Washington County Water
Planning for future demand
Overview

• About the water conservancy district
• About our community
• Current supply and demand
• Conservation
• Existing infrastructure
• Current projects
• Economics of water
• Q&A
About the Water District

• A not-for-profit public agency established in 1962 by petition of the property owners

• Provides wholesale water to the following municipalities
Purpose of Utah’s Water Districts

1. Protect existing water resources
2. Use them wisely
3. Provide for the future
## About our Community

**St. George, Utah**

<table>
<thead>
<tr>
<th>Category</th>
<th>Current</th>
<th>% Increase 2013-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross domestic product</td>
<td>$4.2 billion</td>
<td>7.8%</td>
</tr>
<tr>
<td>Personal income</td>
<td>$4.1 billion</td>
<td>4.8%</td>
</tr>
<tr>
<td>New single-family residential units permitted</td>
<td>1,710</td>
<td>3.4%</td>
</tr>
<tr>
<td>Housing sales and appraisals</td>
<td>152.55</td>
<td>10.3%</td>
</tr>
<tr>
<td>Employment</td>
<td>60,436</td>
<td>4.9%</td>
</tr>
<tr>
<td>Businesses (Washington County)</td>
<td>4,558</td>
<td>4.5%</td>
</tr>
<tr>
<td>Personal income</td>
<td>$4.14 billion</td>
<td>4.8%</td>
</tr>
<tr>
<td>Taxable retail sales</td>
<td>$2.3 billion</td>
<td>7.2%</td>
</tr>
<tr>
<td>Transient room tax (Washington County)</td>
<td>$4 million</td>
<td>10.4%</td>
</tr>
</tbody>
</table>

Source: Applied Analysis, November 4, 2014
“St. George, Utah set to be one of the fastest-growing areas.”

Wall Street Journal
*Cities in South, West to Grow Faster*
Kathleen Madigan
June 22, 2014
Governor’s Population Projection
Washington County, UT

Source: Utah Governor’s Office of Planning and Budget, 2013
The District and Growth

The water district is not an advocate for or against growth.

It is the water provider responsible to prepare a safe, reliable water supply to sustain our current and future population and economy while protecting our environment.
Washington County (water conservancy district plus municipal supplies) currently has approximately 74,600 acre feet of available, renewable water resources. This number is anticipated to grow to 85,300 acre feet as the balance of the district’s resource development is completed.
Current Water Conditions

Southwestern Utah Basin % of average

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value % of Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal Accumulation (Oct)</td>
<td>5%</td>
</tr>
<tr>
<td>Virgin River Water Availability Index</td>
<td>33%</td>
</tr>
<tr>
<td>Soil Moisture</td>
<td>43%</td>
</tr>
<tr>
<td>Reservoir Storage</td>
<td>50%</td>
</tr>
</tbody>
</table>

Source: Natural Resources Conservation Service, Utah Water Supply Outlook Report, November 2014
09406000 Virgin River near Virgin
Annual Yield (Acre-Feet)

10% Exceedence (1941-2006) = 247,691 Acre-feet
Average (1941-2006) = 129,685 Acre-feet
90% Exceedence (1941-2006) = 77,400 Acre-feet
River Discharge conditions which exceed the Quail Creek Pipeline’s Capacity

Conditions under which the water district can capture and store water

Water to satisfy senior Virgin River water rights

[Graph showing monthly flows with monthly data points and flow lines for average, 10% exceedance, and 90% exceedance]
Current and Forecasted Demand

Even with the most stringent conservation practices, we can not nearly quadruple our current supply to meet future demands.

Demand
53,000 acre feet
(2010: latest state number available)

Projected demand
196,000 acre feet
(2060)
Conservation

- Average cost $14,000 per acre foot
- Virgin River/Kanab Creek Basin reduced water use 26% compared to the state average of 18% from 2001 to 2010
- Not a long-term alternative to water development
Current Conservation Measures

- EPA WaterSense Partner
- Time-of-day watering ordinance and an increasing block rate structure
- Impact fee increases with size of irrigated landscape
- Wholesale customers must have water conservation plan
- Sponsor Annual Water Fair for 1,700 fourth graders
- County-wide free water checks
- Smart irrigation controller rebate program
- Water-efficient landscape workshops and training and certification of landscape professionals
- Demonstration gardens
- Water Upon Request

- Canal systems converted to pipelines eliminating loss from seepage and evaporation
- Supporter of state designated water week to create awareness of water issues facing our state
- Participates in Governor’s Water Conservation Team and in State water-wise plant list and tagging program
- Local media campaign
- Ultra low flow toilet rebates
- Public athletic fields conversion to artificial turf grant program
- Telemetry project monitors diversions along both rivers
- Save a Towel

Source: Washington County Water Conservation District, 2014
Residential Water Use

Washington County’s residential water use is amongst the lowest in Utah despite its location in the state’s most arid and hot region.

Source: Total residential use (indoor and outdoor, including secondary) according to the Utah Division of Water Resources, 2010 (latest data available)
Water Quality Issues
Water Quality Issues

La Verkin Hot Springs: 10,000 TDS
Existing Infrastructure

The district manages…

- Several reservoirs
- Diversion dams
- Hydropower plants
- Water treatment plant
- 200-plus miles of pipelines
- Storage tanks
- Wells

The facilities currently produce more than 35 million gallons of water a day.
On-Stream Reservoirs

- Located directly on the water source
- Have a much higher capture rate
Off-Stream Reservoirs

- Majority of Washington County’s water is collected from the Virgin River and stored in off-stream reservoirs.
- Water is supplied to the reservoirs from a pipeline.
- System designed to collect snow run-off; summer monsoons do little to increase reservoir storage.
Completed and in-progress projects will have developed all available local water sources by approximately 2020.
Sand Hollow Regional Pipeline

- 10-mile pipeline and 4 million gallon storage tank
- Will serve the southern populations of St. George and Washington cities
- Scheduled to start construction in 2015-2016
- Estimated cost: $14 million
Ash Creek Project

- Water collection, reservoir and pipeline
- Estimated annual yield 3,000 acre feet
- Scheduled to start construction in 2015-2016
- Estimated cost: $26.8 million ($8,933 per acre foot)
Warner Valley Reservoir

- Estimated 55,000-acre-foot reservoir
- Increases storage capacity, preserves flows previously lost downstream, improves water quality and provides option for pressurized irrigation in southern corridor
- Construction start date to be determined
- Estimated cost: $108 million
Lake Powell Pipeline

- A 138-mile pipeline with pumping stations and hydropower plants from Lake Powell to Sand Hollow Reservoir
- Estimated annual yield 86,249 acre feet
- Scheduled to start construction in 2020
- Estimated cost: $1.064 billion* ($12,336 per acre foot)

*2008 estimate prepared by the Utah Division of Water Resources [http://www.water.utah.gov/lakepowellpipeline/projectUpdates/June2008OPCCSummary%20r1.pdf]
Lake Powell Pipeline Development Act

2006 General Session
Utah Senate: 25 Aye, O Nay
Utah House: 71 Aye, 1 Nay
Benefits

Provides a needed resource to serve Utah’s future populations

Allows Utah to use a portion of its legally-allocated share of the Colorado River

Delivers a more reliable, stable water supply to Washington and Kane counties

Diversifies water resources in Washington and Kane counties

The most cost effective option to procure additional water resources in Southern Utah
Colorado River Allocations

1922 Colorado River Compact – Understanding the Numbers (in million acre feet)

- **15** Average annual inflow into the Colorado River (actual recorded data from 1900-2000)

- **7.5** Allocated to lower basin states (Arizona, California and Nevada) per the 1922 Colorado River Compact

- **1.5** Allocated to Mexico per the 1944 Mexican Treaty

- **6** For use in the Upper Basin states (Colorado, New Mexico, Wyoming and Utah)
The upper basin states have developed 4.2 million acre feet of their 6.0 million acre foot allocation, leaving 1.8 million acre feet available for future development.

Shortages are exclusive to the lower basin states of Nevada, Arizona and California.
Upper Basin Allocations

- Upper Basin: 6,000,000 acre feet
- Utah: 1,400,000 acre feet
- Unallocated: 400,000 acre feet
- Lake Powell Pipeline: 86,249 acre feet
Withdrawal

0.5% of the 15 million acre feet annual inflow
Timeline

2006
Lake Powell Pipeline Development Act

2007
Preliminary design and environmental work

2008
Begin environmental study process

2017-2018
NEPA record of decision and permits

2018-2019
Final design

2020
Construction begins

2025-2030
Water delivery
Need for Additional Water Supplies

Projected water demand without the Lake Powell Pipeline
Need for Additional Water Supplies

Projected water demand with the Lake Powell Pipeline
Need for System Diversity

100% dependent on the Virgin River Basin
Colorado vs. Virgin River

Annual Discharge (Million Acre feet)

Virgin River

Colorado River

90%
Average
Washington County benefits from those early leaders who built significant water projects over the past 165 years, consider that one acre foot of water supports…

- 3.4 Washington County Residents
- 1.2 Washington County Households
- 1.1 Washington County Employees
- 0.1 Washington County Business Establishments
- $91,000 in Personal Income to Local Residents
- $35,400 in Wages Paid to Local Residents
- $84,800 in Gross Metro Area Product

Source: Applied Analysis, May 2013
## Baseline Assessment

**Ratio-based Impacts of Lake Powell Water Resources**

<table>
<thead>
<tr>
<th></th>
<th>Washington County (2012)</th>
<th>Per Acre Foot</th>
<th>Lake Powell Pipeline (86,000 af)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>148,800</td>
<td>3.402</td>
<td>292,547</td>
</tr>
<tr>
<td>Households</td>
<td>50,612</td>
<td>1.157</td>
<td>99,506</td>
</tr>
<tr>
<td>Employment</td>
<td>49,460</td>
<td>1.131</td>
<td>97,240</td>
</tr>
<tr>
<td>Businesses</td>
<td>4,558</td>
<td>1040</td>
<td>825,334</td>
</tr>
<tr>
<td>Total Personal Income</td>
<td>$3,982,215,285</td>
<td>$91,037</td>
<td>$7,829,202,462</td>
</tr>
<tr>
<td>Wages and Salaries</td>
<td>$1,547,558,144</td>
<td>$35,379</td>
<td>$3,042,564,293</td>
</tr>
<tr>
<td>Gross Metropolitan Product</td>
<td>$3,710,475,000</td>
<td>$84,825</td>
<td>$7,294,949,651</td>
</tr>
</tbody>
</table>

Note: With conservation measures WCWCD estimated the Lake Powell water resources will support approximately 350,000 residents.
What Does $1.0 Billion in Capital Investment Mean for Washington County, Utah?
One-Time Construction Impacts

Preliminary Impacts

- Jobs: ±10,000
- Wages: ±$425 Million
- Output: ±$1.5 Billion
Financed through the state of Utah, as outlined in the 2006 Lake Powell Pipeline Development Act, under which:

- the districts will repay the state gradually as water is used and growth occurs
- the districts’ obligation to the state is not a traditional bond financing with a level repayment
- 70-percent of the water would need to be paid within 50-59 years after the project is finished; the remaining 30-percent paid 90 years after the project is finished
Utah’s water conservancy district’s have three legislatively-approved sources of capital and operating funds that will be used to repay the state:

- Water rates
- Property taxes
- Impact fees
Fund Allocation

Water rates fund on-going operation and maintenance of existing water deliveries.

Property taxes support bonding for water supplies in process of development but not yet in use; also funds public services (fire protection, etc.).

Impact fees assist in the capital costs of new infrastructure.
How will we pay for the Lake Powell Pipeline?

• Some variation of water rates, property taxes and impact fees

• The district is working with state representatives, financial analysts and economists to create a financial model for water infrastructure costs in Washington County

• There are many variables. Additional information will be shared as the project’s environmental studies are completed and a final design is approved.
Water Project Financing
Quail Creek Reservoir

In 1983, residents voted for a $30 million bond to fund Quail Creek Reservoir when total taxable property values were $101 million:

- GO bond value: $30,000,000
- Total taxable property value: $101,000,000

Graph showing:
- GO bond 30% of total taxable property tax values
Washington County’s state-estimated project cost is $912.5 million; 2014 total taxable property values are $11.15 billion.
With or Without Lake Powell Pipeline

<table>
<thead>
<tr>
<th>With</th>
<th>Without</th>
</tr>
</thead>
<tbody>
<tr>
<td>• More water</td>
<td>• Limited to existing supplies</td>
</tr>
<tr>
<td>• Secure water supply</td>
<td>• Less secure water supply</td>
</tr>
<tr>
<td>o Choice of landscapes</td>
<td>o Mandated landscape requirements</td>
</tr>
<tr>
<td>o Lower temperatures</td>
<td>o Higher temperatures</td>
</tr>
<tr>
<td>o Stable power demand</td>
<td>o Increased power demand and cost</td>
</tr>
<tr>
<td>o Water available for farms</td>
<td>o Water for farms more expensive</td>
</tr>
<tr>
<td>• Lower water costs</td>
<td>• Higher water costs</td>
</tr>
<tr>
<td>• Environmental returns</td>
<td>• Less environmental returns</td>
</tr>
<tr>
<td>o Streams and wetlands</td>
<td>o Streams and wetlands reduced</td>
</tr>
<tr>
<td>o Groundwater recharge</td>
<td>o Groundwater recharge decreased</td>
</tr>
<tr>
<td>• Businesses can invest in the future with confidence</td>
<td>• Businesses will not open here</td>
</tr>
<tr>
<td>o Growing economy</td>
<td>o Stagnant or shrinking economy</td>
</tr>
<tr>
<td>o Available jobs</td>
<td>o Fewer jobs</td>
</tr>
<tr>
<td>• Utah residents benefit from using Utah’s water</td>
<td>o Family and friends move for work</td>
</tr>
<tr>
<td></td>
<td>• Another country or state benefits from using Utah’s water</td>
</tr>
</tbody>
</table>
Question and Answer

Contact information
Corey Cram
Associate General Manager
435.673.3617