Conserve Southwest Utah
Rationale for LPP Position
June 2020

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Position: CSU opposes approval of the Lake Powell Pipeline (LPP) because it's unnecessary and too costly, and the water right is too risky.

The rationale for these positions follows.

LPP: Unnecessary

Rationale for the Position

1. Washington County uses considerably more water per capita than other, similar desert communities due to subsidized water rates and ineffective conservation practices.
2. Water usage could be significantly reduced by implementing common conservation practices such as tiered water rates, water budgeting, and building codes that support significant water conservation.
3. The WCWCD's projected 100,000 acre-feet of water from local sources is enough to support projected growth if used at reasonable rates.
4. Additional local supply through agricultural conversion, reuse, and other local sources could be tapped.
5. A comprehensive and integrated Local Water Management program could bring demand into better balance with supply.

Washington County's Local Water Demand (Use)[1]

A Washington County Water Conservancy District (WCWCD) June 2018 press release[2] revealed that our 303 gallons per capita per day (GPCD) breaks down this way:

> *"The data reports that Washington County residents used **143 gallons** per person daily (also known as GPCD -- gallons per capita per day). **Factoring in all potable water use (second home, commercial, institutional and industrial), the total was 231 GPCD.** Unlike most other cities and states, Utah reports secondary (untreated) and reused water in its total GPCD numbers. Most of Washington County's **secondary water (72 GPCD)** is used to irrigate parks, cemeteries and golf courses."* (emphasis added)

They estimated that 70 GPCD of the county's culinary treated water use was applied to residential landscaping. Dennis Strong, former director of the Utah Division of Water Resources, said in a video that if people in Southern Utah changed their landscaping, they wouldn't need the LPP.[3]

The state and WCWCD assert that mandating conservation would severely restrict outdoor watering, which would impact the region's economy, environment, quality of life, and tourism. CSU does not see it that way nor, apparently, do other desert cities that have vibrant economies with tourism while continuing to reduce their water demand through effective conservation, and which use less water now than the state plans for our area in 2065.

Comparison of Washington County Water Use to Other Southwest Communities

Our current 303 GPCD can and should be reduced. There have been several comparisons indicating that 175 GPCD has been achieved in several attractive, growing, popular, and economically thriving communities. Although it requires assumptions to compare areas, it can and should be done by the state to "normalize" the comparison before making generalized comments inferring that we are doing as well, conservation-wise. While normalizing this data doesn't seem to be especially onerous, neither the Utah Division of Water Resources (UDWRe) nor the WCWCD has undertaken this task. This is a major point of contention that must be resolved. Even the State of Utah's own legislative auditors[4] make comparisons. They stated:

> *"According to the U.S. Geologic Survey, Utah has the highest per capita water use in the nation."*

1 M&I: Municipal and Industrial = Residential + Commercial + Institutional + Industrial, both culinary and secondary; all human water use excluding agriculture (crops and stock), which is all secondary. Almost all Washington County M&I use is metered; however secondary water is not.

2 WCWCD, Press Release, June 15, 2018, at: https://www.wcwcd.org/wp-content/uploads/2018/06/2015-Water-Use-Numbers.pdf

3 Utah Rivers Council, video recording, at: https://m.youtube.com/watch?v=oY_KXDS6hbQ

4 Office of the Legislative Auditor General, Audit Report No. 2015-01, "A Performance Audit of Projections of Utah's Water Needs," p. 28,at: https://olag.utah.gov/olag-doc/15_01rpt.pdf

And the U.S. Environmental Protection Agency (EPA) acknowledges that, like other western states, Utah's water usage is higher than most of the rest of the country:[5]

> *"The West also has some of the highest per capita residential water use in the nation. Lack of rain and its residents' landscaping preferences contribute to per capita water use in the West that far exceeds the national average of 179 gallons per day."*

We cannot just pass off our area's higher water use by attributing it to a lack of rain. As noted by the EPA, above, landscape choices affect usage. Plantings that require more water than a semi-arid environment provides can greatly affect our usage. Add to that the fact that Utahns generally over-water their lawns and landscape vegetation, as also noted in the 2015 Utah Legislative Audit of the UDWRe[6], and you have a recipe for a high consumption.

The state and water district acknowledge in study reports to the Federal Energy Regulatory Commission (FERC, the federal LPP licensing agency from 2008-2019, when the application was withdrawn by UDWRe[7]) that approximately 100,000 acre-feet per year (AFY) of water can be provided in the future without the LPP.[8] Table 1 shows how three water usage rates would allow growth to meet the 2065 projected population of 508,952[9].

Table 1. Projected water use for population projections in Washington County.

Water Use (GPCD)	Projected 2065 Population	Total Water Use		
		Per Day (Gallons)	Per Day (Acre-Feet)	Per Year (Acre-Feet)
175	508,952	89,066,600	273.21	99,722
180	508,952	91,611,360	281.02	102,571
185	508,952	94,156,120	288.82	105,420

Western Resource Advocates (WRA), an organization with experts on water in the west, published a Local Waters Alternative[10], promoting the use of local water over building the LPP.

5 EPA, "Growing Toward More Efficient Water Use: Linking Development, Infrastructure, and Drinking Water Policies", Environmental Protection Agency, Publication 230-R-06-001 January 2006, p. 2, at: https://www.epa.gov/sites/production/files/2014-01/documents/growing_water_use_efficiency.pdf

6 Utah Office of Legislative Auditor General, A Performance Audit of Projections of Utah's Water Needs https://le.utah.gov/audit/15_01rpt.pdf

7 The UDWRe withdrew its application from FERC because they thought they could get better , "Notice of Effective Date of Withdrawal of License Application re Utah Board of Water Resources under P-12966," at: https://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20191016-3069

8 UDWRe, Lake Powell Pipeline Project: Water Needs Assessment, 2016, at https://conserveswu.org/wp-content/uploads/FERC-Water-Needs-ASSESSMENT-19-5-5-16.pdf

9 Kem C. Gardner Policy Institute, "Utah's Long-term Demographic and Economic Projections," University of Utah, July 1, 2017, at: https://gardner.utah.edu/wp-content/uploads/Kem-C.-Gardner-County-Detail-Document.pdf

10 Western Resource Advocates, The Local Waters Alternative to the Lake Powell Pipeline, 2013, at: https://conserveswu.org/wp-content/uploads/2011/11/WRA-Local-Waters-Alternative-LPP-fact-sheet.pdf

WRA's study asserts that even more water will be available in the future through increased conservation measures, agricultural conversion due to growth, and additional water reuse.

Figure 1, below, from the *Local Waters Alternative*[11], shows a comparison of water use in various Southwest communities. Some of the differences in water use have been attributed to differences in demographics and climate, but these differences can be reconciled through a normalization process mentioned earlier. (Of note, a later analysis determined that even Las Vegas was using few GPCD than Washington County; see below.)

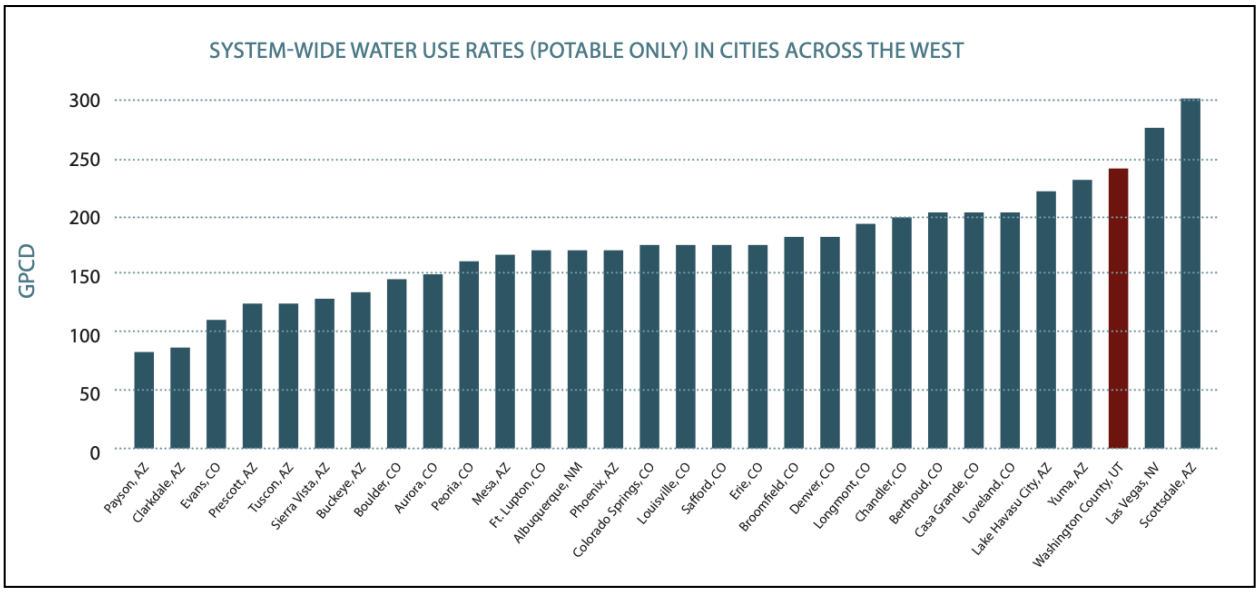

Figure 1. Reproduced from Figure 2 in Western Resource Associates Local Waters Alternative, showing Washington County's GPCD water use in red, nearly the highest of thirty communities they surveyed in the West.

Figure 2, reproduced from comments submitted by the WRA to FERC on a 2018 evaluation of the LPP,[12] illustrates the feasibility of this alternative. It shows that the projected demand (yellow line) fits easily within the supply they calculated. The study, done several years ago in 2013, and using on an older, higher 2060 population projection, is based on a demand of 192 GPCD for a population of 576,850 and requires a water supply of just 115,000-140,000 acre-feet per year (AFY). The *Local Waters Alternative* demonstrates that local supplies could meet the projected demand in 2060 without the LPP. Moreover, current estimates of population growth have dropped to 468,830 in 2060, further extending the reach of our local water supply.

11 Western Resource Advocates, Local Waters Alternative to the Lake Powell Pipeline Fact Sheet, 2013, at: https://conserveswu.org/wp-content/uploads/2011/11/WRA-Local-Waters-Alternative-LPP-fact-sheet.pdf

12 Western Resource Advocates, "Comments on the Preliminary Licensing Proposal for the Lake Powell Pipeline, Project No. P-12966-001", November 16, 2018, at: https://conserveswu.org/wp-content/uploads/2020/06/WRA-Locals-Water-Alternative-updated-2018.pdf

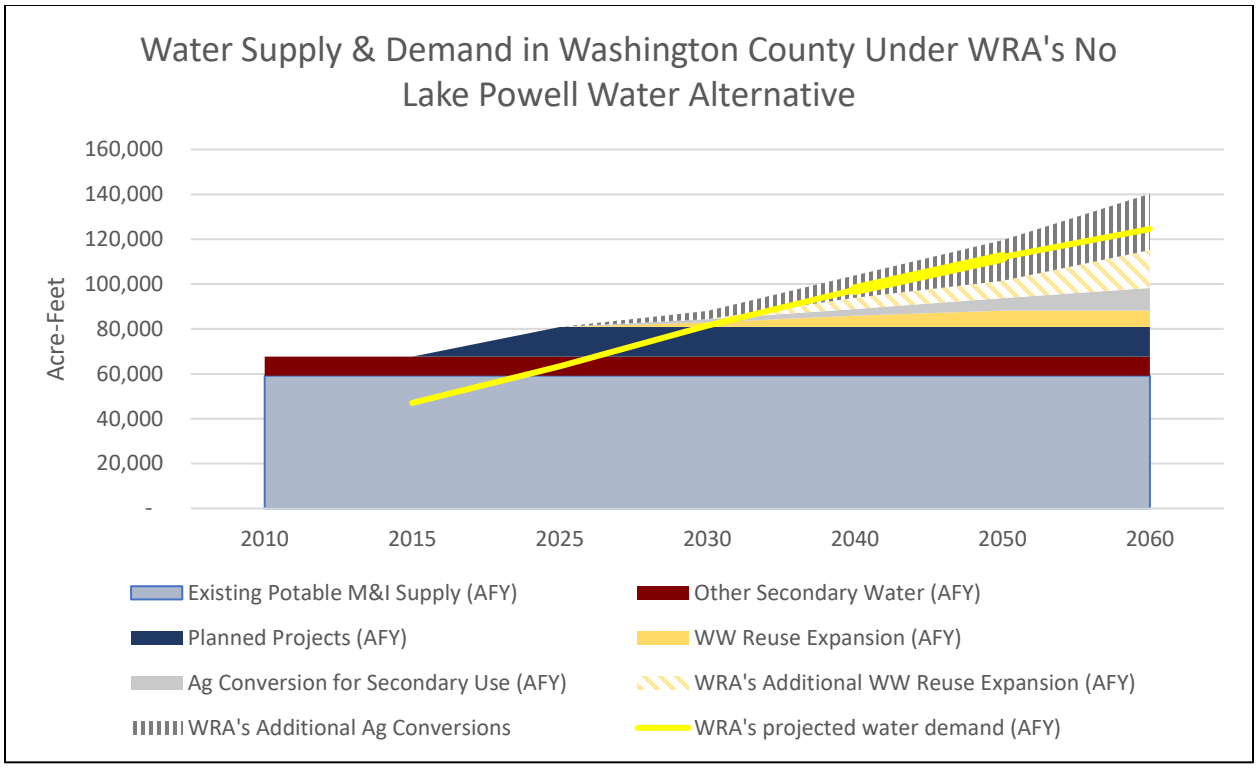

Figure 2. Projected supply and demand of M&I water. Reproduced from Western Resources Associates' Local Waters Alternative.

Decoupling Future Demand from Population Growth

Put simply, we are consistently using less water even as populations grow. In almost all municipal areas served with Colorado River water, water use is going down, not up, despite population growth. "*We have been getting it wrong for a century.*"[13] Indeed, some cities are still growing rapidly while using less water.[14]

Add to that fact, that in 2017 the Kem C. Gardner Policy Institute projected Washington County's 2060 population at 468,830[15], which is 400,000 less than the 860,378 that was predicted in UDWRe's Water Needs Assessment to FERC, just six years earlier.

Of more local interest, according to René Fleming, St. George City Water and Energy Conservation Coordinator, water use in St. George is not growing with population growth:[16]

13 Kuhn, E. and J. Fleck, Science be Dammed, How ignoring Inconvenient Science Drained the Colorado River, University of Arizona Press, 2019, p. 215.

14 Fast Company, article April 25, 2011, at: https://www.fastcompany.com/1749643/the-big-thirst-nothings-quite-so-thirsty-as-a-las-vegas-golf-course

15 Kem C. Gardner Policy Institute, "Utah's Long-term Demographic and Economic Projections", July 1, 2017, at: https://gardner.utah.edu/wp-content/uploads/Kem-C.-Gardner-County-Detail-Document.pdf

16 Email from René Fleming, Manager Of Energy And Water Customer Services, Water and Power Administration, to Jane Whalen, dated September 24, 2019.

"In 2010 water use reported on the annual reporting the state requires was about 27,000 acre feet. In 2017 it was about 24,000 and population grew from roughly over 70,000 to above 80,000 in the same time period.

"Vegetative cover has decreased by about 16%. I have a power point slide with an aerial view of a home in 1998 with a lot of grass and a similar sized lot and home in 2018 that is mostly xeriscaped."

In fact, St. George City is using the same amount of water in 2019 as it did in 2010, even though the population had grown from roughly over 70,000 to above 80,000 in the same period. A major reason is that vegetative cover has decreased by about sixteen percent. Therefore, LPP proponents' claim that the demand for water will grow significantly with population growth needs to be reevaluated.

The UDWRe claims that a water conservation alternative would cost $1.5 billion[17] and would include replacing residential outdoor landscaping with hardened surfaces and offering turf removal rebates, among other measures. WRA estimated that implementing water conservation practices would cost about $510 million, about one third of the UDWRe's estimates:[18]

"Although the actual costs of the Local Waters Alternative do not include all potential infrastructure needs, those total costs are still likely to be lower, if not significantly lower, than the cost of building the pipeline."

The logic of building the LPP, spending billions of dollars and taking on substantial interest payments, does not make economic sense, nor is it fiscally responsible. With the *Local Waters Alternative*, we could pay for the cost of water incrementally as the population grows. It will support, not undermine, long-term economic growth.

Another example of growth using less water is Las Vegas.[19]

"In the last 20 years, per capita water use in Las Vegas for all purposes has fallen 108 gallons a day, from 348 gallons per person a day to 240 gallons.

"You don't accomplish that by turning off the water while you brush your teeth (although that helps). You have to fundamentally change people's approach and attitude about water.

"In the last 10 years, Las Vegas has grown by 50 percent in population, but the actual use of water hasn't changed at all. The conservation has, in fact, enabled the growth."

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17 UDWRe, Lake Powell Pipeline Project No. P-12966 Water Needs Assessment: Water Use and Conservation Update, Appendix C, 2015, at: https://lpputah.org/wp-content/uploads/2019/01/ATT-C-Water-Needs-Assessment-Update.pdf

18 Western Resource Advocates, "Local Waters Alternative", 2013, p. 32, at: https://conserveswu.org/wp-content/uploads/2011/11/WRA-Local-Waters-Alternative-LPP-fact-sheet.pdf

19 Fast Company, article April 25, 2011, at: https://www.fastcompany.com/1749643/the-big-thirst-nothings-quite-so-thirsty-as-a-las-vegas-golf-course

Authors Eric Kuhn, retired General Manager of the Colorado River Water Conservancy District, and John Fleck, director of the University of New Mexico's Water Resources Program, in their book, Science Be Dammed, wrote:[20]

> *"The widespread presumption that population growth means growing water demand drives much of the politics of water planning in the Colorado River Basin. But it is wrong. Simply put, we are consistently using less water. In almost all the municipal areas served with Colorado River water, water use is going down, not up, despite population growth. Water use in the basin's major agricultural regions also is going down, even as agricultural productivity continues to rise. This is not limited to the Colorado River Basin. Such "decoupling" between water use, population, and economies is common across the United States."*

Author John Fleck in an interview with the Public Policy Institute of California[21], responding to a question, "What are the main reasons Californians are using less Colorado River water?", described the California's Metropolitan Water District (MWD) experience:

> *"Prior to the early 2000s, MWD generally took the maximum it could from the Colorado River, usually more than a million acre-feet per year. In recent decades, it has substantially reduced its dependence on the Colorado, only taking a full supply in years of State Water Project shortage. Water conservation has been an enormous success in Southern California. There was a lot of progress in conservation during the latest drought, and even after it ended. We're seeing a lot more effective use of water in the basin, with a growing emphasis on groundwater recharge, stormwater capture, and reuse efforts."*

Subsidized[22] Water Contributes to Overuse

Three factors contribute to subsidizing water in Washington County: cheap water use rates, water costs added to property taxes, and water impact fees. As with many products, the demand for water is influenced by the price (price elasticity). There are many usage rate structures employed in Washington County by the retailing agencies, which are generally the municipal utility departments, but all utilize very shallow steps, meaning a very small increase in the cost for each additional step of increase in use. Data indicates[23] that demand is highly sensitive to price. The current formulas in use in the county are relatively low use rates and

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20 Utah Public Radio interview with E. Kuhn and J. Fleck, authors of Science be Dammed, How ignoring Inconvenient Science Drained the Colorado River, 2019, p. 215, at: https://www.upr.org/post/science-be-damned-water-rights-and-scarcity-eric-kuhn-wednesdays-access-utah

21 Public Policy Institute of California, interview with John Fleck, author of Science be Dammed, How ignoring Inconvenient Science Drained the Colorado River, March 2, 2020, at: https://www.ppic.org/blog/why-the-big-drop-in-californias-colorado-river-water-use/

22 By subsidized, we mean "to aid or support (an industry, a person, a public service, or a venture) with money", synonyms: fund, promote, support, underwrite, at https://www.collinsdictionary.com/dictionary/english-thesaurus/subsidize

23 References include:

Pottinger. L., Public Policy Institute of California, "Why the Big Drop in California's Colorado River Water Use?", 2020, at: https://www.usbr.gov/research/projects/detail.cfm?id=414

Olmstead, S. and R. Stavins, "Managing Water Demand: Price vs. Non-Price Conservation Programs", Pioneer Institute for

relatively high impact fees and property taxes. Impact fees and property taxes are fixed, regardless of the amount of water used, giving no incentive to reduce use thus subsizing high water users with property taxes from existing properties and impact fees from new construction. And the low usage fees also give little incentive to conserve. High property taxes and impact fees act keep usage fees low, in effect making water appear cheap to the consumer due to the transfer of funds from property tax and impact fee revenue streams to pay significant costs involved in supplying water. A Citizens Alternative [24] for revenue sources and uses proposes that much more of the price of water be put into usage fees, with a conservation-minded but affordable step followed by significantly higher-priced steps for usage that is not.

The cost section of this document addresses the cost issue in greater detail including the cost of passive conservation practices and effective conservation measures and how those compare to the cost of the proposed LPP.

Handling the Demand with Local Water

Southern Utah is fortunate to have abundant local water, the use of which can be improved incrementally to supply our growth for many years at a fraction of the cost of the LPP. Our current management policies are misaligned with sustainable water use practices. We should be pursuing a strategy of using accurate data and making our area more self-reliant by reducing water demand and developing new and unused water resources locally.

UDWRe's Water Needs Assessment 2011[25] stated that the county could provide 138,000 AFY by 2060 for a population of 860,378. However, over the years population projections for 2060 have been lowered to 468,830. Oddly, state studies have also continued to lower local supply without any explanation, perhaps to continue to justify a need for the LPP. The district should inventory and describe all water supplies in the county.

A Conserve Southwest Utah board member's personal experience shows it is not difficult to achieve a residential use of 85 GPCD. His own residence has extensive desert landscaping which accounts for 35 GPCD, a small covered pool which accounts for 10 GPCD, and indoor use at 40 GPCD. The pool usage is equivalent to a moderate area of grass. Addressing Commercial, Institutional, and Industrial (CII) use, it seems a reasonable goal that a citizen's share of CII should not be more than that person's residential use. That would set an objective M&I use at 170 GPCD, requiring a supply of 97,000 AFY for the projected 2065 population. This should be achievable within 50 years, since only one third of that 2065 development has taken place and conservation practices could be implemented now for that new development.

24 CSU, "A Proposal for WCWCD Revenue Sources", 2019, at: https://conserveswu.org/citizens-alternates-for-water-and-property-taxes-2019/

25 UDWRe, Water Needs Assessment, 2011, at: https://conserveswu.org/wp-content/uploads/2012/04/19DraftWaterNeedsAssessmentReport-1.pdf

Additional Local M&I Water Supplies

The county can address its growing demand for M&I water by using local supplies. It's clear that more water could be available for M&I in the future than the WCWCD identifies: more water rights cities could develop, more agricultural water conversions, more water rights held by private landowners, and higher water yield from existing WCWCD water projects. Other options for future supply include more reuse, recycling water, treating groundwater, and storm water capture. Better identification of potential future supplies within the Virgin River watershed could contribute to more reliable water supplies.

The 2015 Utah Legislative Audit Division's audit of the UDWRe explains issues surrounding projections of Utah's water needs:[26]

> *"The Division of Water Resources' projections indicate that Utah's statewide demand for water will outstrip the currently developed supply in about 25 years. Some believe the state can address its growing demand for water through conservation and by developing local supplies, including the conversion of agriculture water to municipal use. Others believe the state's growing demand for water will require the development of major new sources of supply that will cost billions of dollars. Considering the importance of water to the health, social and economic well-being of our state's residents, it is essential that the division provide the best possible data to guide water planning decisions.*
>
> *"Our assignment was to determine the reliability of the division's data in the figure shown below and assess the accuracy of the division's projections of water demand and supply. We were also asked to review options for extending Utah's currently developed water supply."*

The audit recommends that UDWRe should consider all local sources, and that cities do have more water supplies that are not being considered in projections. The WCWCD doesn't count water that cities could develop in the future, nor supply from all sources. We think the reason for this is that the WCWCD is too committed to the LPP[27] and the Legislative Auditors agree:

> *"The Division of Water Resources understates the growth in the water supply when estimating Utah's future water needs. Its projections of future supply only include the growth from the new water projects of four water conservancy districts. The division has not attempted to identify the incremental growth in supply that will occur as municipalities develop additional sources of water. That additional supply will mainly come from agriculture water that is converted to municipal use as farmland is developed. Local supplies may also grow as cities develop the remaining capacity of existing groundwater and surface water sources. By excluding this added water supply, the projections accelerate the timeframes for developing costly, large-scale water projects. We recommend the*

26 Office of the Legislative Auditor General, Audit Report No. 2015-01, "A Performance Audit of Projections of Utah's Water Needs," (p. i), at: https://olag.utah.gov/olag-doc/15_01rpt.pdf

27 Ibid., p. 47

*division prepare better regional plans that include the growth in supply from all sources, **including locally developed supplies**. If they do this, state policymakers will be better equipped to determine when to proceed with major water projects."* (emphasis added)

Page 49 of the 2015 audit states:

"The state's municipal water supply routinely grows each year. The main source of additional supply for M&I will come from converting agriculture water to municipal use, however, some water providers also have the ability to expand their current capacity. For example, between 2000 and 2010, local and district water supplies increased by over 200,000 acre-feet, an increase of 24 percent. While the division's latest projections recognize past growth, they do not anticipate future growth in water supply. The following describes evidence that local water supplies may have the ability to grow as their population grows."

"Cities Require Developers to Transfer Water Rights from Land Being Developed. *As shown previously in Chapter I, Figure 1.4, 82 percent of Utah's developed water is used for agriculture. As cities grow, some farmland is sold and developed. This development means water rights previously used for agricultural purposes can be put towards municipal use. In fact, it is common for cities to require water rights to be transferred to the city as irrigated farmland is developed."* (emphasis added)

The audit addresses additional supplies again on page 50:

*"In fact, the [Utah] Division of Drinking Water approved the drilling of 25 new wells for drinking water purposes during 2014. In addition, Centerville, Herriman, Pleasant View, Provo, Salt Lake, Sandy, **St. George**, and West Bountiful are all cities that report having at least some additional sources of supply available for future development as their water need grows."* (emphasis added)

Notably, UDWRe only shows Washington County's ***future*** projects (Table 2, excerpted from the audit's Appendix B). Note that this does not include the Warner Valley project.

Table 2. Water Projects Under Development							
Project	**Additional Water (AFY)**						
	2020	**2025**	**2030**	**2040**	**2050**	**2060**	**Total**
Washington County Water Conservancy District							
Ash Creek Pipeline	2,840	---	---	---	---	---	2,840
Cottom Well	600	---	---	---	---	---	600
Sullivan Well	750	---	---	---	---	---	750
Diamond Valley Well	400	---	---	---	---	---	400
Pintura Well	600	---	---	---	---	---	600
Sandhollow Recharge	3,000	---	---	---	---	---	3,000
Gunlock Well	5,000	---	---	---	---	---	5,000
Total	**13,190**	**---**	**---**	**---**	**---**	**---**	**13,190**

The Warner Valley Reservoir project is intended as storage for up to 55,000 AF to be used for secondary systems and to mitigate for erratic yields over years resulting from climate change. Its sources will come from Virgin River spring high water flows, new reuse capture projects, and dilution of high-TDS sources. According to the UDWRe:[28]

> *"Warner Valley Reservoir will store water to serve secondary systems. A capacity of 55,000 ac-ft has been assumed based on preliminary planning work. The reservoir will store water diverted from the Virgin River at the Washington Fields Diversion, water from the St. George reuse plant and available water from the Gunlock to Santa Clara Pipeline. The reservoir will firm the yields from Virgin River diversions that may otherwise be lost downstream, facilitate use of reclaimed water and allow for blending of high TDS water with better quality water. The storage provided by Warner Valley Reservoir would be especially important in light of the anticipated reduced yields from the Virgin River caused by projected climate change (DWRe 2014a). Environmental review for the Warner Valley Reservoir has not yet formally commenced, so the project may be constructed prior to or after completion of the LPP."*

The state's 2016 Water Needs Assessment adds this about the Warner Valley Reservoir project, making it clear that the reservoir is not dependent on LPP water: [29]

28 UDWRe, "Lake Powell Pipeline Project, Water Needs Assessment", April 2016, section 4.2.5.1.4 Warner Valley Reservoir, p. 4-17, at: https://lpputah.org/wp-content/uploads/2018/05/2016-Water-Needs-Assessment.pdf

29 UDWRe, Lake Powell Pipeline Study Water Needs Assessment, 2016, p. 4-17, at: https://conserveswu.org/wp-content/uploads/FERC-Water-Needs-ASSESSMENT-19-5-5-16.pdf

"Environmental review for the Warner Valley Reservoir has not yet formally commenced, so the project may be constructed prior to or after completion of the LPP."

The WCWCD doesn't count all water supplies

The WCWCD itself reports that the cities have additional supplies not identified as future water by the WCWCD:[30]

"Based on the Utah Division of Water Rights point of diversion coverage, there are 1,276 active underground water rights with points of diversion within the Navajo/Kayenta and the Upper Ash creek aquifers. These water rights claim 590 cfs or 332,760 acre-feet/year from the petitioned aquifers. Accounting for the fact that some water rights declare more than one type of use, there were 160 commercial water rights, 249 stock watering rights, 296 domestic rights, and 969 irrigation rights (DWR Database, 2000). The Utah Division of Drinking Water indicated there are 23 public water systems with 49 public drinking water wells with water quality data."

While Washington County's water rights are over-allocated, WCWCD only claims 35,452 AFY from cities will be used as supply by 2060.[31] However, the report above reveals the cities have much more than 35,452AF of water which they could develop in the future. The problem is the WCWCD doesn't consider all the water supplies in the county that could convert to culinary or secondary use by 2060.

Table 3, reproduced from Table 7 in the 2013 *Local Waters Alternative* study[32], shows estimates of Washington County's future supply that include more agricultural water conversion and more reuse; this is significantly more water than the WCWCD included.

Table 3. Water supply alternatives from the Local Waters Alternative analysis.

Supply Alternative	Culinary (AFY)	Secondary (AFY)
WCWCD Current Supplies and Ash Creek	78,400	7,500
Reuse	---	16,900
Agricultural Water Transfers	---	13,700-35,200
Sub-Totals	78,400	38,000-59,600
Total	**116,300-138,000**	

30 Washington County Water Conservancy District Petition for Classification of the Navajo/Kayenta and Upper Ash Creek Aquifers Chapter VI, p. VI-1, at: https://www.wcwcd.org/wp-content/themes/wcwcd/pdf/Classification%20Petition_2005.pdf

31 UDWRe, "Lake Powell Pipeline Project Water Needs Assessment-FINAL", April 2016, at: https://conserveswu.org/wp-content/uploads/2018/03/FERC-Water-Needs-ASSESSMENT-19-5-5-16-1.pdf

32 Western Resource Advocates, "The Local Waters Alternative to the Lake Powell Pipeline", 2013, p. 24, at: https://westernresourceadvocates.org/publications/the-local-waters-alternative/

Additional supplies could include:

1. As agricultural lands are developed more water will become available for M&I use.
2. Increase efficiently of the WCWCD's current water projects because the water provided for use from their projects is very low.
3. Private landowners hold water rights and as they develop their land more water becomes available for development.
4. Increased reuse[33] and treatment of abundant brackish water.
5. Inventory all water resources in the county not counted by the WCWCD as supply.
6. Inventory the cities' ability to provide future water supplies not counted by the WCWCD.
7. Stormwater capture. [34]
8. Rainwater harvesting. [35]
9. Grey water.

Additional Local Water Supplies – Agricultural Water

Once a rural place dominated by irrigated agriculture, southern Utah is now in transition to a more urban community. This transition must follow a 21st century model to make our communities more sustainable and affordable places for our children and grandchildren to live. Water use efficiency is only one component, but an essential one.

CSU is not advocating for agricultural water conversion; indeed, it would be beyond our power to stop it. We are simply noting that, as development occurs on agricultural lands, water will be used for housing as has been seen elsewhere in Utah as well as in many other desert communities.

When the first settlers arrived in southern Utah after 1857 the surface waters of rivers and streams were allocated by the Church of Jesus Christ of Latter-Day Saints. It wasn't until the early 1900s that Utah developed a water rights system. The water rights were given to irrigation companies and those companies sold shares to raise money for dams, ditches, and other improvements. Over time the agricultural lands were developed, and cities acquired those rights for their secondary water systems.

The debate is where all the irrigation water is included in the supply. CSU doesn't think it is all accounted, so we believe there is more supply than the WCWCD reports. The 2011 Water Needs Assessment[36] estimated the amount of agricultural water to be 86,760 AFY in 1990. The WCWCD, on the other hand, only claims about 20,000 AF of agricultural water will convert to residential use by 2060. The LWA estimates about 30,000 acre-feet will convert to residential use by 2060. Therefore, CSU estimates there would be more agricultural water for use in the future than the 10,080 AFY that the state and county are including in future supply estimates.

33 EPA, "Water Reuse and Recycling", 2020, at: https://www.epa.gov/waterreuse

34 Shimabuku, M. et al., "Stormwater Capture in California: Innovative Policies and Funding Opportunities", Pacific Institute, June 2018, at: https://pacinst.org/wp-content/uploads/2018/07/Pacific-Institute-Stormwater-Capture-in-California.pdf

35 Poindexter, J. "23 Awesome DIY Rainwater Harvesting Systems You Can Build at Home", Morning Chores, at: https://morningchores.com/rainwater-harvesting/

36 UDWRe, Lake Powell Pipeline Study Water Needs Assessment, March 2011, p. 4-42, at: https://conserveswu.org/wp-content/uploads/2012/04/19DraftWaterNeedsAssessmentReport-1.pdf

The 2016 Water Needs Assessment (WNA)[37] shows:

"2.5 Agricultural Conversion for M&I Supply
"As municipal development occurs over existing agricultural lands, water will be converted from agricultural to municipal uses. To estimate the amount of water that might be obtained from these conversions, the State of Utah duty of water values were used. Water quality concerns and groundwater sustainability were not considered in this computation."

UDWRe's 2016 WNA did not provide values in units of AF, as were used in the 2011 WNA, making comparisons with earlier documents more difficult, and the issue was addressed in less detail generally.

The WCWCD is already anticipating agricultural water conversions as farmland is sold and developed. CSU has concerns about the underestimation of this water. To prove such an underestimation, an analysis would have to determine which farmland is likely to be converted in the next 50 years, the reliable water available from the related water rights, and the quality of the water. From that analysis, the quantity and cost of conversion could be determined much more accurately.

Additional Local Water Supplies – Reuse

In 2006 when the Lake Powell Pipeline Development Act was passed, the Utah Legislature also passed the Wastewater Reuse Act[38]. Reuse had been officially authorized by the Legislature in 1995[39]. A May 2018 reuse presentation[40] to the governor's Executive Water Finance Board (EWFB) showed that twelve reuse projects were filed in eleven years under the 1995 version of the law. However, after the repeal of the Wastewater Reuse Act in 2006 only seven reuse projects had been filed in twelve years.

The mayor of South Jordan, Utah, also presented to the EWFB regarding her city's reuse project[41], fashioned on a reuse facility in Altamont, Florida[42] [43] that does not use reverse osmosis; treatment costs are half of what they would be if reverse osmosis was used.

Table 4 shows the demand for M&I water in Washington County based on a projected average three percent population growth rate at two different per capita use (demand) rates. Note that the Water Needs Assessment estimated 98,707 AF would be available by 2060 and that does

37 UDWRe, Lake Powell Pipeline Study Water Needs Assessment, April 2016, p. 2-14, at: https://conserveswu.org/wp-content/uploads/FERC-Water-Needs-ASSESSMENT-19-5-5-16.pdf

38 Utah State Legislature, Wastewater Reuse Act, 73-3c-101, 2006, at: https://le.utah.gov/xcode/Title73/Chapter3C/C73-3c_1800010118000101.pdf

39 Utah State Legislature, Utah Business Trust Registration Act, 16-15-101, 1995, at: https://le.utah.gov/xcode/Title16/Chapter15/C16-15_1800010118000101.pdf

40 Hartvigsen, D., "Why aren't we reusing more water?", Smith Hartvigsen, PLLC, at: https://www.utah.gov/pmn/files/399003.pdf

41 South Jordan City, "Overview of South Jordan Water Conservation Program & DPR Demonstration Project", 2019, at: https://www.utah.gov/pmn/files/505541.pdf

42 Altamonte Springs City, Florida, city website, at: https://www.altamonte.org/754/pureALTA

43 Florida Potable Reuse Commission, "Framework for the Implementation of Potable Reuse in Florida, January 2020, at: http://www.watereuseflorida.com/wp-content/uploads/Framework-for-Potable-Reuse-in-Florida-FINAL-January-2020-web10495.pdf

not include extraordinary conservation or conversion efforts such as reuse which could extend further. It suggests that, even with robust continued population growth, there should be adequate local water with reasonable water conservation achievements.

Table 4. Demand for M&I water based on the projected average 3% population growth rate with different per capita use (demand) rates.

Year	Population (Kem Gardner)	Demand at 200 GPCD (AFY)	Demand at 150 GPCD (AFY)
2050	391,468	87,660	65,745
2065	508,952	113,968	85,476

Local Water Management

A Local Water Management program would engage stakeholders (water agencies, local governments, the legislature, citizens, conservation groups, water experts, etc.) using standard program management practices to set goals for water supply and demand; establish strategies to achieve the goals; identify, evaluate, and select solutions using the strategies; define the logical steps to implement the solutions; define projects to implement the steps with specific objectives, timeframes, and budgets; plan and execute the projects with tasks, schedules and responsibilities to meet the objectives; and then account that the objectives have been met. An initial example[44] of such a plan was developed and presented to members of the Washington County Water Conservancy District in 2019.

While these practices are common in industry, they have not been employed in Utah to manage one of its most precious resources, water. State law[45] requires each water district and city to create and maintain a water conservation plan, hinting that it must contain the key elements listed above. While the law covers only the "demand" side of the water management scope (ignoring the "supply" side), it is a good start. Unfortunately, the UDWRe's guidance[46] for water conservation planning does satisfy the state's requirements, omitting very basic planning elements, leading Washington County, like most other counties in the state, to also miss the boat. A comparison of the guidance to normal planning elements was presented to members of the Washington County Water Conservancy District to illustrate the difference[47], followed by a

44 Butine, T., "Washington County Integrated Water Management Plan", distilled from presentation to and discussions with WCWCD, 2019, at: https://conserveswu.org/wp-content/uploads/2020/06/Washington-County-Water-Management-Plan-2020.pdf

45 Utah Code 73-10-32, "Definitions -- Water conservation plan required", at: https://le.utah.gov/xcode/Title73/Chapter10/73-10-S32.html, see item (2)(a)(i)

46 Conserve Southwest Utah, "Sample Water Conservation Plan", 2014, at: https://conservewater.utah.gov/pdf/MaterialsResources/Templates/Our%20City.pdf

47 Butine, T., "Water Conservation Plan Content Analysis", January 10, 2019, at: https://conserveswu.org/wp-content/uploads/2020/01/Water-Conservation-Plan-Content-Analysis.docx

report to the state's Executive Water Finance Board[48] (EWFB). For context and definition of terms, see our paper on "The Water System".[49]

As a result of the UDWRe's inappropriate guidance, there is no comprehensive program for the management of Washington County's water. Stakeholders need to be identified and engaged, goals set by them, strategies articulated, alternative solutions openly evaluated, implementation steps defined, and projects defined, planned, executed, and evaluated. Certainly, projects are being defined and executed, but without the prerequisite management steps, it is equally certain that the necessary projects are not being defined and that necessary objectives are not being accomplished to achieve improvements to supply and demand. This approach typically yields expensive strategic errors.

While Washington County—the water district and the cities within—execute many projects (with little evidence of coordinated plans), but there is very limited focus on demand reductions; i.e., conservation. An accounting of the county's "conservation" expenditures[50], based on their own compilation boasting over $56 million in conservation expenditures since 2000, indicates that 91 percent of the expenditures were on supply improvements rather than on conservation. Of the remaining nine percent spent on conservation, none was spent on "active" conservation, promoting changes in users' behavior to reduce water use. The "passive" conservation expenses were educational programs and media campaigns, which have little effect when inexpensive and flat-tiered water pricing provides little incentive for most citizens.

The Local Water Management program's scope would be the management of water for human uses (M&I and agriculture) and for "nature." The Virgin River Program[51] was established to manage the balance of human and natural system requirements for water from the Virgin watershed. This program would be an element of the overall Local Water Management program. A Virgin River Management Plan[52] was created to define specific goals to be achieved. It is unclear how projects are defined, managed, and accounted for in this plan.

One of the first steps in developing a program plan would be to identify all key stakeholders and engage them in setting goals. We propose a goal (a desired future state) something like:

> **Washington County manages its local water such that people can live here if they wish, in a vibrant and attractive community that blends with and conserves its beautiful natural desert environment.**

Whatever goal is finally adopted, it must be supported by all stakeholders—water agencies, local governments, the legislature, citizens, conservation groups, and water experts. It

48 Butine, T., "Strategic Water Planning Analyses, Planning and Decision-Making", presentation to the EWFB, July 19 2019, at: https://conserveswu.org/2019/07/10/strategic-water-planning-a-presentation-given-to-the-executive-water-finance-board-7-9-19/

49 Butine, T., "The "Water System Context, Scope and Terminology, and Implications to Water Conservation Goals", March 6, 2019, at: https://conserveswu.org/wp-content/uploads/2019/03/Water-Management-Context-Scope-Terms-Implications-1-1.pdf

50 Butine, T., "Integrated Water Management Plan - Projects by Category and Summary of Project Costs and Benefits", spreadsheet example, at:https://conserveswu.org/wp-content/uploads/2019/03/Water-Management-Plan-Project-Accounting-rev-1-1.xlsx

51 Virgin River Program websites, at: https://virginriverprogram.org/

52 WCWCD et al., "Virgin River Management Plan", June 1999, at: https://www.wcwcd.org/wp-content/themes/wcwcd/pdf/virginRiver/VRMPFinal5.PDF

would require that we balance our water demand with our water supply, and that we grow in a manner that enables that balance, while supporting the natural environment. The plan would define the strategies that must be implemented in order to achieve the goal.

Steps to implementing Local Water Management in Washington County would include the following:

- Step 1: Local elected officials and our water agencies realize that our water is a strategic resource and decide to manage it as such. This initiates strategic management practices for water; that is, improving and balancing local water supply and demand using strategies driven by goals embraced by all stakeholders. This is not happening.
- Step 2: We establish realistic long-term goals for local water supply and demand. A recent estimate projected future reliable water supply at approximately 100,000 acre-feet per year (AFY), without the LPP, by 2060 available for M&I uses. The estimate for agriculture use is not as clear. These estimates should be updated and verified in an open setting. A practical future demand goal can be calculated using projected future supply and population. If we assume a 2060 supply of 100,000 AFY and use the state's population projection of 500,000 for Washington County, the goal for 2060 water demand would be about 178 GPCD, equivalent to the national average. (The UDWRe took a step along this path by developing Regional Water Conservation Goals[53], which could have set appropriate demand goals had the project been properly initiated, engaged diverse stakeholders, and used appropriate analyses. Instead, without those critical components, it resulted in a 2065 goal of 237 GPCD.[54] [55] Goals should be validated prior to defining strategies by comparisons to similar communities[56] and a local check can be made by establishing rough guidelines, such as suggesting that a wise per capita residential use should not be exceeded by the corresponding per capita commercial, institutional, and industrial (CII) use. For example, if a practical individual residential use is calculated at 90 GPCD, the goal for total M&I use, including CII, might be 180 GPCD.)
- Step 3: Determine the strategies to achieve the goals, and evaluate and select solution concepts for those strategies in terms of costs and yields.
- Step 4: Define and sequence projects to implement the selected solution concepts, defining an objective and assigning a budget, and at the appropriate time per the project sequencing in the program's plan, initiate planning and approval of the project; staff and fund it; kick off each project in sequence, then monitor its progress, adjust the plan as necessary, measure its performance, and adjust the overall program plan as necessary.

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53 UDWRe, Utah's Regional M&I Water Conservation Goals", November 2019, at: https://water.utah.gov/wp-content/uploads/2019/12/Regional-Water-Conservation-Goals-Report-Final.pdf

54 CSU, "CSU Comments on Utah's Regional M&I Water Conservation Goals Summary Conclusions and Recommendations, March 17, 2019, at: https://conserveswu.org/wp-content/uploads/CSU-Comments-on-Utah%E2%80%99s-Regional-MI-Water-Conservation-Goals-Summary-Conclusions-and-Recommendations.pdf

55 https://conserveswu.org/wp-content/uploads/2019/03/CSU-Comments-on-Utah%E2%80%99s-Regional-MI-Water-Conservation-Goals-Detailed-Comments.pdf

56 https://conserveswu.org/wp-content/uploads/2017/07/Comparison-of-GPCD-Water-Usage-across-the-West.pdf

Our county's water future and, indeed, our state's future demand a management plan that is consistent with twenty-first century water supply, need, and use. We cannot rely on past practices when water was abundant for our small population to map our future.

LPP: Too Costly

Rationale for the Position

1. The LPP is simply too expensive for a public project that is so unnecessary and risky.
    a. When including all costs—initial construction, financing and interest, and maintenance and operation—the LPP would be a multi-billion-dollar project.
    b. The LPP would be one of the state's most expensive projects, stressing the state's bonding capacity, even beyond covering costs for the CUP.
    c. Increased water usage fees, property taxes, surcharges, and impact fees would place too high a burden on water users and taxpayers.
2. The LPP would consume resources and debt capacity needed to meet higher priority needs such as education, health care, transportation, and water conservation. Local and state authorities are already struggling to meet these needs.
3. Water management and conservation efforts would cost less than the LPP and could be implemented incrementally. Conservation would place a lighter financial burden on water users and taxpayers in Washington County.
4. The LPP proposal gives a false sense of water security, postponing conservation efforts and increasing their cost and impacts.

Costs Skyrocketed

Things have changed since the legislature passed the Lake Powell Pipeline Development Act in 2006 and the cost of LPP has grown significantly since it was first conceived. In 1995, the cost was estimated at $187 million, in 2001 it was $257 million, in 2006—the year the Act was signed—it became $354 million, it skyrocketed to $1.8-$3.2 billion in 2012, and was readjusted again to $1.4-1.8 billion in 2016.[57] Meanwhile, mid-century population projections have plummeted from 860,000 to 500,000, reducing demand.

Addressing southern Utah's perceived increasing water demand while protecting the area's affordability and unique culture is essential to southern Utah's future. The LPP would compromise Washington County's tradition of fiscal responsibility, self-reliance, and good stewardship of our land and water. As noted previously, many desert communities have continued to grow but use the same or even less water. The state and district assert a need for a "second source" of water to support our county. Given that the LPP is unnecessary due to our profligate water usage, local supply potential, the risk of the water right, and the current cost of the pipeline, the cost of seeking a second source seems an unreasonable burden to place on the county—and our state.

Local water sources can deliver southern Utah's future affordably and reliably, without burdening future generations with a massive debt and a water supply vulnerable to litigation,

57 Lake Powell Pipeline. April 2016 Final Study Report 10 – Socioeconomics and Water Resource Economics. Appendix B: Draft Cost Opinion Master Summary. Capital cost estimate in December 2015 dollars. Prepared by Stantec, February 2016

political conflict, controversy, and uncertainty (and infestation by quagga mussels, described below).

Water Management Costs vs LPP Costs

The LPP is clearly more expensive than conventional conservation methods and will require investment up front. At an ***estimated*** $1.4-1.8 billion development cost, the cost nearly triples when adding interest over the 50-year payback period, even at low interest rates secured by state bonds. And these costs are likely to be much higher. For example, the planned but recently judicially rejected Snake Valley Pipeline in Nevada began with a cost of approximately $6.4B, but a review of the project with interest costs pushed it to $15 billion[58]. If similar economics apply to the LPP, the costs could easily surpass $4-5 billion.

In contrast, water conservation and management costs are well known and incremental, occurring gradually as required, avoiding the need for large capital projects. Implementing a conservation water use rate structure is very inexpensive for the retailer and can reduce demand by almost fifty percent without compromising community attractiveness and quality of life. Indeed, the greatest negative impacts are only to those who are not conservation minded. Even those impacts can be short-term in nature if the users adapt their behavior. Impact fees could be lowered to help offset Localscapes[59] installations for all new development. A portion of impact fees could help those wishing to convert. New developments should be plumbed for outdoor irrigation using secondary or reuse water instead of culinary water for landscaping. (As noted in a previous section, approximately 70 GPCD of culinary water is currently used for outdoor landscaping.)

Less Costly: Passive Conservation Practices

Water agencies in Washington County have not focused on implementing active water conservation. The gains made in water demand (reduction from ~ 400 GPCD in 2000 to the current ~300) can largely be attributed to an over-estimation of past unmetered secondary water use. Other reasons for a lower GPCD include passive methods such as higher density residential development (reduced lot sizes, resulting in less landscaped area and less outdoor water use), improved plumbing practices (efficient fixtures and appliances), and education. The WCWCD claims that any project they build is a "water conservation project." These include pipelines and other capital projects that transport water, currently totaling $60 million. However, WCWCD has invested very little on the active practices that change users' behavior, and which result in significant conservation. CSU understands that WCWCD is a wholesaler of water and builds water projects. However, WCWCD could provide leadership for cities and require that their own water contracts implement water conservation programs listed in the Maddaus studies (described below).[60]

Less Costly: Effective Conservation Methods

58 Southern Nevada Water Authority, "Ability to Finance Report to the Southern Nevada Water Authority", June 2011, at: http://www.riversimulator.org/Resources/Pipelines/LVP/SNWAsAbilityToFinanceExh383HobbsBonowReport.pdf

59 Localscapes, at: https://localscapes.com/

60 Maddaus Water Management, Final Draft Technical Memorandum: Water Conservation Technical Analysis, August 30, 2010, at: https://www.wcwcd.org/wp-content/themes/wcwcd/pdf/maddaus-water-management-water-conservation-technical-analysis-report-2010.pdf

There have been many studies of various methods of water conservation, their costs and yields:

1. Analyses in a 2010 Maddaus Study[61] included a Program C that saved 57,000 AF, but at a cost of $83,000,000. The 2010 full report[62], on page 33, listed 54,000 AF of savings by 2060. Another Maddaus Study in 2018[63] compared all of the earlier Maddaus studies and exposes the 2015 Maddaus Study as flawed because of the projected water use upon which it's based: 317gpcd in 2060 without conservation, more than our current 303 gpcd. Maddaus concluded the best we could achieve with conservation is 282 gpcd. These studies yield conflicting values and need to be reconciled but show great promise for conservation results.
2. The *Local Waters Alternative*[64] includes a list of actions and would not cost $2 billion. It would not lay waste to a 140-mile strip. In other words, it's a practical, reasonable alternative to the LPP, which would have less adverse impact on people, land, and the aquatic ecosystem, and it wouldn't damage 53 square miles of the natural landscape, as would the LPP. Critically, it uses available water and is achievable after taking into consideration cost, existing technology, and logistics in light of overall project purposes.
3. The state estimates in their November 2019 regional goals document[65] that our region's conservation water usage goal for 2065 should be 237 GPCD with a demand of 131,202 acre-feet for a population of 500,000. As explained elsewhere in this rationale, balancing supply and demand is very achievable without building the LPP. Washington County can do better using less water, as shown in other desert communities.
4. A study of *Integrating Water Efficiency into Land Use Planning in West*[66] by WRA has examples of a proper conservation plan, zoning, costs and other important planning tools.

The most apparent high yield, low cost methods to reduce water demand that can be implemented incrementally appear to be:

- Significantly tiered water rate structures.
- Conservation-minded building codes limiting grass and promoting native desert landscaping.
- Water budgeting.
- Just-in-Time education and help (as new methods are implemented).

61 CSU, notes on Maddaus Water Management Final Technical Memorandum: Water Conservation Technical Analysis, August 30, 2010, at: https://conserveswu.org/wp-content/uploads/2020/05/Maddaus-report-2010-1.pdf

62 Maddaus Water Management, Final Draft Technical Memorandum: Water Conservation Technical Analysis, August 30, 2010, at: https://www.wcwcd.org/wp-content/themes/wcwcd/pdf/maddaus-water-management-water-conservation-technical-analysis-report-2010.pdf

63 WCWCD, Water Conservation Programs: A Comparative Evaluation, republication of Maddaus study, 2018, at: https://conserveswu.org/wp-content/uploads/2020/05/Maddaus-Water-Conservation-Program-Comparison-2018.pdf

64 Western Resource Advocates, Local Waters Alternative to the Lake Powell Pipeline, 2013, at: https://conserveswu.org/wp-content/uploads/2011/11/WRA-Alternative-LPP-full-report-20121.pdf

65 UDWRe, Regional Water Conservation Goals Report Final, 2019, at: https://water.utah.gov/regional-conservation-goals/

66 WRA, "Integrating Water Efficiency Into Land Use Planning in the Interior West: A Guidebook for Local Planners, June 2019, at: https://westernresourceadvocates.org/publications/integrating-water-efficiency-into-land-use-planning/

Impact Fees

Washington County Impact fees are already some the highest in the state, encouraging builders to not build affordable housing. This situation will get worse with higher impact fees for the LPP. Under the current plan, every family or business that buys a building permit helps to pay for the LPP through impact fees. However, given the long timeframe before construction starts, inflation alone could increase the LPP's construction cost to $2.4 billion by 2025, while other factors could increase the cost even more. The cost of the pipeline is not yet finalized and the financing structure has yet to be determined, but an audit examined the future revenue potential of the WCWCD to assess its ability to pay for the project taxes, and concluded that the debt will fall on all of Utah's residents to pay for the LPP.

According to a 2019 Legislative Performance Audit[67]**:**

> *"Washington county already has some of the highest impact fees in the state, but planned increases will nearly double the fee from 2018 to 2025. Our model assumes WCWCD will carry out its planned increases from $9,417 in 2019 to $15,448 by 2026 as planned. While we cannot project what the highest impact fee will be, it will likely increase once the final cost of the LPP is determined."*
>
> *and:*
>
> *"Washington County has some of the highest water impact fees in the state; its ability to charge even higher fees is a key assumption for revenue growth."*

After 2026, the models assume the fee will gradually increase. The ability to raise rates will affect the WCWCD's ability to repay the loan. The revenue sources are susceptible to future uncertainly. The LPP Act does not fully define how the state will be paid back for the full cost of the LPP which will need to be clarified. Since all the costs of LPP are not known the ability of WCWCD to be able to repay the loan could be questionable.

Figure 3, reproduced from the Legislative Performance Audit quoted above (their Figure 2.4, p. 19), shows that Washington County already has the second highest impact fees in the state.

67 Office of the Legislative Auditor General, "A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline", August 2019, p. 29, at: https://le.utah.gov/audit/19_05rpt.pdf

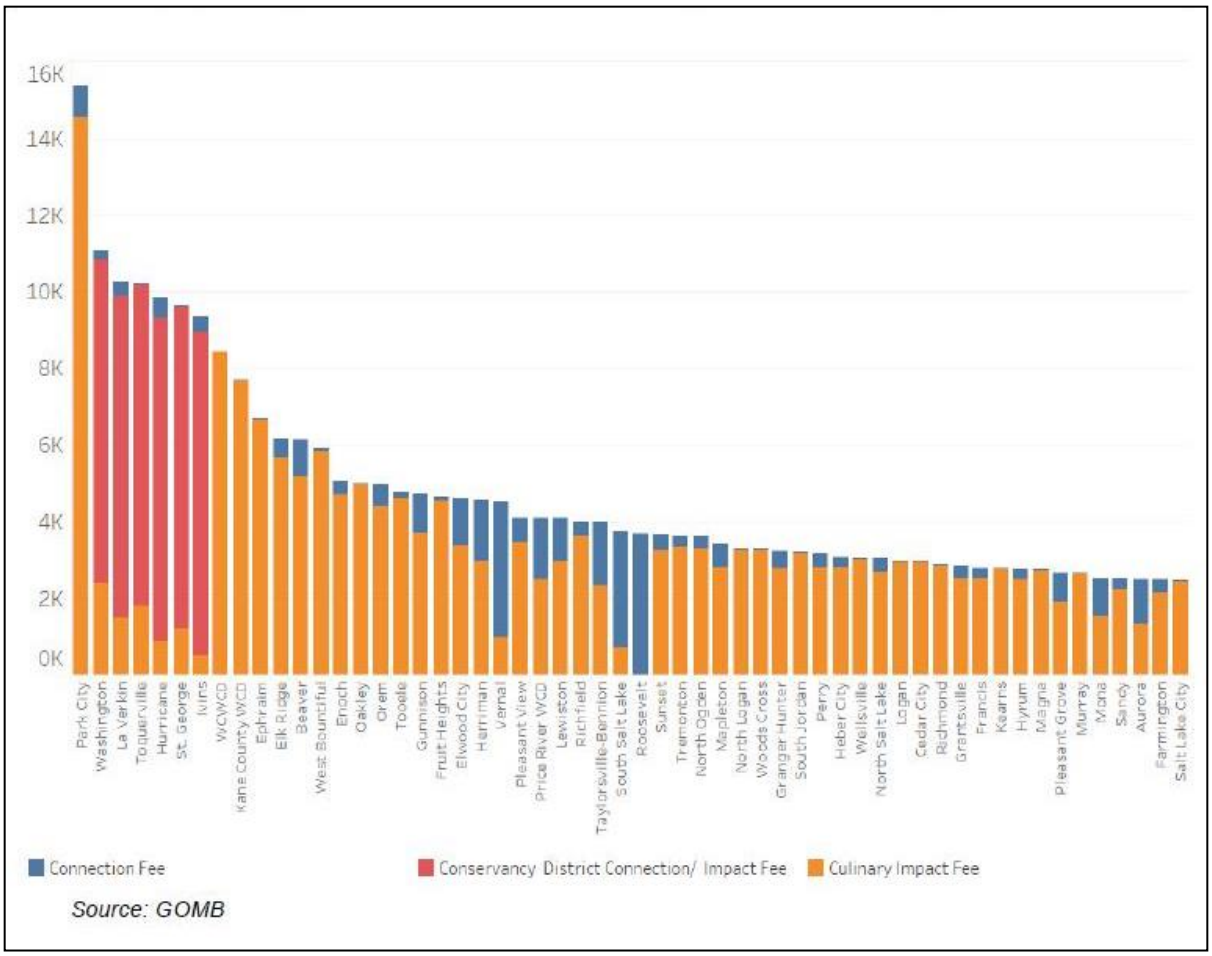

Figure 3. Impact fees in Utah counties.

Increasing Water Rates

According to a 2019 Legislative Audit, WCWCD plans to pay for the LPP in part with an increase in water rates:[68]

> *"WCWCD's ability to charge higher impact fees are a key assumption to the growth in revenue.*
>
> *"In the model, water rates were increased according to WCWCD's plans, [by] $0.10 per 1,000 gallons a year to $3.84 per 1,000 gallons by 2045. This increase would amount to a 357 percent increase over a 30-year period to the wholesale rate, $0.84 to $3.84 per 1,000 gallons."*

68 Office of the Legislative Auditor General, "A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline", August 2019, p. 21, at: https://le.utah.gov/audit/19_05rpt.pdf

The increased water rates and property taxes, coupled with population growth, rapidly increase potential revenue, but economic problems such as a recession could make it difficult to repay debt, as required by the state.

Although raising water rates could potentially produce more revenue, it could also reduce demand for water resulting in awkward revenue decreases. Twenty-two Utah economists from the University of Utah and Brigham Young University analyzed the feasibility of the LPP and its effects on Washington County[69]. They addressed the issue of price elasticity in their analysis:

> *"Due to the fact that the price elasticity of demand for water is estimated to be -0.5, repayment through water sales alone would require rate increases of 1665–1995 percent (cell B12). This enormous increase in water rates would lead Washington County water users to need less water in 2060 than they used in 2010 (cells O12 and AA12 of the "Water Demand" worksheet), meaning that there would be no need for the water supplied by the LPP. In other words, if the LPP is financed only by increasing water rates, water would become so expensive that future water demand would drop below the current water demand of WCWCD, even if one ignores other water sources identified above."* [70]

Additional Cost Concerns

The 2015 Legislative Audit of the Division of Water Resources[71] addressed the question of cost and alternative water management policies:

> *"State policy makers need assurances that when they support costly, large-scale water projects, the need for additional supply is real and the state's investment is sound."* (p. 9)

> *"Unless water demand is reduced, new sources of supply will need to be developed and delivered from greater distances, resulting in increased costs. Given these costs, policies aimed at reducing per capita water use need to be prioritized."* (p. 36)

Additionally, with the need for metering secondary water being critical, the audit stated:

> *"According to WBWCD's (Weber Basin Water Conservancy District) cost-benefit analysis, metering secondary connections is cost effective because reductions in water demand delay the costs of adding new water development."* (p.37)

Also not adequately considered when the cost of the LPP is discussed is the cost of repairing and maintaining existing infrastructure, which should receive priority.

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69 "Lake Powell Pipeline Economic Feasibility Analysis for Washington County, UT", October 2015, p. 7-8, at: https://www.stgeorgeutah.com/wp-content/uploads/2015/11/2015-Lake-Powell-Pipeline-Economic-Feasibility-Analysis.pdf

70 "cell" references pertain to the spreadsheet that accompanied their report to Governor Herbert, House speaker, and Senate president

71 Office of the Legislative Auditor General, Audit Report No. 2015-01, "A Performance Audit of Projections of Utah's Water Needs," at: https://olag.utah.gov/olag-doc/15_01rpt.pdf

"Local and regional water managers describe a growing deficit in major system repairs and replacements with an estimated total cost of $18 billion. It is unclear which portion of these costs will be paid for by existing sources of revenue and which portion will require new sources of revenue." (p. 40)

The law enacted in 2006 to begin the project, the 2006 Lake Powell Pipeline Development Act[72], also poses problems when it comes to cost issues, as described in the 2019 Legislative Audit [73]:

"The Lake Powell Pipeline Development Act leaves questions unanswered concerning repayment of pipeline costs to the state. These uncertainties in the act's repayment requirements could seriously impact the state's repayment revenues and the district's ability to pay."

If the statute is left unchanged, these uncertainties will ultimately be addressed by the Utah Board of Water Resources. Leaving the issue of cost and repayment to unelected board members is not in the best interest of Washington County's citizens.

Although many cost concerns have been raised in this document, a major one remains - quagga mussels. As far back as 1998, the Department of Interior's U.S. Fish and Wildlife Service created the 100th Meridian Initiative to slow the westward spread of this and other invasive species, apparently with no real success. It was clear even then that the mussels can severely compromise efficiency at water facilities by causing flow restrictions and encouraging rust on infrastructure and damaging the environment. The first quagga mussel west of the Continental Divide was discovered Jan. 6, 2007. Lake Powell is already infested with the quagga mussels.

It's interesting to note that the state's March 2011 Draft Study Report 2 Aquatic Resources[74] to FERC devoted about 10 pages to the quagga mussel issue, but the November 2015 Draft Study Report 11 Special Status Aquatic Species and Habitats[75] devoted only one paragraph to the quagga mussel situation. Then, the issue became more critical, judging by the April 2016 Final Study Report Aquatic Resources, which devoted extensive coverage to the issue[76], dedicating nearly a third of the 2016 107-page document to the quagga mussel problem and efforts to control them. Obviously, this has become a much more serious problem since the LPP efforts began.

Governor Herbert created the Executive Water Finance Board to study the financing of the LPP. They have determined the LPP is a $1 billion state subsidy with annual payments by the

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72 Utah State Legislature, UC 73-28-101, Lake Powell Pipeline Development Act, 2006, at: https://le.utah.gov/xcode/Title73/Chapter28/C73-28_1800010118000101.pdf

73 Office of the Legislative Auditor General, Audit Report No. 2015-01, (p. ii), "A Performance Audit of Projections of Utah's Water Needs," at: https://olag.utah.gov/olag-doc/15_01rpt.pdf

74 Utah Board of Water Resources, "Draft Study Report 11 Special Status Aquatic Species and Habitats", March 2011, at: http://www.riversimulator.org/Resources/Purveyors/LPPipeline/11DraftSpecialStatusAquaticSpeciesHabitatsReport.pdf

75 Utah Board of Water /Resources, "Draft Study Report 2 Aquatic Resources, Revised", November 2015, at: https://www.dropbox.com/sh/76boj1xgew4a3l3/AAA5mYkdZfixwfiTl39TMggRa/Study%20Reports?dl=0&preview=02+Revised+Draft+Aquatic+Resources+Study+Report+113015.pdf&subfolder_nav_tracking=1

76 April 2016 Final Study Report Aquatic Resources, at: https://conserveswu.org/library/

state of $80-120 million that will take funds away from other state needs.[77] See Figure 4, a reproduction of a handout from the EWFB meeting.

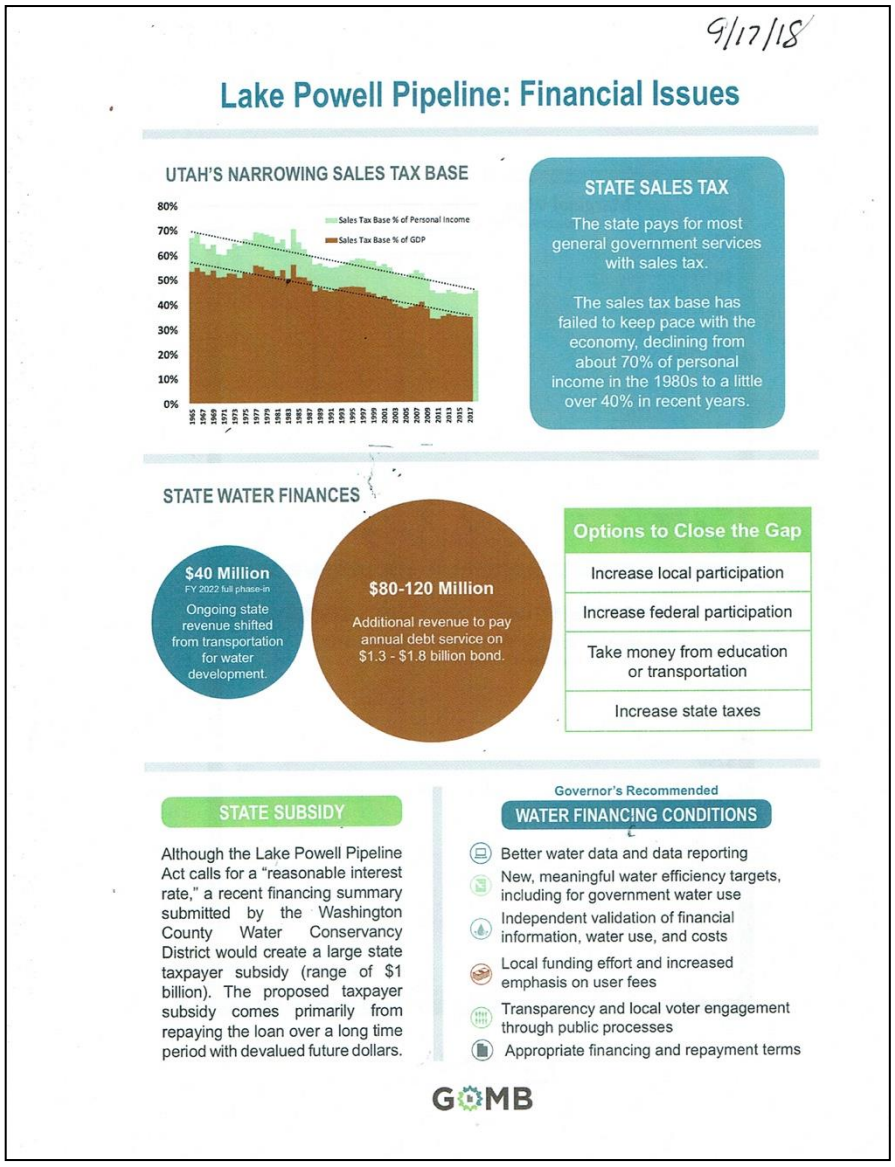

Figure 4. Financial issues associated with Lake Powell Pipeline financing. Source: Governor Herbert's Executive Water Finance Board meeting, September 17, 2018.

77 Governor Herbert's Executive Water Finance Board, handout from September 17, 2018 meeting, at: https://www.utah.gov/pmn/files/444007.pdf.

LPP: Water right is too risky

Rationale for the Position

1. The flow of the Colorado River was over-allocated in the Colorado River Compact of 1922.
2. Colorado river flows have declined, and more declines are projected, making today's over-allocation even worse.
3. The amount of Colorado River water Utah will be allowed to use will almost certainly be reduced in future negotiations.
4. Utah water rights senior to the LPP water right will probably use all available water. The LPP water right is therefore very insecure.

We Must "Get" Ours

CSU has heard officials warn in local and state meetings that Utah has to use the remainder of its Colorado River water rights so that California doesn't use them. The problem with this assertion is that the annual Colorado River flow has declined; there isn't that much water physically in the system any longer. Most importantly, Utah doesn't consider it has an obligation to provide water for the Lower Basin or Mexico, apparently preferring to ignore the risks of shortage for the LPP water right. Further, Utah's LPP water right doesn't have high enough priority status to guarantee the water will be available over the long term. Officials apparently never did their due diligence on this water right.

Colorado River Compact

Authors, Eric Kuhn, retired General Manager of the Colorado River Water Conservancy District, and John Fleck, director of the University of New Mexico's Water Resources Program, wrote in their book, Science Be Dammed[78], that even as early as 1922, scientists knew the flow of Colorado River was overestimated and over-allocated. With agreements on Compact allocations being complicated and the willingness of the federal government to pay for building the dams, the allocations were agreed to anyway due to political pressure. They used a river flow of ~17 million acre-feet per year (MAFY) at Lee Ferry to decide on how much they had to allocate to each basin. The Lower Basin states (Nevada, Arizona, and California) were to receive a fixed 75 MAF over any consecutive ten-year period. The Mexican Water Treaty of 1944 allotted 1.5 MAFY to Mexico. In 1948, the Upper Colorado River Basin Compact allocated 7.5 MAFY among the Upper Basin states (Wyoming, Colorado, Utah, and New Mexico). Table 5 shows the resulting Colorado River Compact allocations between the major basins.

78 Utah Public Radio interview with E. Kuhn and J. Fleck, authors of Science be Dammed, How ignoring Inconvenient Science Drained the Colorado River, 2019, at: https://www.upr.org/post/science-be-damned-water-rights-and-scarcity-eric-kuhn-wednesdays-access-utah

Table 5. Colorado River Compact allocations.	
	Allocation (MAFY)
Upper Basin states	7.5
Lower Basin states	7.5
Mexico	1.5
Total	**16.5**

The problem is that Colorado River flows have historically only been about 13-14 MAFY, with some reports as low as 12.5 MAFY. It has been well-documented by the U.S. Bureau of Reclamation (BOR) that there is more water allocated in the Colorado River than the river delivers annually, even without considering effects of a warming climate. The releases from Lake Powell and Lake Mead continue to exceed inflows. The over-allocation and overuse have created a functional deficit which is draining the reservoirs faster than predicted. The Colorado River has reached its limit, yet Utah proposes to take even more water for the LPP.

Depletion

The amount of water Utah can use of its Colorado River allocation is determined by depletions. Water rights can be quantified through both diversion and depletion volumes of water. A water right is permitted to "divert" a specific amount of water, a portion of which will be returned to the river depending on its use (e.g., through agricultural return flows or municipal wastewater treatment plants). The portion of the right that is consumptively used is considered "depleted" from the basin because it will not eventually return to the river system. Depletion is the amount of water that is lost from the hydrologic system based on the associated beneficial use. It is evaporated, transpired, incorporated into products or crops, or consumed by humans or livestock.

Utah's 23% Colorado River Allocation

In 1948, the states of Utah, Colorado, Wyoming, and New Mexico entered into the Upper Basin Compact. The states realized an Upper Basin state's water right couldn't be a fixed amount as was the Lower Basin's right[79] because flows in the Colorado River are so variable. They also realized that, in addition to the Lower Basin's claim to the first 7.5 MAFY at Lee Ferry, Mexico had a claim on 1.5 MAFY, which was to be shared equally by the Upper and Lower Basins. The Upper Basin states still assumed 15.0 MAFY as the average flow at Lee Ferry. Consequently, Upper Basin states agreed to allocate the remaining flows, apportioned approximately by the percentage of the upper basin's watershed lying within each state.

In 1988 in connection with the Jicarilla Apache Nation's water rights settlement, a hydrologic determination was made for the Navajo Reservoir in a BOR service contract. The Department of Interior determined that "water depletions for the Upper Basin of the Colorado River can be reasonably allowed to rise to 6 million acre-feet (MAF) annually," suggesting

79 California 4.4 MAFY, Arizona 2.8 MAFY, Nevada 0.3 MAFY.

concern on the part of DOI regarding security of the original allocation for the Upper Basin. During negotiations for allocations within the Upper Basin, Utah accepted an allocation of 23% of the Upper Basin's flow.

Table 6 shows how much of this 6.0 MAFY Utah believes it has yet to use. The percentage apportionment reflected uncertainty over how much water remains after the Upper Basin had fulfilled its obligation to the Lower Basin. In times of shortage or drought, the Upper Basin River Commission is to decide the reductions. Utah's 23% remaining share of the Colorado River is particularly vulnerable because it's such a small percentage of the flow. Colorado's and Wyoming's claims to the Green River tributaries add an additional "upstream" Law of the River aspect that might affect the amount of water for the LPP, particularly in times of drought.

These Upper Basin rights, especially for the LPP, are more uncertain and variable because they are allocated only a percentage of what is left after obligations to the Lower Basin, Mexico, and in-state senior water rights are met.

Table 6. Calculation of Utah's claim to Colorado River flows (assuming flow at Lee Ferry of ~16.5 MAFY).

	AFY
Total Upper Basin Allocation	6,000,000
Utah's Allocation	23%
Utah Allocation of Upper Basin Flow	1,369,000
Water Use, Depletion[80]	1,008,000
Utah's Calculation of Water Remaining in its Allocation and Available for LPP	361,000

Since flows in the Colorado River are less than originally hoped for, Utah will find that their claim to 361,000 AFY is only theoretical water and is not physically in the river. Every drop in the Colorado River is already being used. In fact, no Colorado River water actually reaches the sea. Still, Utah alleges it can develop 361,000 AF of its remaining share of the Colorado River of 1.369 million acre-feet per year (MAFY), and it has allocated 86,249 AF of that amount for the Lake Powell Pipeline (LPP). But depending on this remaining share is risky because it is not physically in the river system due to increased use; reduced snowpack and stream flows from rising temperatures; over allocation; the junior priority of LPP's water right; and unsettled Federal Reserve Water Rights claims of Native American Tribes.

Conserve Southwest Utah used a Government Records Access and Management Act (GRAMA) request to the UDWRe years ago and asked for the specific water rights that Utah claims it is using of its 1.369 MAFY compact allocation. We are still waiting for the response.

80 UDWRi, in PowerPoint presentation on "Upper Colorado River Basin Current Water Rights Issues", April 2005, described Utah's Upper Colorado River Entitlement and Current Depletions; at: https://www.waterrights.utah.gov/meetinfo/m042005/jdo_2005.ppt

Utah's Colorado River Rights are in Disarray

Utah's web site of Upper Basin Water Rights lists 2.5 million acre-feet (MAFY) of approved depletions. But Utah is only supposed to deplete less than 1.4 MAF. In fact, the Utah Division of Water Rights (UDWRi) shows[81]:

- 6,450,413 AF diversion; and
- 2,542,092 AF depletions

Consequently, there are significantly more approved water right applications which, if developed, could exceed Utah's Compact entitlement.[82]

LPP Water Right Faces Shortage: Is Utah's Water Allocation Wet?

Utah water law is based on the Doctrine of Prior Appropriation, the principle of *first in time, first in right*. This means those holding a water right with the earliest priority date, and who have continued "beneficial use" of the water, have the right to water from a certain source before others with water rights having later priority dates. As water supplies decline this principle will decide whose water gets shut off when flows are insufficient to satisfy all rights holders.

An important aspect of a water right due diligence investigation is determining whether the water is "wet." That is, even if the water right exists on paper, is there adequate water available in priority to satisfy the paper entitlement. Many water rights exist that have little or no value because of their legal and physical limitations.

There are two principal factors that make a water right just a "paper" right. First, whether the water right has a sufficient priority to allow it to divert water that may be physically available. Second, whether the water is physically available when the water right is in priority. If the answer to either question is "no," then the water right may exist on paper, but have no real value or use. The LPP water right is a "paper water right."

A 2014 Deseret News article attempted to explain Utah's difficulty in determining water rights:[83]

> *"'Your paper water right may look very big and supply everything you are asking, but the wet water, in reality, can be very different', Kent Jones, the state engineer over water rights, said.*
>
> *"The Colorado River, for example, holds 1.4 million acre-feet of water for Utah to put to use. There are applications approved for more than 2 million acre-feet, and about one half of that is currently in use. Jones said the imbalance has yet to*

81 UDWRi, "Colorado River Water Rights", Updated June 3, 2009, at: https://www.waterrights.utah.gov/distinfo/colorado/WRPriorityDDview.asp

82 UDWRi, "Water Right Issues in the Upper Colorado River Basin of Utah", 2005, at: https://www.waterrights.utah.gov/meetinfo/m042005/summary.htm

83 O'Donoghue, A., "The water question: The staggering problem of determining water rights", Deseret News, December 15, 2014, at: http://www.deseretnews.com/article/865617715/The-water-question-The-staggering-problem-of-determining-water-rights.html

be a problem because the water has not been developed — but the struggle will come with time, and those holding "junior" rights will go wanting.")

The Colorado River Storage Project (Water Right 41-2963)

In 1956, the federal Colorado River Storage Project (CRSP) Act authorized construction of dams in the upper Colorado River watershed, including Flaming Gorge and Glen Canyon dams. Such a system was necessary to capture spring high water in reservoirs so that the Upper Basin could meet its obligation to deliver 75 MAF over any ten consecutive years (~7.5MAFY) to the Lower Basin and Mexico. Seventeen additional impoundments and subsystems were completed on various tributaries. One of these projects was the Central Utah Project (CUP), which transfers water from the Uinta Basin to the Wasatch Front, from Green River tributaries.

The federal government sought to recoup the cost of the projects by selling hydropower and irrigation water. For the first 60 years after the CRSP Act was passed, Utah had a disagreement with the BOR and didn't want to be required to buy water from the BOR's CRSP, maintaining that it was already Utah's water. Finally, in 2016 Utah agreed to a purchase contract to buy water from the CRSP for the Lake Powell Pipeline at an estimated annual cost of approximately $19 per acre foot.

In exchange for water for the Lake Powell Pipeline, Utah also had to agree to supply to the Green River an amount equal to the water it will receive from Flaming Gorge Reservoir. This replacement supply is supposed to be "excess spring run-off" from the Green River tributaries. However, the likelihood of these excess springtime run-offs is significantly decreased, perhaps eliminated, by climate change impacts and senior rights allocated to other uses. The Lake Powell Pipeline water right has a priority date of 1958 (though it is unclear why, because the Flaming Gorge Dam wasn't built until 1964). Over the next 60 years the BOR and Utah kept extending this water right without putting it to beneficial use; the right is scheduled to expire on October 31, 2020, unless extended again. In the meantime, Utah allocated spring runoff flows to other water right holders, such as the CUP's Bonneville Unit, and irrigation companies, which are therefore senior to the water right used for the LPP. If annual water flows decline, as expected, the BOR may be forced to deny water for the Lake Powell Pipeline.

Central Utah Project (CUP); Water Right Number 43-3822[84], Priority Date 1964

The LPP water right is even more risky because it's junior to the CUP water right. The CUP water right is not part of the Colorado River Storage Project (CRSP) water right because it did not buy water from the CRSP system and instead diverted surplus high spring flows to canals that go to the Wasatch Front.[85]

> *"The Central Utah Project (CUP) is one of the largest water development projects undertaken by the Bureau of Reclamation in the state of Utah. Region-wide, the CUP is not the largest project, but the initial plans for the CUP were among the most complex, especially given the amount of water the project was originally intended to deliver. The project is a network of tunnels, pipes,*

84 UDWRi, "Water Right Details; Water Right: 43-3822, at: https://www.waterrights.utah.gov/asp_apps/wrprint/wrprint.asp?wrnum=43-3822

85 CUP, " The Central Utah Project - An Overview", at: https://cupcao.gov/TheCUP/overview.html

canals, pumps, and reservoirs that supply water from the east side of the Wasatch Front to the Salt Lake City area along the west side.

"The CUP was officially authorized by Congress for construction in 1956 under provisions of the CRSP (43 USC 620). Because of its size and complexity, Reclamation divided CUP into six units to facilitate 86 planning and construction: Vernal, Jensen, Bonneville, Upalco, Ute Indian, and Uintah. The Vernal, Jensen, Bonneville, and Upalco Units were authorized by the 1956 CRSP Act. The Uintah and Ute Indian Unit were later authorized by the 1968 Colorado River Basin Project Act.

"Over the decades since the CUP's authorization, the changing political climate, budget priorities, and emerging environmental concerns have resulted in many changes to the project. The Vernal and Jensen Units were completed; plans for the Upalco, Uintah, and Ute Indian Units were never realized and the Ute Indian Unit was de-authorized; the purpose and components of the Bonneville Unit have evolved; and the passage of the Central Utah Project Completion Act in 1992 has altered the planning, oversight, and areas of responsibility for the Bonneville Unit."

Ultimate Phase[87] (Water Right 41-3479)

The CUP's Ultimate Phase, the UTE Indian Unit, was intended to satisfy the Northern Ute Tribe's water rights, which are senior water rights to the Green River.[88] The Ultimate Phase water right (number 41-3479) is for about 157,000 AFY of depletion (but 447,000 AFY diversion). The challenge for Utah is that it has to show that amount of extra water is in the system to exchange with BOR to get Lake Powell Pipeline water out of Flaming Gorge Reservoir. Most importantly, water rights for the CRSP and the CUP and its Ultimate Phase depend on surplus, unused spring runoff from lakes, streams, and reservoirs high in the Green River tributaries.

Therefore, the Northern Ute Tribe holds rights senior (circa 1861) to the 1922 Colorado River Compact rights over the LPP water right. However, Utah wants to move half of that Ultimate Phase water right to the south for Washington County instead. The LPP water right was segregated from water right 41-2963, a 1958 water right authorizing the building of the dams on the Colorado River in the CRSP Act.[89] The LPP water right number 41-3479[90] has been split to allow 86,249 AFY for the LPP, and about 72,000 AFY for local water districts in the Uinta Basin, leaving none for the Northern Ute Tribe. The conditions applied to this right include

87 BOR, Bureau of Reclamation, "Central Utah Project Ultimate Phase: Inventory of Available Data" (1965). Elusive Documents. Paper 97, at: http://www.riversimulator.org/Resources/Pipelines/UltimatePhase/CentralUtahProjectUltimatePhaseInventoryAvailableData1965.pdf

88 Native American Water Rights Settlement Project, "Ute Indian Water Compact; Approval of Ute Indian Water Compact, Utah Code 73-21-1", at: https://digitalrepository.unm.edu/nawrs/73/

89 BOR, "Colorado River Storage Project", at: https://www.usbr.gov/uc/rm/crsp/index.html

90 UDWRi, Water Right Details, Water Right: 41-3479, at: https://www.waterrights.utah.gov/asp_apps/wrprint/wrprint.asp?wrnum=41-3479

control by the BOR, subject to reduction based on CRSP shortages, and that an equal amount of water is released by Utah from excess spring run-off from the Green River tributaries. Hence, there is no guarantee that the water will be there for the LPP over the long term. The last paragraph of this contract only commits BOR to give Utah notice if there is a shortage of water availability:[91]

> *"(n) Constraints on the Availability of Water*
>
> *"In its operation of the Project, the Contracting Officer will use all reasonable means to guard against a condition of shortage in the quantity of water to be made available to the Contractor pursuant to this Contract. In the event the Contracting Officer determines that a condition of shortage appears probable, the Contracting Officer will notify the Contractor of said determination as soon as practicable.*
>
> *"If there is a condition of shortage because of inaccurate runoff forecasting or other similar operational errors affecting the Project; drought and other physical or natural causes beyond the control of the Contracting Officer; or actions taken by the Contracting Officer to meet current and future legal obligations, then no liability shall accrue against the United States or any of its officers, agents, or employees for any damage, direct or indirect, arising therefrom."*

Therefore, the LPP's water right is controlled by the BOR, not by Utah, and is subject to reduction or elimination by likely shortages in the CRSP due to the general over-allocation of the river in all compact states and the impacts of climate change. There have been discussions resulting in the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead December 2007 (Interim Guidelines).[92] These Interim Guidelines will be reviewed and updated in 2026. The Interim Guidelines manage the operation of Lake Mead and Lake Powell as one reservoir in times of drought. The recent Drought Contingency Plan[93] was agreed to as a bridge to the Interim Guidelines discussions. Arizona and Nevada are expected to face their first-ever cuts in Colorado River water next year.

LPP's Junior Water Right Status

As flows diminish over time Utah's junior priority water right of 1958 for the Lake Powell Pipeline will be subordinated to senior water rights holders. The LPP water right is junior to the following water right holders:

- Northern Ute Tribe
- Navajo and other tribal rights

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91 BOR, "Contract for Exchange of Water, Green River Block", 2017, p. 17, at: https://www.usbr.gov/uc/provo/pdf/GreenRiver_ExchangeContract_V2.pdf

92 Bureau of Reclamation, "Record of Decision Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead", December 2007, at: https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf

93 Agreement Concerning Colorado River Drought Contingency Management and Operations, Signed May 29, 2019, at: https://www.usbr.gov/dcp/finaldocs.html

- Lower Basin states
- Mexico
- Other Federal Reserved water rights, not yet determined
- Other water rights established before 1958
- Central Utah Project Bonneville Unit.

The question is, as water supplies decline, how much water can Utah plan on using and who has senior priority right to use it for the long-term?

Utah's Water Exchange with BOR to Buy Water for the LPP

One of the purposes of the upcoming Draft Environmental Impact Statement (DEIS) for the LPP is to approve the State of Utah's request to buy water out of CRSP's Flaming Gorge Reservoir for the Lake Powell Pipeline: [94] (p. 4)

> *"UBWR has requested a water exchange contract with Reclamation. Under the exchange contract, UBWR would forbear the diversion of a portion of the natural flows to which UBWR is entitled and allow these flows to contribute to meeting the Endangered Species Act Upper Colorado River Recovery Implementation Program requirements in the Green River. In exchange, UBWR would deplete an equal amount of water released from Flaming Gorge Dam throughout the year and available at Lake Powell."*

However, the UDWRe has never disclosed where this extra "exchange" water is located. Our preliminary research indicates that the UDWRi has over-allocated the Green River tributaries so there isn't any extra unused springtime "high water" to exchange for this contract. The annual flow of the river has declined, and all the high water is being fully utilized by the CUP and other senior water rights holders. The State of Colorado is also intending to develop its water rights to the Green River tributaries. More importantly, the CRSP is already failing to meet its deliveries of water to the Lower Basin.

CSU submitted a GRAMA request from the (UDWRe) years ago and asked for the specific rights they are exchanging. Their response thus far is that the records from the UDWRe and the UDWRi do not agree with each other, reaffirming CSU's position that the LPP's water right is risky and not secure.

Upper Basin Water Right Used in Lower Basin

The LPP water right would move an Upper Basin water right (from Lake Powell above Lee Ferry) for use in the Lower Basin (Virgin River watershed). According to a letter from the State of Arizona, this transfer violates the Colorado River Compact.

> *"…it is ADWR's position that water from Utah's Upper Basin Allocation may not be transported from Lake Powell to communities in southern Utah located in the Lower Colorado River Basin, including St. George, without specific authorization*

94 BOR, "Notice of Intent to Prepare a Draft Environmental Impact Statement and Public Scoping Period for the Lake Powell Pipeline Project", December 6, 2019, at: https://s3.amazonaws.com/public-inspection.federalregister.gov/2019-26357.pdf

from Congress. This is because of the 'exclusive beneficial use' language in Article III(a) of the Colorado River Compact of 1922, which allocates water from the Colorado River System to the Upper Basin for exclusive use in that basin and to the Lower Basin for exclusive use in that basin." [95]

Consequently, this transfer would need approval by Congress and all seven Colorado River Basin States.

Climate Change

Utah is not adequately considering the impact of climate change on the water availability for the Lake Powell Pipeline. Udall and Overpeck[96] (abstract) concluded:

"Between 2000 and 2014, annual Colorado River flows averaged 19% below the 1906–1999 average, the worst 15-year drought on record. At least one-sixth to one-half (average at one-third) of this loss is due to unprecedented temperatures (0.9°C above the 1906–1999 average), confirming model-based analysis that continued warming will likely further reduce flows…

"Recently published estimates of Colorado River flow sensitivity to temperature combined with a large number of recent climate model-based temperature projections indicate that continued business-as-usual warming will drive temperature-induced declines in river flow, conservatively −20% by midcentury and −35% by end-century, with support for losses exceeding −30% at midcentury and −55% at end-century."

Conclusion

Even though there is not likely to be physical water for the LPP, officials have a sense of entitlement and have spent over $35 million of taxpayer money thus far on a flawed project that is not sustainable. The officials never did their due diligence on the water right. It is not a secure water right that residents can rely on in exchange for their billions of dollars and is unlikely to serve as a permanent water supply. This is the same type of political decision regarding Colorado River allocations that has occurred for 100 years at the public's expense.

Utah buying water for a project that will cost taxpayers billions of dollars using a CRSP allocation that is already failing is not in the best interest of the state. The question for Utah is, as Colorado River flows decline, how much water will be available for the LPP, and who has senior priority right to use it for the long-term?

For more information on the water right see scoping comments from the Lake Powell Coalition.[97]

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95 UDWRi, Exhibit A, letter from Thomas Buschatzke, Director of the Arizona Department of Water Resources to Eric Millis, Director of UDWRe, dated July 18, 2017, at: https://www.waterrights.utah.gov/docImport/0624/06246283.pdf

96 Udall, B. and Overpeck, J., "The Twenty-First Century Colorado River Hot Drought and Implications for The Future", Water Resources Research online journal, Vol. 53 Issue 3, March 2017, at: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016WR019638

97 Lake Powell Pipeline Coalition, Comments RE: Bureau of Reclamation Notice of Intent to Prepare a Draft Environmental Impact Statement for the Lake Powell Pipeline project:, January 10, 2020, at: https://conserveswu.org/wp-content/uploads/LPP-Coalition-Scoping-Comments.pdf

List of Abbreviations

ADWR	Arizona Department of Water Resources
AF	acre-feet
AFY	acre-feet per year
CFS	cubic feet per second
CII	commercial, institutional, and industrial
CRSP	Colorado River Storage Project
CSU	Conserve Southwest Utah
CUP	Central Utah Project
EIS	Environmental Impact Statement
EWFB	Executive Water Finance Board
FERC	Federal Energy Regulatory Commission
GPCD	gallons per capita per day
GRAMA	Government Records Access and Management Act
LPP	Lake Powell Pipeline
M&I	municipal and industrial water
UDWRe	Utah Division of Water Resources
UDWRi	Utah Division of Water Rights
BOR	United States Bureau of Reclamation
WCWCD	Washington County Water Conservancy District