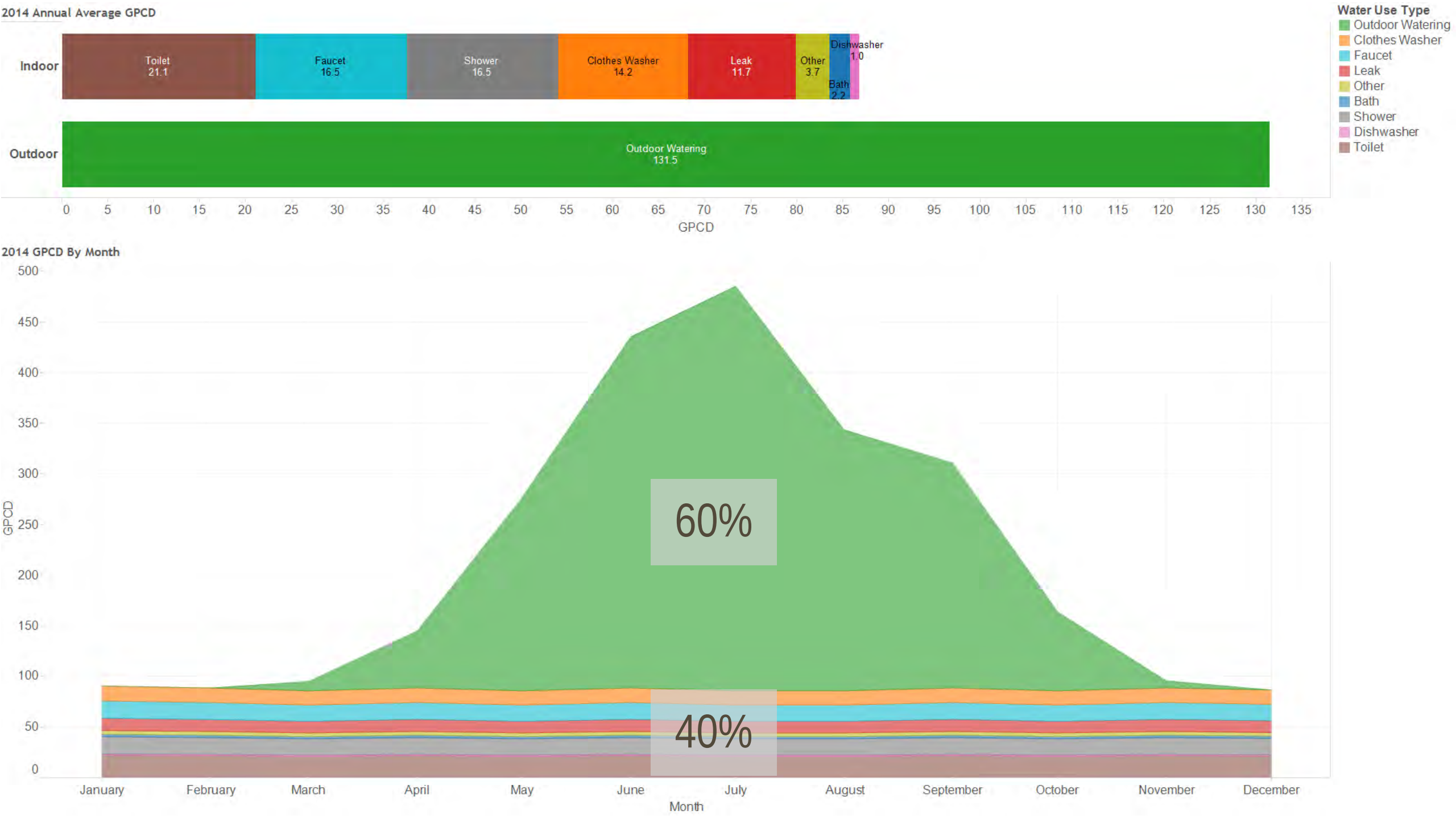
Agriculture accounts for approximately 75% of Utah's water use.

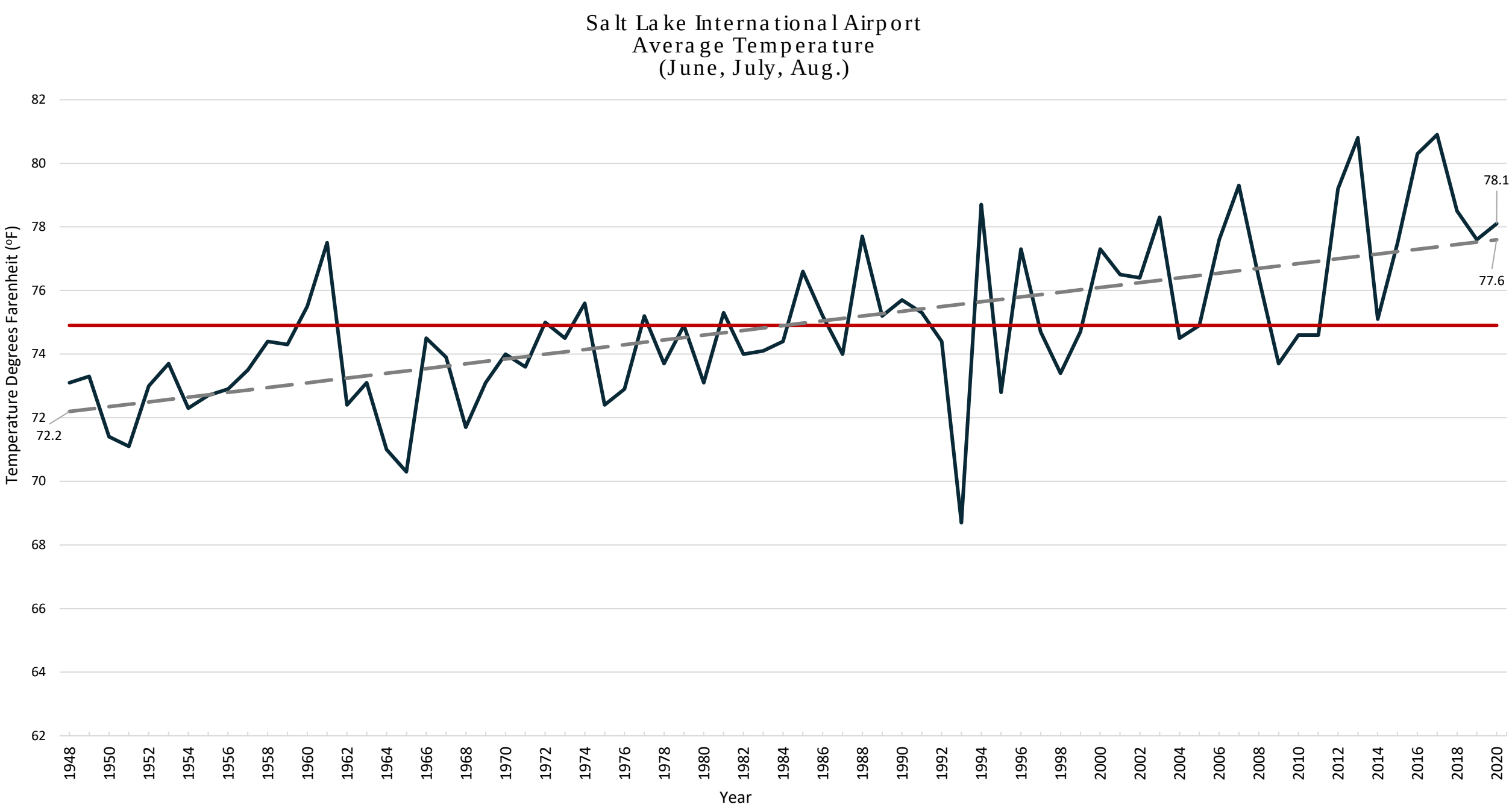
Investment in agricultural optimization will create supply flexibility, benefits for farmers and improve water quantity and quality.

VISIT DROUGHT.UTAH.GOV TODAY

JVWCD's Local Planning Efforts

Efforts and considerations impacting JVWCD's water supply and demand


2014 Annual Average GPCD
Indoor
Toilet 21.1
Faucet 16.5
Shower 16.5
Clothes Washer 14.2
Leak 11.7
Other 3.7
Bath 2.2
Dishwasher 1.0
Outdoor
Outdoor Watering 131.5
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135
GPCD
Water Use Type
Outdoor Watering
Clothes Washer
Faucet
Leak
Other
Bath
Shower
Dishwasher
Toilet
2014 GPCD By Month
500 450 400 350 300 250 200 150 100 50 0
GPCD
60%
40%
January February March April May June July August September October November December
Month

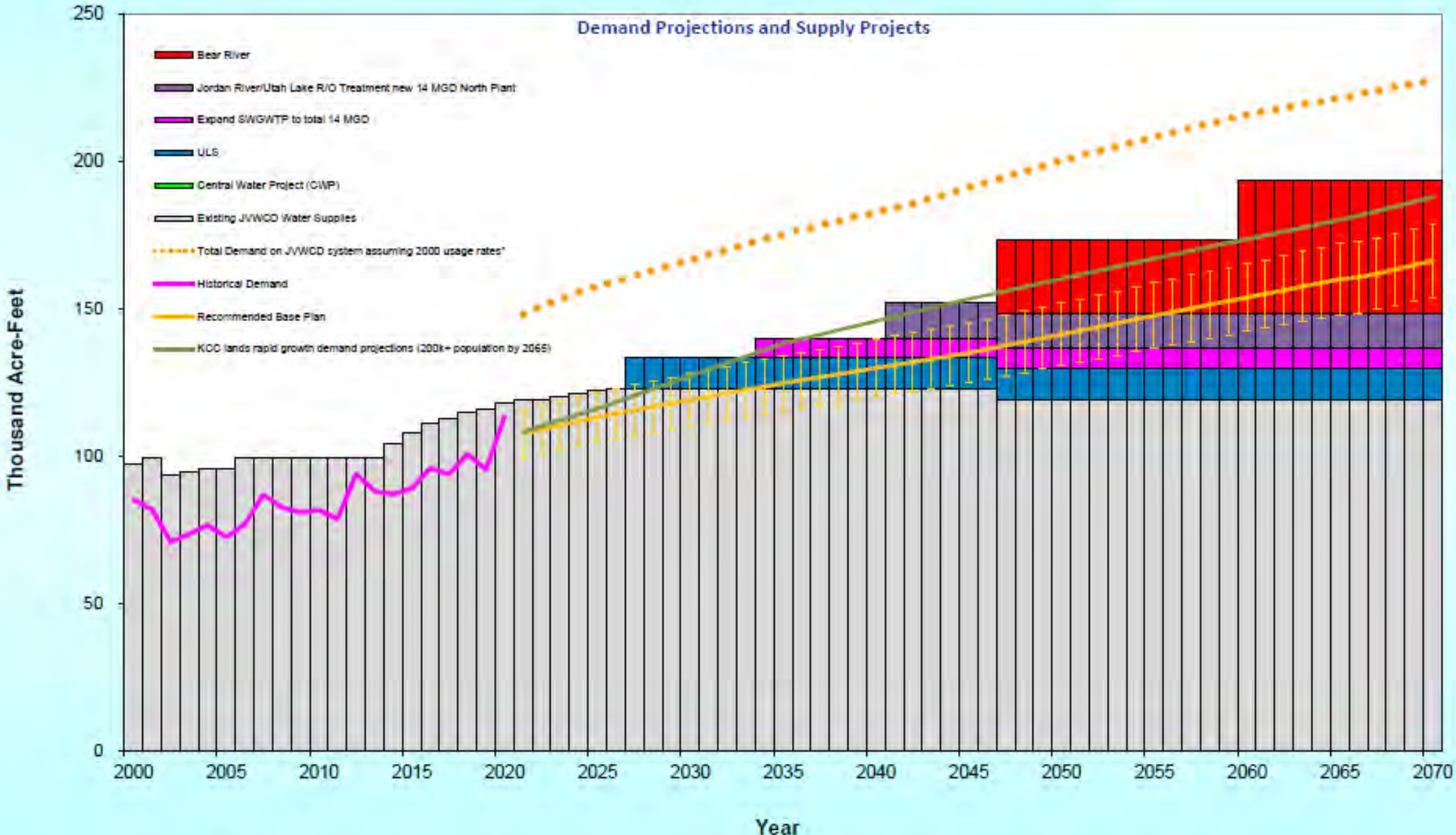

Salt Lake International Airport
Average Temperature
(June, July, Aug.)
Temperature Degrees Farenheit (ºF)
82
80
78
76
74
72
70
68
66
64
62
72.2
78.1
77.6
1948
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
Year
Average Annual Temperature (June-Aug)
Average Temperature 1948-2020 (June-Aug)
Linear (Average Annual Temperature (June-Aug))

Areas for Potential Service Area Expansion

It is anticipated the western portion of this projection plan could be annexed into JVWCD's service area.

Land Development Projection Map prepared by Salt Lake County

Jordan Valley Water Conservancy District
Drought Year Water Supply Plan using Prehistoric Data
(Updated April 2021)



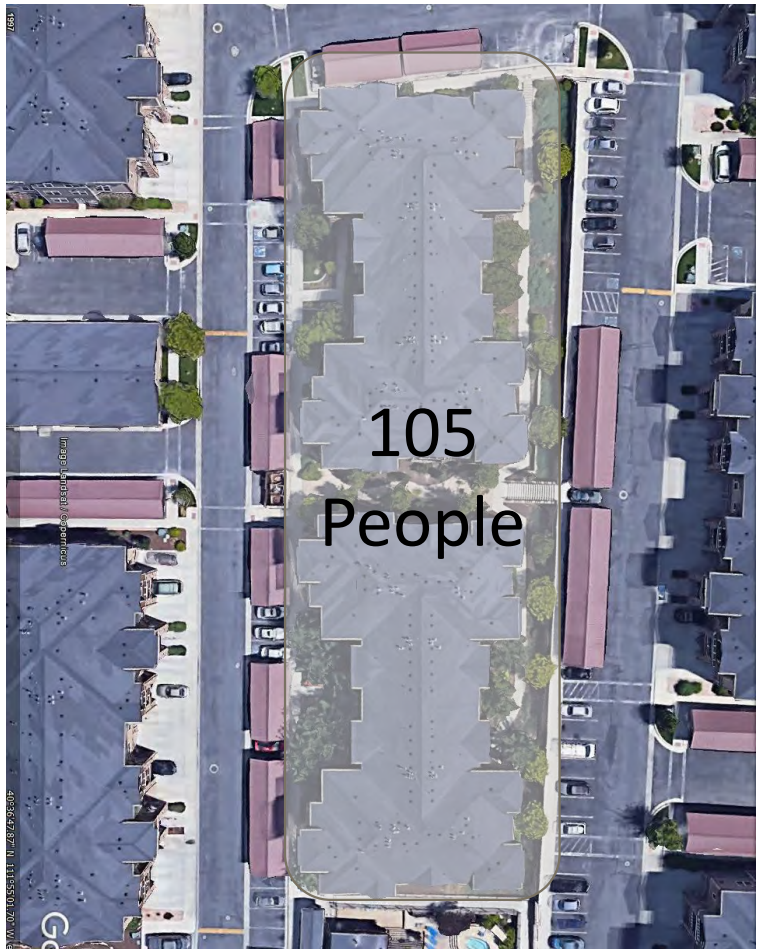
Impact of Land Development on Water Demand

Every land use decision is a water management decision

Water Use Comparison of Different Population Densities (JVWCD Study)

4 – .25 Acre Lots

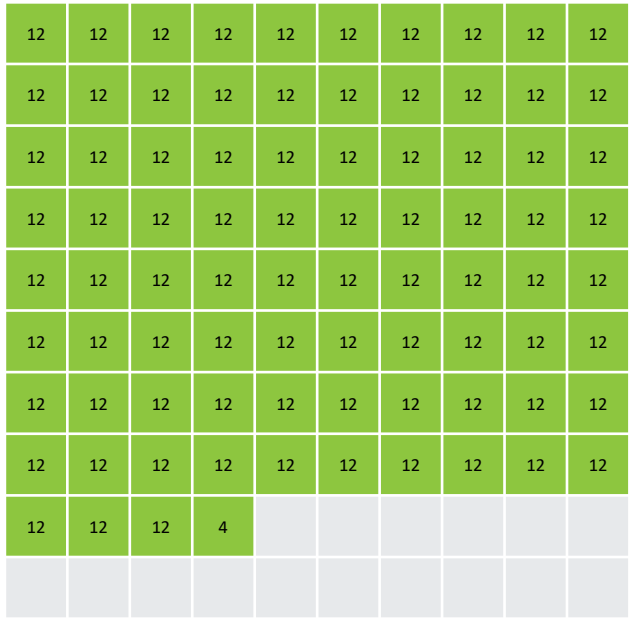
18 – Townhomes in an Acre



60 – Apartments in an Acre

How to place 1000 people into 100 acres (residential only)

Option 1: 4 - 0.25 acre lot homes per acre (12 people per acre)



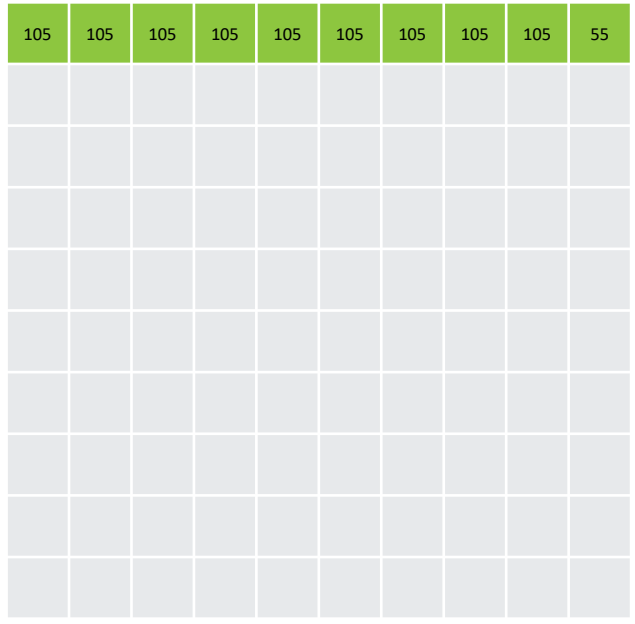
Legend

1 acre of residential development

1 acre of undeveloped land for future CII or more residential

Total annual gallons	86,388,200
Total annual acre feet	265.12
GPCD	236.68

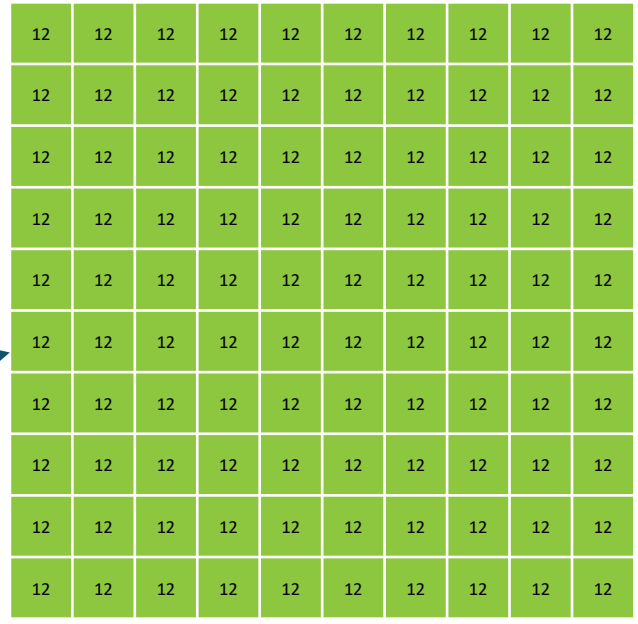
Option 2: 60 unit apartment complex per acre (105 people per acre)



Total annual gallons	22,575,250
Total annual acre feet	69.28
GPCD	61.85

100 acres fully developed (residential only)

Option 1: 4 - 0.25 acre lot homes per acre (12 people per acre)



1,200 People

Total annual gallons	103,665,840
Total annual acre feet	318.14
GPCD	236.68

Legend

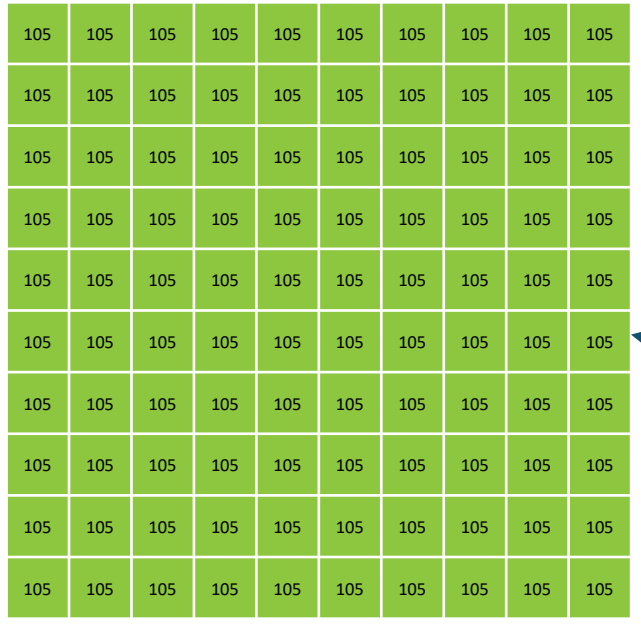
1 acre of residential development

1 acre of undeveloped land for future CII or more residential

6,956

more acre feet

Option 2: 60 unit apartment complex per acre (105 people per acre)



105,000 People

Total annual gallons	2,370,401,250
Total annual acre feet	7,274.48
GPCD	61.85

Water Efficiency Standards and Policy Considerations

Summary of the water efficiency standards and recent policy changes approved by JVWCD's Board of Trustees

Indoor
Standards

It is recommended but not mandated that all indoor plumbing fixtures be WaterSense labeled (e.g. toilets, urinals, faucets, and showerheads) .

Residential Landscape Standards

- Applicable to front and side yards.
- Lawn is designed as an open space that does not exceed 35% of the total landscaped area.
- lawn is prohibited in park strips and other narrow areas less than 8’ wide.
- Drip irrigation is used in planting beds.
- Exceptions to these standards can be made in certain small lot scenarios.

Commercial Landscape
Standards

- Lawn is less than 20% of the landscaped area (except for active recreation zones).
- Lawn is not used in areas narrower than 8 feet (park strips, parking lot islands, etc).
- Lawn is free from obstructions and is not used on steep slopes.
- Drip irrigation is used in planting beds.
- Plant materials create at least 50% living plant cover at maturity (recommended).
- New landscape projects are submitted to the municipality to ensure they meet water conservation requirements.
- Certain special purpose landscape areas may receive variances to the standards based on need (ex. stormwater management areas)

Adoption of **Water Efficiency Standards**

Communities that have adopted JVWCD's Water Efficiency Standards on new construction

- Herriman
- South Jordan
- West Jordan
- Bluffdale
- JVWCD Retail System

Key Benefits of Adopting Water Efficiency Standards

Reductions in outdoor consumption will result in lower peaking factors, infrastructure costs, and water conservation expenses.

The cost to retrofit a landscape to be water-efficient is 5 times higher than installing it to be water-efficient from the beginning.

Adopting the standards now is a proactive step to minimize economic damage if water restrictions are required to respond to potentially more extreme droughts.

Water-efficient landscapes are more compatible with Utah's arid climate, are more resilient to droughts, and can more easily adapt to the trending hotter and drier climate conditions in the future.

Water Conservation Programs for Existing Users

Programs and initiatives to reduce demand with a strong emphasis on retrofitting to new standards

Utah Water Savers

utahwatersavers.com

Apply today for a **FREE consultation or cash rebates!**

(Programs available throughout most of JVWCD's service area)

Cash rebates for homeowners who purchase a smart controller for their irrigation system.

Cash rebates for homeowners who replace toilets that were installed before 1994.

Cash rebates for homeowners who convert grass park strips to water-efficient designs.

Free consultations for homeowners wanting to improve the water efficiency of their yard.

Cash rewards and landscape plan reviews for those who complete Localscapes projects.

JORDAN VALLEY WATER

CONSERVANCY DISTRICT

Delivering Quality Every Day ®

WESTERN RESOURCE ADVOCATES

Water and Land Use Integration in Utah

APA Utah Fall 2021 Conference

September 9, 2021 | John Berggren

WHO IS WRA?

Western Resource Advocates

- We are a conservation organization with more than 30 years experience in the Intermountain West
- We use law, science, and economics to craft innovative solutions to the most pressing environmental challenges
- We work to conserve western lands, advance clean energy, ensure healthy rivers, and protect air quality throughout the region

WESTERN RESOURCE ADVOCATES

PROTECTING THE WEST'S LAND, AIR, AND WATER

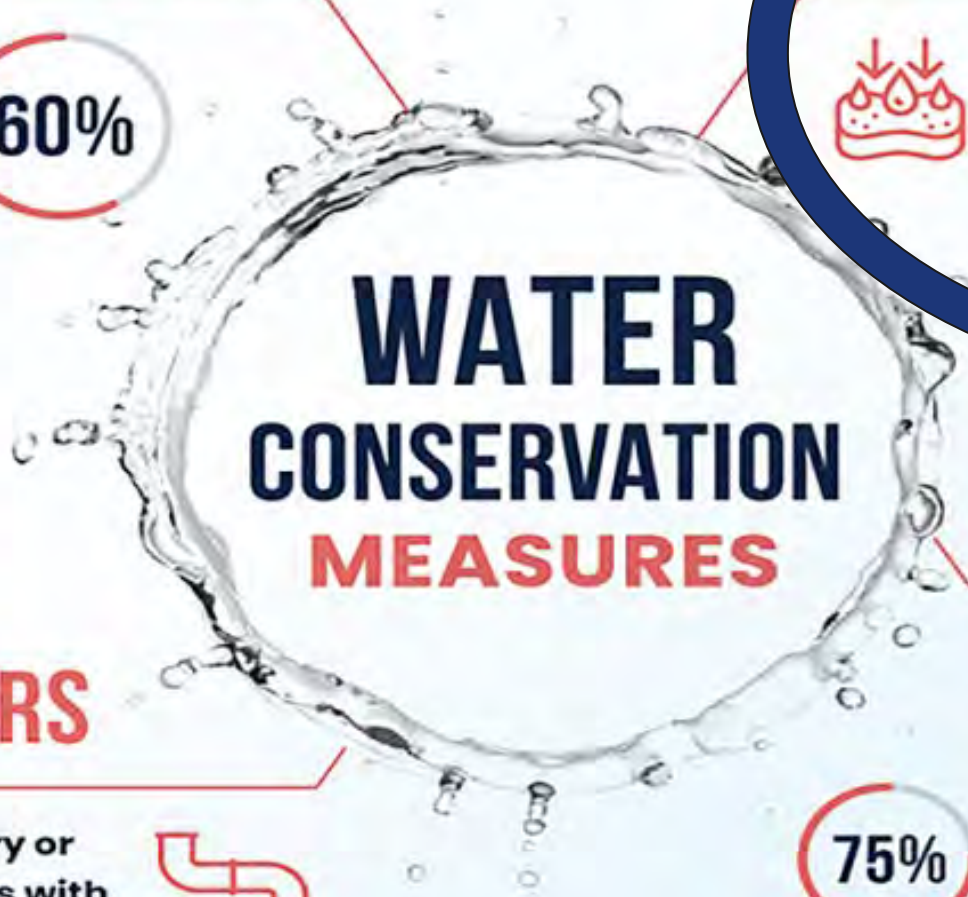
OUR MISSION: Western Resource Advocates is dedicated to protecting the West's land, air, and water to ensure that vibrant communities exist in balance with nature.

BABBITT CENTER
FOR LAND AND WATER POLICY

WESTERN RESOURCE ADVOCATES

Overview of Water and Land Use Integration

WATER CONSERVATION MEASURES



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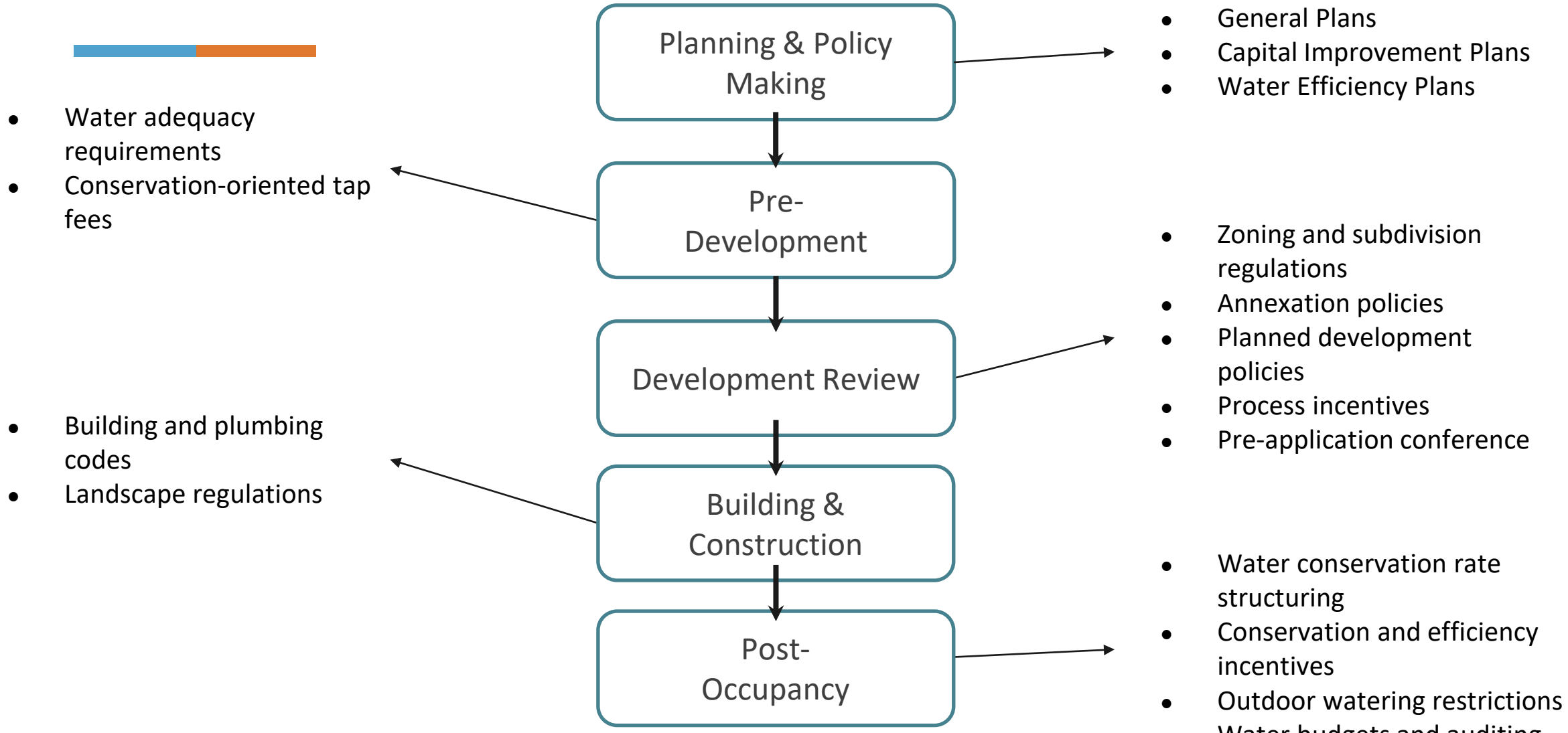
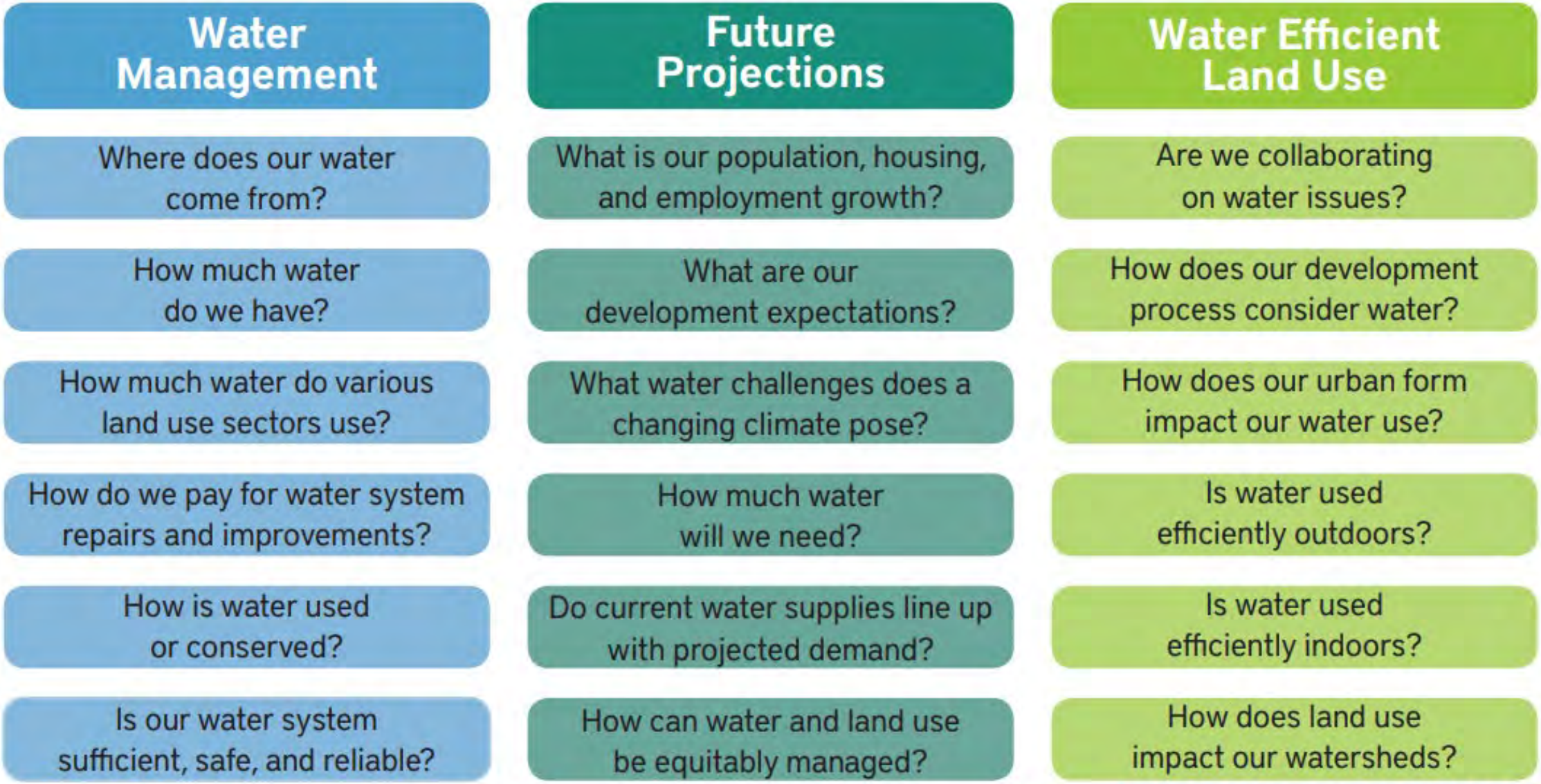

Planning & Policy Making
Pre-Development
Development Review
Building & Construction
Post-Occupancy
General Plans
Capital Improvement Plans
Water Efficiency Plans
Water adequacy requirements
Conservation-oriented tap fees
Zoning and subdivision regulations
Annexation policies
Planned development policies
Process incentives
Pre-application conference
Building and plumbing codes
Landscape regulations
Water conservation rate structuring
Conservation and efficiency incentives
Outdoor watering restrictions
Water budgets and auditing

Figure 2

Water Related Questions to Answer in a Comprehensive Planning Process



Source: Babbitt Center for Land and Water Policy

Examples - Zoning and subdivision regulations

- Zoning that allows Accessory Dwelling Units (ADUs) can increase density, leading to more water efficient development

- But also need to collaborate with water providers to determine tap fees for ADUs to ensure there isn't a disincentive

Examples - Landscape Regulations

Sandy City - *Sec. 21-25-4. - Water Efficient Landscaping*

For commercial, industrial, and MF, requires:

- Landscape Plan Documentation Package
- Landscape Water Allowance
- Landscape Design Standards
- Irrigation Design Standards
- Post-construction Monitoring

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FOR LAND AND WATER POLICY

WESTERN RESOURCE ADVOCATES

JANUARY 2019

A Guide to Municipal W
Conservation Pricing ir

Eric C. Edwards
Assistant Professor, Department of Applied Economics[1]

Sara A. Sutherland
Assistant Professor, Department of Applied Economics

consumers in
price incentives
wasteful water
costs for w
environment.

The Need for Conservation

Utahns recognize water is a precious natural resource, its availability critical to maintaining our health, food supply, and environment. Less well understood is that, as a critical *economic* resource,

Utah faces a da
next 30 years
resources in
population growth. Salt Lake and Utah Counties are projected to increase their combined populations from 1.55 million to 3.21 million by 2060 and water utilities throughout the state must secure reliable water supplies well ahead of actual

SPANISH FORK
PRIDE & PROGRESS

GOVERNMENT DEPARTMENTS RESIDENTS VISITORS BUSINESS HOW DO I?

Search...

PUBLIC WORKS WATER DIVISION DRINKING WATER PRESSURIZED IRRIGATION QUESTIONS REQUESTS

HOME › DEPARTMENTS › PUBLIC WORKS › WATER › WATER CONSERVATION › Smart Controller Project

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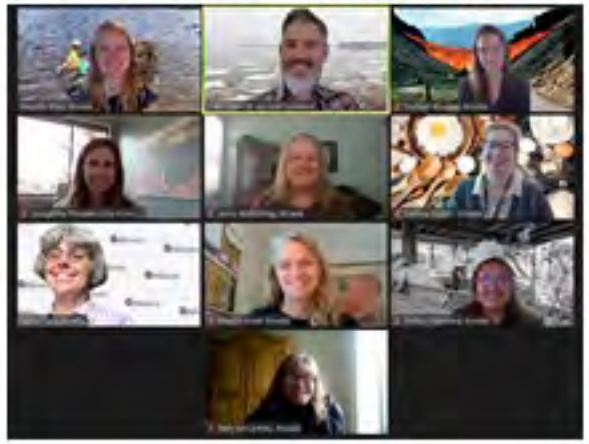
WESTERN RESOURCE ADVOCATES

Day 1: Setting a Workshop Intention and Rapport Building

Day 2: Peer to Peer Roundtables & Team Breakouts

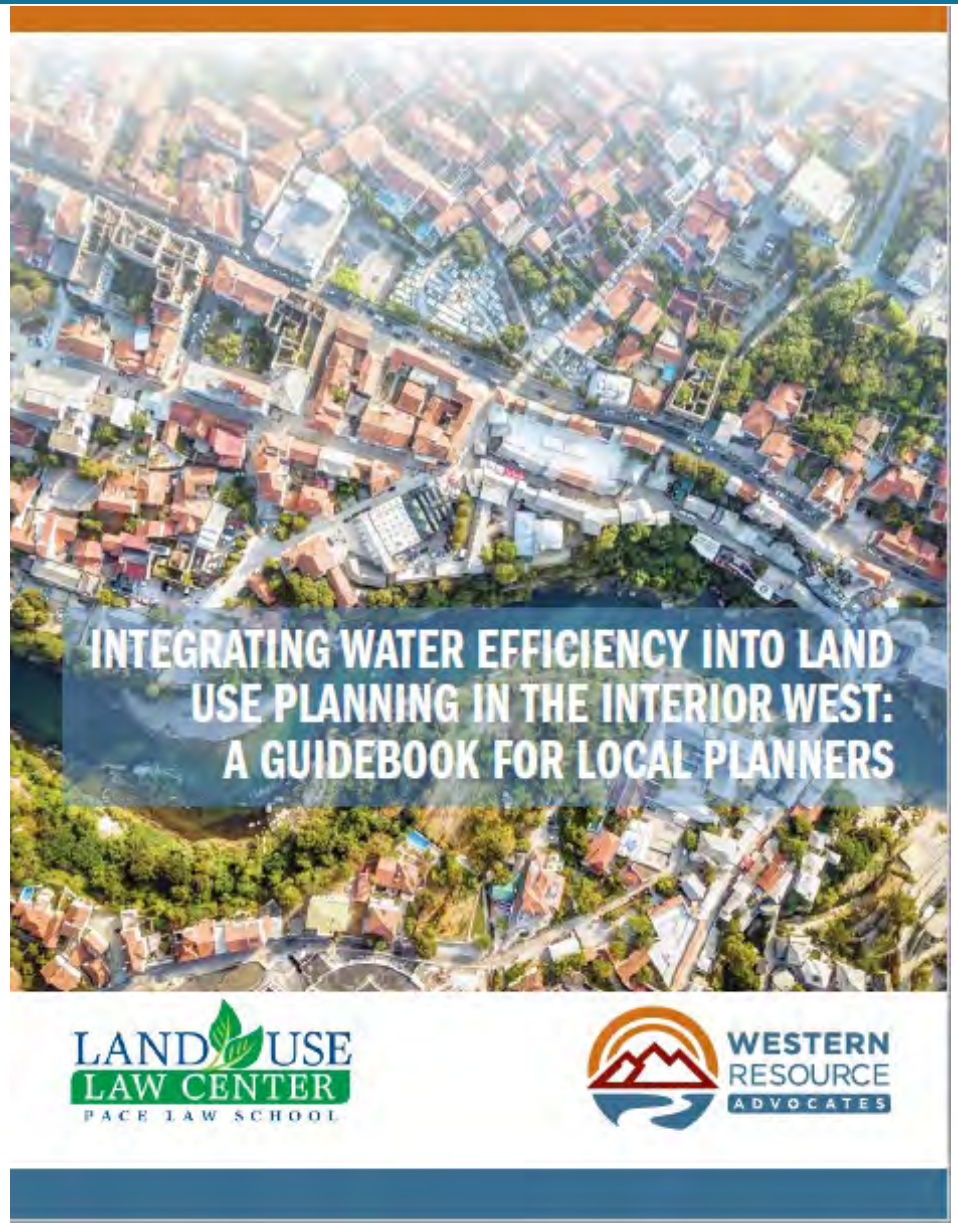


Day 3: Finalizing the Action Planning & Messaging

Source: Waverly Klaw, Sonoran Institute

Where can communities start?

- Review landscape regulations and compare with peer communities
- If updating general plan, think about including water throughout or have a stand alone section
- Identify potential alternative supplies (e.g., graywater, non-potable)
- Educate an elected official and get them interested
- Lots of (free) resources available…



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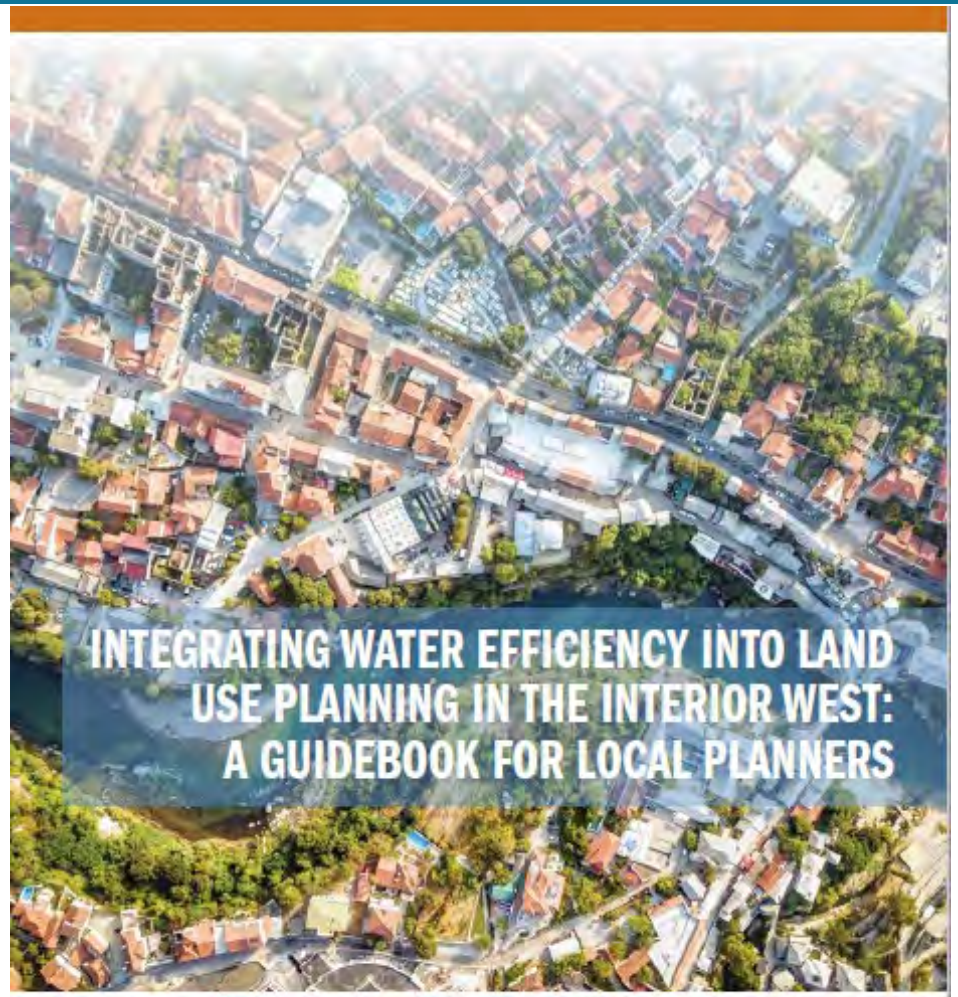

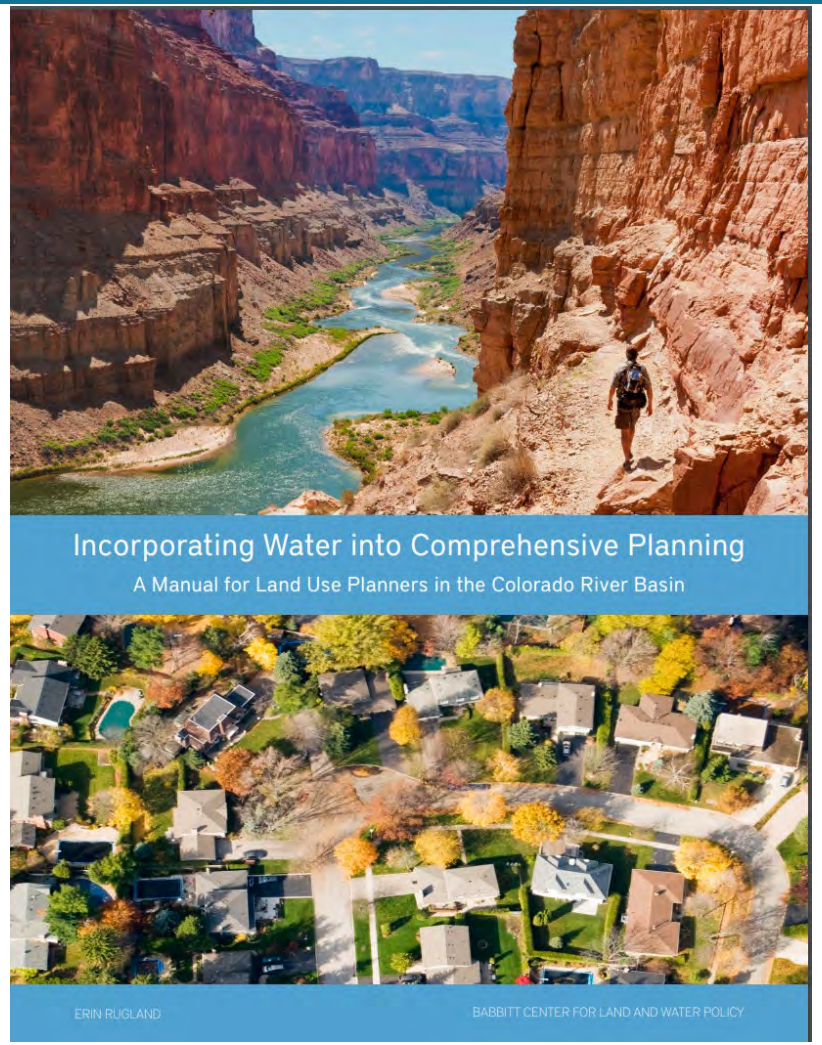

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WESTERN RESOURCE ADVOCATES

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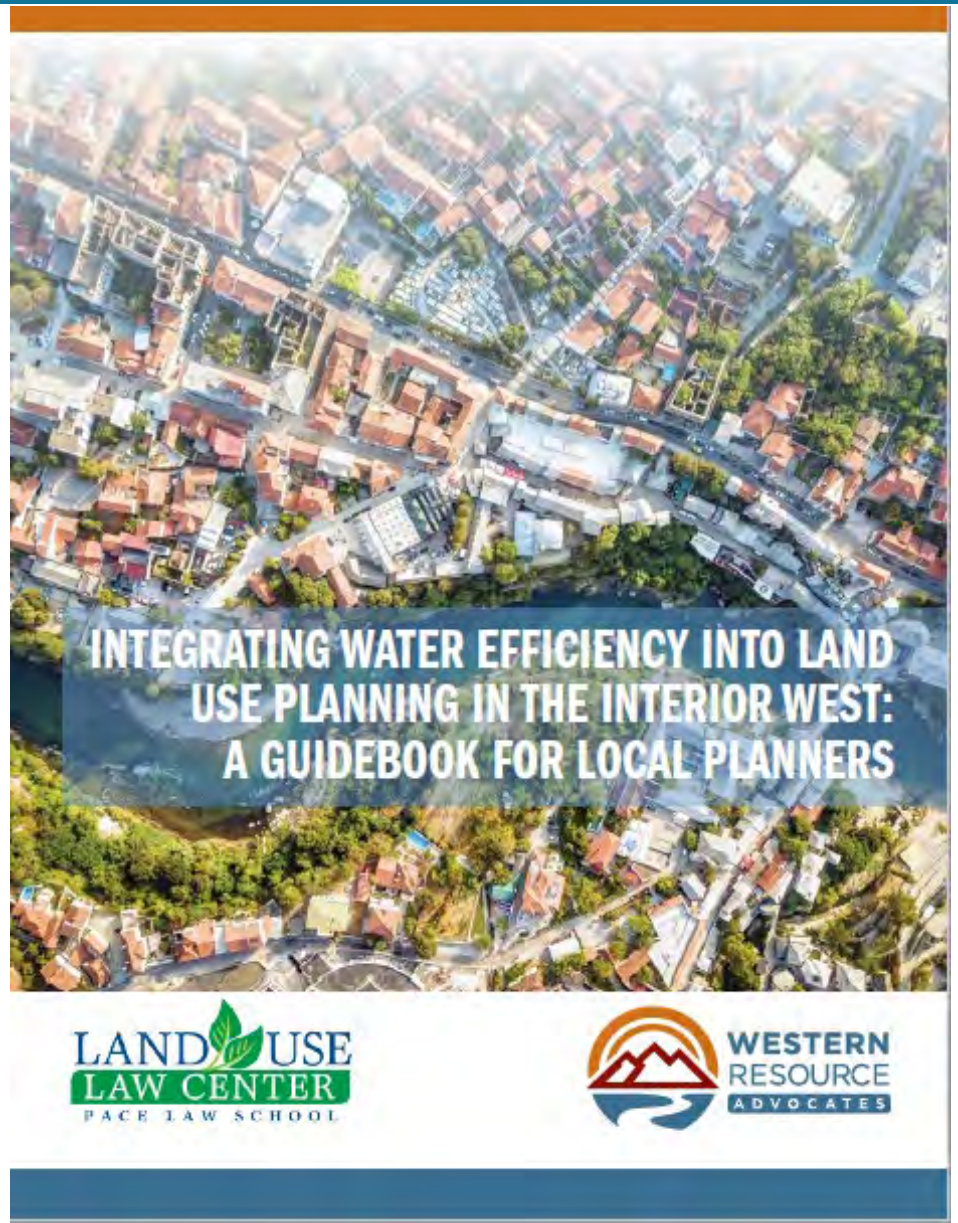

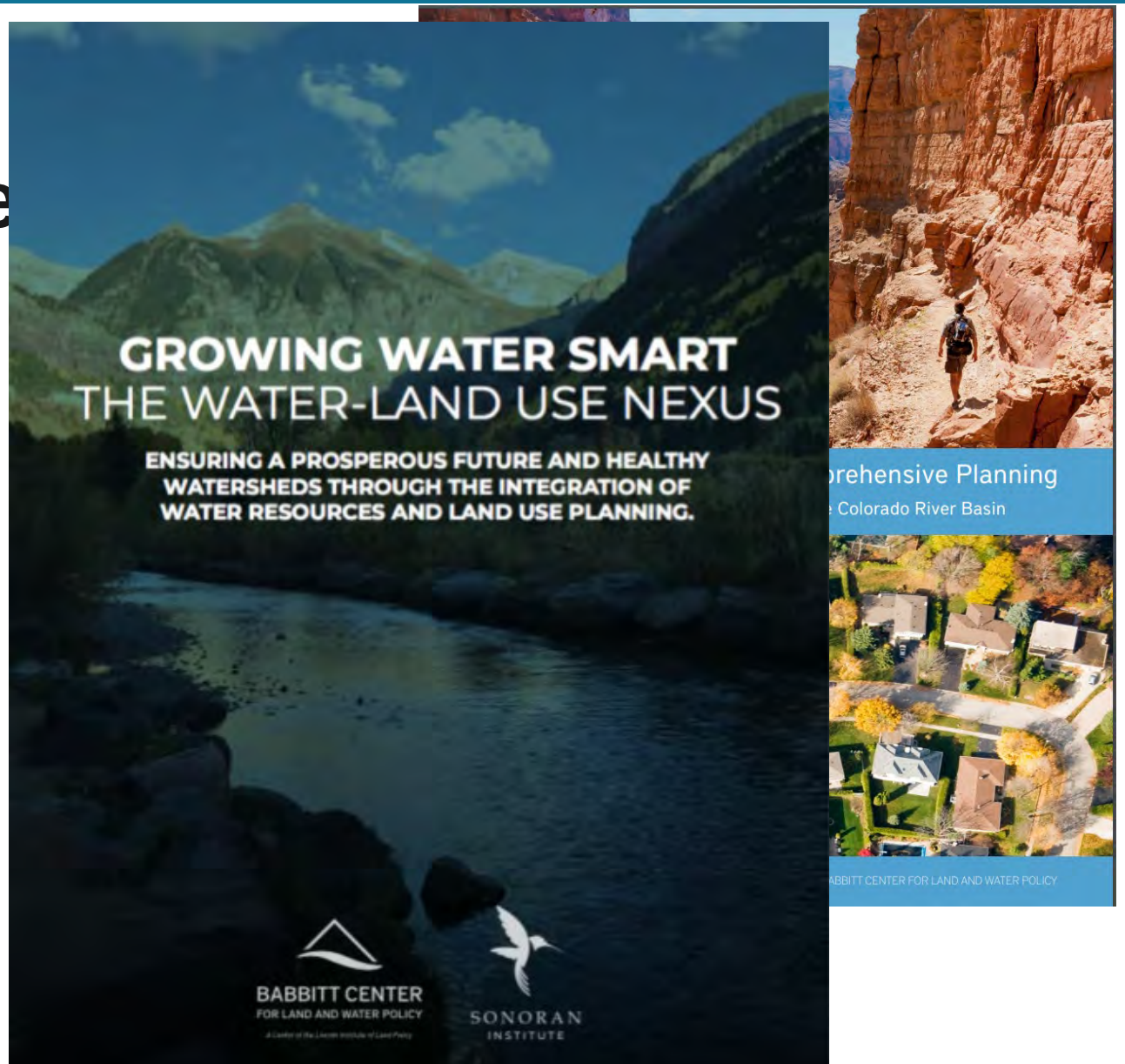

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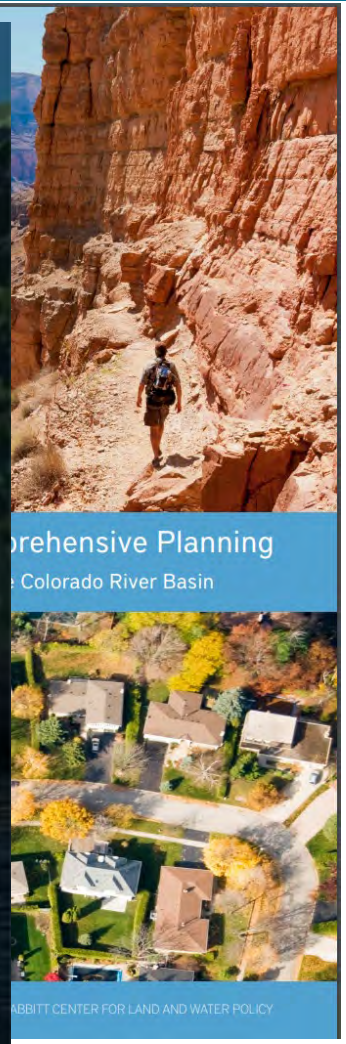

In sum, integrating water and land use planning:

- Empowers communities to improve water efficiency at their own direction, including aesthetics, culture, and values (i.e., every community is different)
- Aligns with state goals to improve water conservation efforts
- Increases resiliency to ongoing and future droughts
- More and more resources, support, technical expertise, and efforts are being made available to support interested communities

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Integrating Water & Land Use

APA 2021

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JORDAN VALLEY WATER CONSERVANCY DISTRICT

WESTERN RESOURCE ADVOCATES
PROTECTING THE WEST'S LAND, AIR, AND WATER