Integrating Water & Land Use

APA 2021

Jake Young, SLCo Regional Development
Alan Packard, Jordan Valley Water Conservation District
John Berggren, Western Resources Advocates
• Utah’s population growth

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

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

GREAT SALT LAKE ELEVATION

<table>
<thead>
<tr>
<th>Year</th>
<th>Record High</th>
<th>Average</th>
<th>New Record Low</th>
<th>Current</th>
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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 Basin

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.
Integrating Water and Land Use Planning

Water Supply, Demand, and Planning
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.

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

• Repair and replace aging infrastructure
• Reduce water use; integrate new technology
• Develop infrastructure to meet demand
Utah’s population growth

Sources: Governor’s Office of Management and Budget and Kem C. Gardner Policy Institute
Decade costs statewide

$Billions

- Repair & Replacement of Aging Infrastructure
- New Infrastructure, Water Supplies, and Water Supplier Conservation Costs*

*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.

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.

Adapting 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 can’t measure.

AGRICULTURAL OPTIMIZATION

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
JVVWCD’s Local Planning Efforts

Efforts and considerations impacting JVVWCD’s water supply and demand
To access logos on this page, go to the slide master tab, you'll then be able to copy and paste them. Info here is for reference to ensure consistency of fonts and colors for any slides created beyond the template.

Font Sizes for Presentations:
- Major titles: 60pt
- Major subtitle: 44pt
- Minor titles: 36pt
- Bullet points/text: 28pt
- Labels: 24pt

Salt Lake International Airport
Average Temperature
(June, July, Aug.)

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 JWWCD’s service area.
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)

- 12 People in 4 – .25 Acre Lots
- 45 People in 18 – Townhomes in an Acre
- 105 People in 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)

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

Legend
- 1 acre of residential development
- 1 acre of undeveloped land for future CII or more residential

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Legend
- 10S 10S 10S 10S 10S 10S 10S 10S 5S

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

| 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

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

Legend
- 1 acre of residential development
- 1 acre of undeveloped land for future CII or more residential
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.
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.

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

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

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

Apply today for a FREE consultation or cash rebates!

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

utahwatersavers.com
JORDAN VALLEY WATER CONSERVANCY DISTRICT

Delivering Quality Every Day ®
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

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.

www.westernresources.org
Overview of Water and Land Use Integration
Why integrate water and land use planning?

- Historically siloed, leading to inefficiencies throughout the development process.
- Integrating these two planning processes allows communities to encourage or require water efficient growth as they see best.
- Opportunities throughout the development process from general plans all the way to post-occupancy enforcement.

EXPANDED TURF BUYBACK PROGRAM

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WATER CONSERVATION MEASURES

AGRICULTURAL OPTIMIZATION

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
- General Plans
- Capital Improvement Plans
- Water Efficiency Plans

- Zoning and subdivision regulations
- Annexation policies
- Planned development policies
- Process incentives
- Pre-application conference

- Water conservation rate structuring
- Conservation and efficiency incentives
- Outdoor watering restrictions
- Water budgets and auditing

- Water adequacy requirements
- Conservation-oriented tap fees

- Building and plumbing codes
- Landscape regulations

Planning & Policy Making

Pre-Development

Development Review

Building & Construction

Post-Occupancy
### Water Related Questions to Answer in a Comprehensive Planning Process

<table>
<thead>
<tr>
<th>Water Management</th>
<th>Future Projections</th>
<th>Water Efficient Land Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where does our water come from?</td>
<td>What is our population, housing, and employment growth?</td>
<td>Are we collaborating on water issues?</td>
</tr>
<tr>
<td>How much water do we have?</td>
<td>What are our development expectations?</td>
<td>How does our development process consider water?</td>
</tr>
<tr>
<td>How much water do various land use sectors use?</td>
<td>What water challenges does a changing climate pose?</td>
<td>How does our urban form impact our water use?</td>
</tr>
<tr>
<td>How do we pay for water system repairs and improvements?</td>
<td>How much water will we need?</td>
<td>Is water used efficiently outdoors?</td>
</tr>
<tr>
<td>How is water used or conserved?</td>
<td>Do current water supplies line up with projected demand?</td>
<td>Is water used efficiently indoors?</td>
</tr>
<tr>
<td>Is our water system sufficient, safe, and reliable?</td>
<td>How can water and land use be equitably managed?</td>
<td>How does land use impact our watersheds?</td>
</tr>
</tbody>
</table>

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
A Guide to Municipal Water Conservation Pricing in Utah

Eric C. Edwards
Assistant Professor, Department of Applied Economics

Sara A. Sutherland
Assistant Professor, Department of Applied Economics

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, consumers in price incentives can help a wasteful water costs for water users adapt to economic and environmental conditions.

Utah faces a demand for water supplies for the next 30 years due to increasing population growth. Salt Lake and Utah Counties are projected to increase their combined population 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 demand.
Day 1: Setting a Workshop Intention and Rapport Building

Day 2: Peer to Peer Roundtables & Team Breakouts

Day 3: Finalizing the Action Planning & Messaging
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…
7. The Zoning Code
   a. Incorporate Water Efficient Uses and Development Patterns into As-of-Right Permitted Uses
   125
   b. Foster Water Efficient Densities by Permitting Accessory Dwelling Units
   133
   c. Incorporate Water Conserving Uses into Conditionally Permitted Uses and Conditionally Permit Water-Intensive Uses Upon Water Conservation Measures
   135
   d. Adopt Review Criteria for Rezonings Based on Water-Supply Impact
   137
   e. Incentivize Water Conservation Through Bonus Density Zoning
   140
   f. Use Planned Unit Development Regulations to Foster Water Conservation
   144
   g. Create a Water Conservation Floating Zone
   152
   h. Use Overlay Zoning to Designate Areas for Conservation and Growth
   156
   i. Establish a Transfer of Development Rights Program to Prioritize Development Where Water Can Be Provided Most Efficiently
   160

8. Subdivision Regulations
   a. Draft a Statement of Purpose and Intent that Includes Water
   162
   b. Permit or Require Cluster-Development Subdivisions
   162
   c. Require a Pre-Application Conference to Discuss Water Issues
   166
   d. Require Documentation of Water Supply Adequacy in Preliminary Plat Applications
   167
   e. Refer Application to Water Agencies
   172
   f. Withhold Final Plat Approval Until Confirmation of Adequate Water
   173
   g. Require Improvements Necessary to Deliver Water
   174

9. Site-Plan Regulations
   a. Consider Water-Supply Adequacy for Approval
   176
   b. Include a Good Purpose Statement
   177
   c. Include Specific Criteria to Demonstrate Compliance
   178
   d. Ensure That the Approved Design Is Constructed
   180
Where can communities start?
Where can communities start?
Where can communities start?
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
Integrating Water & Land Use

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