



Comments sent via email: lpp@usbr.gov
Mr. Rick Baxter, Program Manager
Bureau of Reclamation, Provo Area Office
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September 8, 2020

Dear Mr. Baxter,

On behalf of the undersigned, we respectfully submit the following comments in response to the Bureau of Reclamation's (BOR) "Lake Powell Pipeline Draft Environmental Impact Statement" published on June 8, 2020. In addition to our written comments below, submitted today, September 8, 2020, we are submitting a copy of many pertinent documents. These documents have been loaded onto an electronic storage device and sent to your office via mail.

The undersigned organizations represent a variety of interested parties from across the American West. These parties represent a vast geographic area and a broad array of taxpayers, ratepayers, conservationists, fishermen, outfitters, guides and other recreationists, and business leaders who have a vested interest in sustainable water management, fiscally conservative water spending, and the continued protection of aquatic ecosystems.

We have reviewed and analyzed the Lake Powell Pipeline (LPP) Draft Environmental Impact Statement (DEIS) by the Bureau of Reclamation (BOR) and found a number of deficiencies relating to the following areas: purpose and need, climate change, alternatives, socioeconomics, cultural resources, visual resources, threatened and endangered species, cumulative effects, and a number of other legal issues. This list is non-exhaustive and these problems are addressed in depth in the following comments and are supported by the documents sent to your office.

In addition to these concerns, we are also troubled by a number of instances where the Provo Office of the Bureau of Reclamation (Provo Office) appears to have broken from standard BOR policies and practices in the creation of the LPP DEIS. An excellent example of this is the Provo Office's refusal to consider a water conservation alternative and instead only study alternatives that propose to pull water from the already over-taxed Colorado River. The Salt Lake Office of the Bureau of Reclamation recognized in 1982 that Utah likely would not be able to divert additional water from the Colorado River, in regards to the enlargement of the Carter Creek Canal:

Our main concern is that the company be aware that if they proceed to make the investment in the enlargement of the Carter Creek Canal that at some future date there may be a lack of water under a 1982 priority to realize the water supply that may be envisioned by the company. This circumstance could result from the fact that presently undeveloped water rights in Utah to appropriate waters tributary to the Colorado River system far exceed Utah's entitlement of the Colorado River system.¹

The BOR also identified in its own 2012 study that the Colorado River is far over-taxed and that demand management strategies would be needed to sustain river-dependent communities into the future.² In an effort to implement these changes, the BOR encouraged Colorado River Basin states to come to new agreements regarding the management of the Colorado River. The result of this was the Drought Contingency Plans, which placed heavy emphasis on reducing water use.³

In this light, the Provo Office, who refused to consider conservation alternatives in line with those of the DCP and their 2012 study, appears to have acted errantly in the creation of the LPP DEIS. By relying on an overly-narrow purpose and need statement, the Provo Office wrongfully claimed that the only project that could meet Washington County's water needs was one that brought water from outside the Virgin River basin (i.e. from the Colorado River). However, Washington County already has ample water supplies and need only apply simple and common sense conservation and efficiency measures to meet their future demands. Our analysis is that many other southwestern cities with much larger population sizes than what is forecast in the DEIS for Washington County in 2075 have much smaller total water supplies today than Washington County's existing water supply.

The Provo Office has provided no convincing evidence whatsoever that Washington County needs Lake Powell Pipeline water to satisfy its future growth scenarios. The fact that the Washington County Water District has officially testified that they do not intend to take all the Lake Powell Pipeline water until the year 2054 – 34 years from today – is demonstrable evidence that LPP water isn't needed in Washington County.

The Provo Office notes that climate change is reducing Virgin River water supplies, but the post-climate change reductions of water in the Virgin River as described in the DEIS do not merit Lake Powell Pipeline water supplies, only a more balanced approach to

¹ BOR. Letter to Mr. Dee C. Hansen. September 27th, 1982.

² *Colorado River Basin Water Supply and Demand Study, Executive Summary*, Bureau of Reclamation (2012) [https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS Executive Summary_FINAL.pdf](https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS_Executive_Summary_FINAL.pdf)

³ Bureau of Reclamation. Drought Contingency Plans. <https://www.usbr.gov/dcp/>

conservation and efficiency measures since Washington County residents use more than twice the U.S. average of water.

Although climate change is very serious, the Provo Office did not adequately consider the immense limitations of the Colorado River, the current Drought Contingency Planning efforts, and the mandatory cuts being implemented in lower basin states. Nor did the Provo Office consider the best available science about the existence of a megadrought in the American Southwest. The Provo Office failed to consider the best available technologies and practices in regards to water delivery inside Washington County, and the Provo Office failed to contemplate the over allocation of the Colorado River Compact in lieu of a host of competing rights for water including existing agriculture, tribal water rights, hydropower generation, municipal uses, environmental flows necessary to sustain threatened and endangered species habitat and recreation needs.

Given all of these uses the Provo Office did also not consider the very likely possibility that Colorado River water proves to be an unreliable water source for the Lake Powell Pipeline, and residents of Washington County would be forced to make debt payments through large increased water rates, impact fees and property taxes for the construction costs of the project, yet receive no water for their payments. We encourage the Provo Office to rethink their approach to the LPP project for the FEIS and act to further the objectives of the BOR's work in the Colorado River Basin by encouraging actions that protect the fragile Colorado River.

Our comments on the LPP DEIS will provide further clarification on the changes necessary to create a complete and thorough FEIS. Please do not hesitate to reach out to us for clarification on the comments and or on the supporting documents we have provided to your office.

Sincerely,

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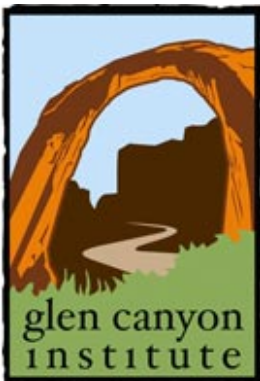
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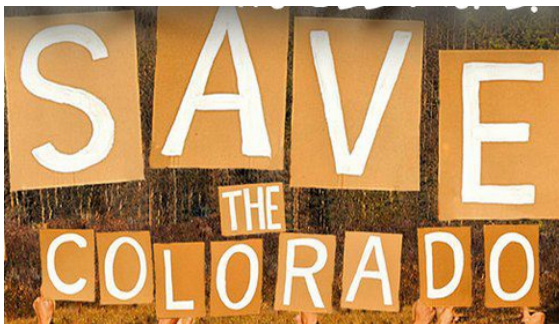
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I. The purpose and need statement for the Lake Powell Pipeline is flawed because it is unreasonably narrow and it is based on mistaken and outdated data and assumptions

An EIS must contain a statement that specifies “the underlying purpose and need” of the proposed action.⁴ This purpose and need statement is a critical part of the NEPA process, because the statement guides what alternatives the agency must analyze in the EIS.⁵ The Department of Interior’s NEPA regulations state that the “need” for an action is “the underlying problem or opportunity to which the agency is responding with the action.”⁶ The “purpose” of an action is “the goal or objective that the bureau is trying to achieve, and should be stated to the extent possible, in terms of desired outcomes.”⁷

Here, the DEIS contains the following purpose statement for the Lake Powell Pipeline:

*The purpose of the Proposed Project is to deliver a reliable annual yield of approximately 86,000 acre-feet of water per year from outside the Virgin River Basin into Washington County to meet projected water demands in 2060.*⁸

And the DEIS contains this statement regarding the need for the pipeline:

*Under median climate change scenarios, approximately 86,000 acre-feet of water will be needed annually by 2060 to satisfy increased water demands of a growing population in Washington County, Utah. A more diverse and secure water supply is needed to mitigate vulnerabilities to unexpected demand and supply scenarios and ensure reliable water deliveries into the future.*⁹

This purpose and need statement is fatally flawed in two key ways. First, the statement is unreasonably narrow. Washington County is located in the Virgin River Basin, and there are ample water supplies available in this basin. This statement, however, would exclude these water supplies from meeting the goal of satisfying the County’s future water demand. Tellingly, it appears that Reclamation drafted the statement so that the Lake Powell Pipeline is the only project that could satisfy this overly-specific purpose and need. Second, the purpose and need statement is based on mistaken and outdated data and assumptions. The purpose and need statement underestimates the water

⁴ 40 C.F.R. § 1502.13.

⁵ See, e.g., *Colo. Envtl. Coal. v. Dombeck*, 185 F.3d 1162, 1174-75 (10th Cir. 1999); *Nw. Ecosystem All. v. Rey*, 380 F. Supp. 2d 1175, 1185-86 (W.D. Wash. 2005).

⁶ 43 C.F.R. § 46.420.

⁷ *Id.*

⁸ *Lake Powell Pipeline Draft Environmental Impact Statement*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 9.

⁹ *Id.*

supply that is available to Washington County, while also overstating future water demand. This unreasonably skews both sides of the supply and demand calculation. Moreover, the statement is based on outdated assumptions that do not account for how the COVID-19 pandemic and the resulting economic recession will slow population growth and economic growth in Washington County. The Final Environmental Impact Statement (FEIS) must correct these flaws in the purpose and need statement, and it must fully assess alternatives that would meet this updated purpose and need. A proper purpose and need statement and alternatives analysis would show that Washington County’s future water demand can be met by projects that have a fraction of the cost of the Lake Powell Pipeline, and that would not harm the community and the affected environment.

I.A The purpose and need statement is unreasonably narrow and excludes other reasonable alternatives that would meet Washington County’s future water demand

Courts have explained that when preparing an EIS, agencies cannot define the purpose and need of a project “so narrowly as to preclude a reasonable consideration of alternatives.”¹⁰ As one court has noted, “[i]f the agency constricts the definition of the project’s purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role.”¹¹ For example, if a proposed project’s objective is to provide additional road capacity across a river, a purpose and need statement that limits alternatives to a bridge at a specific location would be unreasonably narrow.¹² Similarly, if the overall purpose of a proposed water supply project is to satisfy a “thirst for water,” a purpose and need statement that requires constructing a single new reservoir is unreasonably narrow.¹³

Moreover, the Department of Interior’s regulations make clear that Reclamation cannot simply adopt project proponent’s preferred purpose and need for a project. The regulation states:

¹⁰ *Wyoming v. U.S. Dep’t of Agric.*, 661 F.3d 1209, 1244 (10th Cir. 2011) (quoting *Citizens’ Comm. to Save Our Canyons v. U.S. Forest Serv.*, 297 F.3d 1012, 1030 (10th Cir. 2002)); see also *Nat’l Parks & Conservation Ass’n v. Bureau of Land Mgmt.*, 606 F.3d 1058, 1072 (9th Cir. 2009) (agency cannot “craft a purpose and need statement so narrowly drawn as to foreordain approval of the [proposed project]”).

¹¹ *Simmons v. U.S. Army Corps of Eng’rs*, 120 F.3d 664, 666 (7th Cir. 1997)

¹² *Davis v. Mineta*, 302 F.3d 1104, 1119-20 (10th Cir. 2002), *abrogated on other grounds by Dine Citizens Against Ruining Our Env’t v. Jewell*, 839 F.3d 1276 (10th Cir. 2016).

¹³ *Simmons*, 120 F.3d at 667, 669–70.

*When a bureau is asked to approve an application or permit, the bureau should consider the needs and goals of the parties involved in the application or permit as well as the public interest. The needs and goals of the parties involved in the application or permit may be described as background information. However, this description must not be confused with the bureau's purpose and need for action. **It is the bureau's purpose and need for action that will determine the range of alternatives and provide a basis for the selection of an alternative in a decision.***¹⁴

The purpose and need statement for the Lake Powell Pipeline is unreasonably narrow and violates NEPA. Washington County is located in the Virgin River Basin, and the purpose and need statement explicitly says that water to supply future Washington County demands must come from “outside the Virgin River Basin.”¹⁵ As a result, any water sourcing that is currently located within the Virgin River Basin and that can still provide enough water for the future population expansion needs of Washington County residents, businesses and institutions cannot be considered as an alternative because it does not fit within the narrow scope of the project's purpose. The Bureau is effectively arguing that the purpose and need of the Lake Powell Pipeline is to build the Lake Powell Pipeline, thereby precluding each and every other possible alternative of any kind, nature or design from being considered, save building the Lake Powell Pipeline itself.

The Provo Office of the Bureau of Reclamation has intentionally narrowed the purpose and need for the DEIS for the specific purpose of precluding any other possible alternative to provide Washington County and its residents and businesses with water, including those alternatives that cost a small fraction of the cost of the proposed Lake Powell Pipeline. This intentional narrowing of purpose and need is arbitrary and fails to consider the range of alternatives required by NEPA.

Notably, the original purpose and need for the Lake Powell Pipeline was broader than the DEIS's purpose and need statement. When the Utah Board of Water Resources (UBWR) initially applied for a preliminary permit from the Federal Energy Regulatory Commission (FERC), it stated that the goal of the project was the following:

The proposed project would develop, conserve, and utilize, in the public interest, the water resources of the region. The proposed project would permit the growing municipalities of southwest Utah and adjoining areas to meet water needs during the next 50 years. In addition, the project would provide additional benefits such as environmental enhancement and restoration of

¹⁴ 43 C.F.R. § 46.420 (emphasis added).

¹⁵ DEIS at 9.

*stream or other terrestrial and aquatic habitats along the pipeline alignment.*¹⁶

This initial statement makes evident that the primary goal of the Lake Powell Pipeline is to responsibly use the water resources of the region to meet water needs of the local communities through the next half century. However, there are a number of other, less-costly alternatives that could achieve this goal. The DEIS should have included a broader purpose and need statement, similar to UBWR’s initial statement. And the DEIS should have considered these other, less-costly alternatives

The limited nature of the project’s purpose and need—that is, requiring water from a source outside of the Virgin River Basin—does not allow Reclamation to “rigorously explore and objectively evaluate all reasonable alternatives.”¹⁷ Requiring a new source of water prevents the consideration of any water sources from within the Virgin River from providing additional water for Washington County. This is particularly egregious given the vast and substantial water supply currently being unused inside the Virgin River, as well as the range of additional water development projects currently being constructed or planned for construction from within the Virgin River Basin.

In addition, there are a number of water demand reduction programs and policies that could eliminate the need for the costly Lake Powell Pipeline, its draconian required water rate increases to repay construction debt, and the myriad of cultural and environmental impacts the project will have upon Southwestern Utah and its people. Yet all of these factors have been ignored by the Provo Office’s desire to rush an approval for this unnecessary water project.

This intentional narrowing is contrary to the many policy priorities the Bureau has been managing inside the Colorado River Basin, including stewarding the water supply of other basin states as per the Colorado River Compact and meeting the needs of the Colorado River Storage Project in the face of climate change, particularly in regards to maintaining future hydropower generation.

Consequently, the purpose and need statement for the Lake Powell Pipeline should be expanded to include the consideration of water sourcing alternatives within the Virgin River Basin. Since the Provo Office cannot be relied upon to comply with state and federal laws in this regard, we would like another office of the Bureau outside of Utah to take over the NEPA permitting for this project.

¹⁶ Utah Board of Water Resources. *Application for Preliminary Permit*. (2007).

https://conserveswu.org/pdf/pipeline/resources/ferc_application_state_of_utah.pdf

¹⁷ 43 C.F.R. § 46.420.

I.B The purpose and need statement is based on incorrect and outdated data and assumptions that overestimate future water demands and underestimate available water supplies

The DEIS's purpose and need statement states that the purpose of the Lake Powell Pipeline is to supply approximately 86,000 acre-feet of water per year to Washington County, in order to meet projected water demand in 2060.¹⁸ This statement is fundamentally flawed because it is based on incorrect assumptions about water supply and water demand in Washington County. The DEIS understates the water supply available to Washington County by ignoring several available water supply sources. At the same time, the DEIS also overstates future water demand in numerous ways. By underestimating water supply and overestimating future water demand, the purpose and need statement's assertion that 86,000 acre-feet per year of water is needed by 2060 to supply Washington County's demand is arbitrary and capricious.

Moreover, the DEIS entirely fails to account for how the COVID-19 pandemic and the resulting economic recession will impact the DEIS's pre-pandemic projections of future population growth and future economic growth. The FEIS must update its projections to account for the pandemic and economic recession, and then reassess the need for the project. If the FEIS fails to consider this issue, it would "entirely fail[] to consider an important aspect of the problem," and thus be arbitrary and capricious.¹⁹

I.B.1 The Provo Office of the Bureau has arbitrarily underestimated the available water supply in Washington County

I.B.1.a The Provo Office of the Bureau has arbitrarily and capriciously ignored the ample water supplies of the Virgin River Basin

A number of existing data sources indicate the Virgin River has a large quantity of water available to service future population growth inside Washington County, which isn't being given adequate consideration in the Draft Environmental Impact Statement by the Provo Office. The 1993 Utah Board of Water Resources Kanab Creek/Virgin River Basin Water Plan notes that the long term annual flows at the Virgin River near Littlefield is 169,970 acre-feet.²⁰ This water volume offers a substantial amount of water for future Washington County residents.

¹⁸ DEIS at 9.

¹⁹ *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

²⁰ Utah Board of Water Resources. "Utah State Water Plan Kanab Creek/Virgin River Basin." (1993).

Even accounting for climate change’s expected future reductions in local snow pack and subsequent runoff volumes, the Virgin River still offers enough water for the future of Washington County under any of the population forecasts made by the Provo Office of the Bureau of Reclamation in the DEIS.

In 2014, the BOR published a technical memorandum on the expected future of Virgin River flows as a result of climate change.²¹ The memo shows that in most instances, flows in the Virgin River decrease slightly and in some instances flows actually increase. The main results of the memo comes in the form of a table, which is reproduced below as Figure 1.²²

Figure 1: BOR Modeling of Future Virgin River Flows

	Virgin River at Littlefield					
	Simulated Annual Flow (acre-feet)					
	10th percentile*	30th percentile	50th percentile	70th percentile	90th percentile	mean
Base Period Annual Sum	164,605	166,419	167,564	168,790	170,938	167,640
Future Period Annual Sum	118,738	142,294	162,754	192,858	241,661	173,647

This table shows that under median (50th percentile) climate change projections, annual flows in the Virgin River are expected to decrease 4,810 acre-feet. This represents a flow decrease of just about 3%, which is essentially negligible. The expected flows of the Virgin River still remain at over 160,000 acre-feet per year. This is a relatively vast and substantive water supply for the future of the residents within Washington County, yet the Provo Office of the Bureau has ignored this water source by its unsuitable narrowing of the purpose and need in the DEIS.

Equally troubling is the data presented by the Provo Office in Table 4.2-1 in the DEIS, which claims that the WCWD has a current supply of just 24,922 acre-feet from non-groundwater sources.²³ It further claims that all other municipal water suppliers in

²¹ Reclamation. 2014. “Virgin River Climate Change Analysis Statistical Analysis of Streamflow Projections.” Technical Memorandum. Katrina Grantz. March 26, 2014.

²² Ibid, page 4.

²³ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>.

Washington County supply 27,125 acre-feet, bringing the total claimed non-groundwater supply of the entire county up to just over 52,000 acre-feet.²⁴

These claims are in direct contradiction with the BOR's 2014 technical memo. In fact, the DEIS claims that current water supplies in Washington County are just 32% of what the BOR's technical memo states they are. In essence, the DEIS only lists one third of Washington County's true water supplies. This is a gross misrepresentation by the Provo Office.

The Fitch Rating agency issued a bond rating determination in 2017 for the WCWD which indicated that this water supplier had 46,000 acre-feet of water supply which would come online and be available for its water supply. Other public communications including presentations to Utah legislators during official legislative committee meetings, as well as printed newsletters published and distributed to Washington County residents by the WCWD indicate this water agency's water supply is as high as 100,000 acre-feet of water to service future municipal growth.

The WCWD's water storage facilities and plans as taken from their website and public presentations demonstrate that Washington County has ample water supplies through at least the year 2075. The WCWD plans on constructing new facilities to capture water from the Virgin River and its tributaries, which the Provo Office fails to acknowledge in the DEIS. According to the WCWD website, the district currently has the reservoir capacity to store over 109,000 acre-feet of water and is planning on constructing two additional reservoirs.²⁵ Furthermore, the WCWD reported that it is operating a groundwater recharge program, which has the potential to store an additional 300,000 acre-feet.²⁶ This brings the WCWD's potential storage capacity to well over 400,000 acre-feet.

If the WCWD's water supply was truly just 24,922 acre-feet as claimed by the Provo Office in the DEIS, then the WCWD would not need reservoir capacity for 400,000 acre-feet. The fact that the WCWD has this much storage capacity and is planning to construct more demonstrates that they have far more water supplies than are listed in the DEIS.

The Virgin River, which flows through the heart of Washington County, is a much less expensive source of water for Washington County than the Colorado River, which is over 140 miles away. The Virgin River has ample water supplies to support the full range of

²⁴ Ibid

²⁵ <https://www.wcwcd.org/infrastructure/reservoirs/>

²⁶ Fitch Ratings. 2017. "Correction: Fitch Upgrades Washington County Water Conservancy, UT's Water Revs; Affirms GOs".

future growth scenarios in Washington County presented in the DEIS and the district has ample storage capacity to utilize its flows.

I.B.1.b The Provo Office of the Bureau has arbitrarily and capriciously ignored a large quantity of agricultural water which is likely to be converted into municipal water supplies as Washington County’s agricultural lands are urbanized

Page 2-3 of the 1993 Virgin River Basin Plan, the State of Utah’s most current Water Plan for the region of the Lake Powell Pipeline, summarizes the water usage of the region quickly:

Total water diversions are culinary, 20,330 acre-feet; secondary, 15,960 acre-feet and irrigation, 123,300 acre-feet for a total of 159,590 acre-feet.

This Water Plan was prepared by the applicant of the Lake Powell Pipeline, the Utah Division of Water Resources, which indicates clearly that in 1993 there were a total of 123,300 acre-feet of water being used by irrigated agriculture at the time. The 1993 Plan reported that agricultural water use in Washington County alone was 87,800 acre-feet.²⁷ The DEIS needs to account for why data inside the State of Utah’s Water Plan for the Virgin River Basin is being ignored by the Provo Office of the Bureau, particularly since the same entity which prepared the Lake Powell Pipeline permit application prepared the Virgin River Water Plan.

Although we suspect that some of the agricultural water use identified in the State Water Plan has been converted to either secondary water use or municipal water use or both, we do not believe that most of this water has been returned to the Virgin River and its tributaries without being used by either agriculture, secondary users or municipal users in some combination.

In fact, the substantial addition of new water development projects inside the region and specific to Washington County make it clear that the developed and perfected water supplies of Washington County have increased since 1993. The Provo Office needs to explain why it has selectively ignored this massive quantity of water inside the Washington County region and is only considering some 40-50% of the water supplies of Washington County in preparing its DEIS.

²⁷ Utah Board of Water Resources. “Utah State Water Plan Kanab Creek/Virgin River Basin.” (1993).

In 2015, the Legislative Auditor General completed an 18 month-long audit of the proponent of the Lake Powell Pipeline, the Utah Division of Water Resources. Among their many concerns, the auditors noted that the Division had inflated the demand for future water needs by inflating current water usage rates, ignored many sources of water, did not possess any copies of water use data they claimed to possess to forecast future water shortages and were failing to account for the growth in municipal water supplies as a function of proper data management, among other reasons.

Auditors went so far in forecasting the growth in municipal water sources as to title Chapter 4 of the Audit in a manner offering clear direction to an agency with a demonstrable track record of fabricated data and failing to communicate facts to decision makers:

The Growth in Water Supply Should Be Reported to Policy Makers.

Auditors noted that the Division of Water Resources had failed to account for the growth in municipal water supply as cities urbanize onto farmland, thereby converting the agricultural water supply to urban uses. The conversion of irrigated agricultural lands to municipal landscapes is a common occurrence in western landscapes and is happening across the State of Utah. It has been estimated by the American Farmland Trust that Utah loses 30 acres of farmland each day due to development from population expansion.²⁸ Utah's farmland protection efforts are widely criticized for their lack of state funding and Washington County does not have a dedicated open space bond to acquire farmlands in the face of rampant development. Although efforts to protect farmland inside Washington County are admirable, there is no data to convince readers of the DEIS these efforts are sufficient to protect most of the farmland inside the region today.

The Provo Office of the Bureau claims that the need for additional water supplies are necessary because of the population growth occurring on Washington County's agricultural lands. If the population of Washington County really does expand with the addition of 300,000 – 400,000 new residents, it is almost a certainty that all but a small acreage of today's agricultural lands will be converted to municipal landscapes including subdivisions, strip malls, parking lots, roads, sidewalks and other urban development.

As cities in Utah grow in their square footage, they invariably convert farmland, especially irrigated farmland, to these new urban spaces. The pressures upon farmers to continue their farming operations in the face of urbanization is extraordinarily difficult,

²⁸ American Farmland Trust. "Farms Under Threat: the State of the States" (2020). https://s30428.pcdn.co/wp-content/uploads/sites/2/2020/05/AFT_FUT_StateoftheStates-1.pdf

and runs counter to both market forces and basic logistics. Although many in Washington County might ‘wish’ to save their farmlands, farming inside suburban areas grows increasingly difficult as population increases. Particularly in communities where land values increase, the ability for farmers to make increasing property tax payments to local municipalities, while simultaneously paying current mortgaging obligations to maintain the expensive cost of modern farming equipment, the business of farming become unprofitable as communities urbanize into farming regions.

Outside of lands protected through permanent conservation easements and other farmland protection programs, the likelihood that Washington County can double, triple or even quadruple in population size with a concomitant increase in urban landscapes while simultaneously maintaining all its current farmland acreages is simply not realistic. The Provo Office must evaluate this likelihood, based on data and observation, not bias and wishful thinking.

Similarly, the 2017 Census of Agriculture states that in 2017 there were 12,984 irrigated acres in Washington County.²⁹ Furthermore, the 2016 Water Needs Assessment states that:

The portion of Washington County most likely to be developed has a duty value of 6 ac-ft per year per acre of irrigated land.³⁰

The duty amount is the multiplier used as designed by the Utah State Engineer to calculate water use conferred to beneficial use in Utah. Therefore, via simple multiplication, the rough amount of water used for irrigation in Washington County can be calculated:

$$12,984 \text{ acres} \times 6 \text{ acre-feet per acre} = 77,904 \text{ acre-feet}$$

Some of the irrigators inside Washington County are clearly using more than this water duty since they have senior water rights and are irrigating multiple crops with their water in a given year. This estimate does align with data from the USGS that puts the Washington County’s 2010 irrigated water use at roughly 87,000 acre-feet and their 2015 irrigated water use at roughly 55,000 acre-feet.³¹ The Provo Office of the Bureau ignored all of this data in drafting its DEIS, which is inexplicable.

²⁹ USDA, National Agricultural Statistics Service. 2017 Census of Agriculture – County Data, Utah, Table 10. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Utah/st49_2_0010_0010.pdf

³⁰ *Final Water Needs Assessment*. Utah Division of Water Resources (2016). Pg. 2-15.

³¹ United States Geological Survey. (2019). Water Use Data. Retrieved from <https://water.usgs.gov/watuse/data/index.html>

This agricultural water will not be used for agriculture in the future inside Washington County if the agricultural lands themselves are sold off in coming years and converted into municipal landscapes. Since the DEIS notes the growth expected inside Washington County, the Provo Office should have estimated how many acres of farmland, and specifically irrigated farmland will be converted to urban landscapes in the coming decades inside Washington County.

If Washington County's population expands as presented in the DEIS, that will lead to the development of much of this farmland. But the Provo Office has refused to contemplate the vast amount of agricultural water that will be transferred to urban uses, as a function of this population expansion.

Although the Provo Office noted there would be roughly 10,000 acre-feet of future water provided from farmland water conversions, this greatly underestimates the scope of future water transfers which are certain to occur. By intentionally ignoring future farmland water conversions, the Provo Office of the Bureau has inappropriately narrowed the consideration of viable alternatives for the Lake Powell Pipeline.

Instead of exploring these changes in the LPP DEIS, the Provo Office of the Bureau outright ignores the vast acreage of current farming operations inside Washington County and pretends as if virtually no farming exists inside the region.

I.B.1.c The Provo Office of the Bureau has arbitrarily and capriciously ignored a large quantity of secondary water supplies that will serve as a bank for future municipal water needs inside Washington County

The Provo Office claims in the DEIS that the WCWD currently provides just 178 acre-feet per year of secondary water and that all other water suppliers in Washington County provide just 8,327 acre-feet of secondary water each year, producing a grand total of just 8,505 acre-feet of annual secondary water.³² This is in contradiction to other published data including data by the Washington County Water Conservancy District itself.

In 2011, the WCWD reported that they supplied 26 billion gallons (roughly 79,800 acre-feet) of secondary water.³³ This indicates that the Provo Office's calculations of secondary water in the DEIS are incorrect. A range of credible data sources including the

³² *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>.

³³ WCWD. *Water Line*. Spring 2012 edition.

WCWD’s own report, the 1993 State Water plan, the Census of Agriculture combined with the Division of Water Rights, and the USGS demonstrate that current secondary water supplies are likely much higher than is reported in the DEIS.

The DEIS appears to be excluding a vast amount of secondary water from its water supply estimates, thereby drastically underestimating the amount of water currently available for use in Washington County. The sources above demonstrate that the WCWD’s true water supply is over 99,000 acre-feet. This aligns with documentation from the WCWD that states the following:

Without the 69,000 AF from the Lake Powell Pipeline project, only 105,000 AF of water could be developed.³⁴

This, combined with the water supplies of other municipal and agricultural providers in Washington County, brings the total current water supply of Washington County up to almost 190,000 acre-feet. These updated supply figures are summarized in Figure 2.

Figure 2: Actual Potential Washington County Water Supplies

Current Supplies	Reliable Municipal and Agricultural Water Yield (acre-feet/year)
WCWD (all supplies)	99,431
Other Washington County Municipal Providers	35,452
Agricultural Water in Washington County	55,000
Potential Total Current Supplies	189,883

These water supply estimates are in the ballpark of the current and future flow estimates of the Virgin River created by the BOR³⁵ and well within the storage capacity of the WCWD.³⁶ In addition to these supplies, the WCWD claims to have access to 100,000

³⁴ WCWD. *Water Line*. Special Summer 2011 Edition.

³⁵ Reclamation. 2014. “Virgin River Climate Change Analysis Statistical Analysis of Streamflow Projections.” Technical Memorandum. Katrina Grantz. March 26, 2014.

³⁶ <https://www.wcwc.org/infrastructure/reservoirs/>; Fitch Ratings. 2017. “Correction: Fitch Upgrades Washington County Water Conservancy, UT’s Water Revs; Affirms GOs”.

acre-feet of “banked” groundwater.³⁷ They plan to use this water to cover emergency shortages. Therefore, the WCWD has ample water supply to meet their growing population.

A comparison of three previous versions of the Lake Powell Pipeline Water Needs Assessment demonstrates how the project proponents have been steadily excluding water sources from documentation. Figure 3 demonstrates this.

Figure 3: Water Supplies in Washington County from Water Needs Assessments

Water sources from Water Needs Assessments in 2008 and 2016.				
Supplies (existing & potential)	Use	2008 WNA (AFY)	2016 WNA (AFY)	DEIS (AFY)
Quail Creek & Sand Hallow Reservoirs	Culinary	29,500	24,922	24,922
Sand Hollow Ground Water	Culinary	8,000	4,000	4,000
<u>Kolob</u> Reservoir	Culinary	2,000		
Meadow Hollow Reservoir	Culinary	200		
Cottam Well Field	Culinary	2,000	600	875
Sullivan Well Field	Culinary	750	750	
<u>Pintura</u> Well	Culinary		600	
Diamond Valley Well	Culinary		400	
<u>Kayenta (Ence Wells)</u> System	Culinary	1,000	730	250
Gunlock to Santa Clara PL	Secondary	2,500		
<u>Toquerville</u> Sec Water Sys	Secondary	160	178	178
Ash Creek PL	Culinary	5,000	2,840	2,840
Crystal Creek PL	Culinary	2,000	2,000	2,000
Quail Creek Reservoir Ag Exch	Culinary	4,000		
Groundwater Well Development	Culinary?			2,830
Sand Hollow Recharge & Recovery	Culinary?		3,000	3,000
Cottam Well Maximization	Culinary		600	
Westside Arsenic Treatment	Culinary		5,000	5,000
Municipal Supplies (2016 WNA)		35,425	35,425	35,452
Maximize Existing Wastewater Reuse	Secondary	1,700	7,300	7,300
Ag Conversion from Development	Secondary	12,400	10,080	10,080
Existing Wastewater Reuse	Secondary			
Potential Future Wastewater Reuse	Secondary	54,500	17,380	
Total		161,135	115,805	98,727

As can be seen above, the LPP proponents have been steadily dropping water sources from their documentation. In fact, from 2008 to 2020, project proponents hid over 62,000 acre-feet of water. That’s enough for over 400,000 people. The BOR should vet

³⁷ Fitch Ratings. 2017. “Correction: Fitch Upgrades Washington County Water Conservancy, UT’s Water Revs; Affirms GOs”.

these water supply claims and determine what happened to each individual line item from 2008 to 2020.

The failure of the Provo Office to account for this huge source of water in the DEIS inside Washington County demonstrates a significant failure to produce an accurate DEIS. It also raises serious problems with the need for the LPP as stated by the DEIS.

I.B.2 The Provo Office of the Bureau has arbitrarily overestimated water demand in Washington County

I.B.2.a The Provo Office of the Bureau overestimated Washington County's actual water demand, while it inflated future water demand in the area

When water demand estimates from the DEIS are compared against observed water use values in Washington County, a large discrepancy becomes apparent. Actual demand in Washington County is much lower than what the Provo Office of the Bureau estimated in the DEIS. The DEIS inflated existing water demand to falsely demonstrate a need for additional water supplies where none exists.

Water delivery data obtained from the WCWD by two separate GRAMA requests, one for 2009-10 and one for 2015-2019 offer clarity about real water demand figures inside Washington County. In 2009, the WCWD supplied 18,907 acre-feet of water.³⁸ In 2010, that number increased to 19,561 acre-feet.³⁹ The GRAMA response for these numbers is reproduced in Figure 5 and Figure 6.

In 2015, total water use in the WCWD increased again to 21,172 acre-feet and stayed at that general level until 2015.⁴⁰ The GRAMA response for these numbers is reproduced in Figure 4.

³⁸ WCWD Response to GRAMA.

³⁹ Ibid

⁴⁰ WCWD second GRAMA Response.

Figure 4: WCWD's 2015-2019 Water Use

	2015	2016	2017	2018	2019
St. George, Ivins, Santa Clara	17,952.99	18,984.14	19,272.61	20,076.66	17,087.56
Washington	2,519.56	3,071.96	3,225.40	3,259.16	3,075.03
Hurricane (SH Wells)	303.82	653.67	622.98	727.33	742.67
Hurricane (Cottam)	55.24	-	70.58	135.03	76.72
Hurricane (Toq. Springs)	-	-	-	125.82	150.38
La Verkin	61.38	95.14	104.34	159.58	150.38
Toquerville	3.07	6.14	6.14	6.14	3.07
Virgin	131.96	135.03	147.31	147.31	150.38
Kayenta	144.24	135.03	138.10	147.31	144.24
Total	21,172.25	23,081.10	23,587.47	24,784.33	21,580.42

Figure 5: WCWD's 2009 Water Use

WATER USAGE 2009	Washington			Anderson Jct	Upper Pond		HVWS	Casa de Oro	St George City	Dixie springs	Bench Lake	Leeds Vault	3700 West
	City	Virgin	LaVerkin	Toquerville	Toquerville City	Kayenta				Hurricane City	Hurricane	Hurricane City	Hurricane City
January	20,553,000	1,158,700	1,176,000	0	0	3,102,900	648,000	111,610	180,142,000	577,000	0	0	0
February	17,718,000	1,193,700	1,077,000	0	200,700	1,621,000	649,000	93,410	157,202,000	859,000	0	0	0
March	34,188,000	2,191,100	3,303,000	0	0	2,500,400	932,000	185,390	369,222,000	1,155,000	0	0	0
April	39,760,000	2,575,100	4,528,000	318,700	0	3,254,200	1,250,000	242,650	433,855,000	1,747,000	0	0	0
May	51,010,000	3,499,900	0	0	0	4,005,000	2,310,000	431,100	578,435,000	1,541,000	0	0	0
June	66,080,000	3,643,400	0	0	0	5,267,100	2,311,000	420,780	648,935,000	1,748,000	0	0	0
July	74,980,000	4,386,900	4,243,000	4,000	0	5,287,000	3,886,000	504,620	807,576,000	2,641,000	1,027,100	13,199,900	2,971,000
August	65,400,000	4,723,000	0	0	0	5,827,200	2,394,000	454,610	756,210,000	2,007,000	0	4,885,300	0
September	58,290,000	3,921,200	0	0	0	5,152,900	2,329,000	364,050	625,799,000	1,906,000	0	3,563,100	14,750,000
October	44,740,000	3,055,400	0	0	0	4,755,100	2,768,000	263,330	466,800,000	1,788,000	0	0	0
November	28,480,000	2,225,600	0	0	0	3,834,400	974,630	182,480	285,250,000	1,212,000	0	0	0
December	18,220,000	1,322,500	0	241,100	0	4,369,400	1,303,000	187,140	149,897,000	1,376,000	0	0	0
TOTAL	519,419,000	33,896,500	14,327,000	563,800	200,700	48,976,600	21,754,630	3,441,170	5,459,323,000	18,557,000	1,027,100	21,648,300	17,721,000
Acre Feet	1,594.038	104.025	43.968	1.730	0.616	150.304	66.763	10.561	16,754.047	56.949	3.152	66.436	54.384

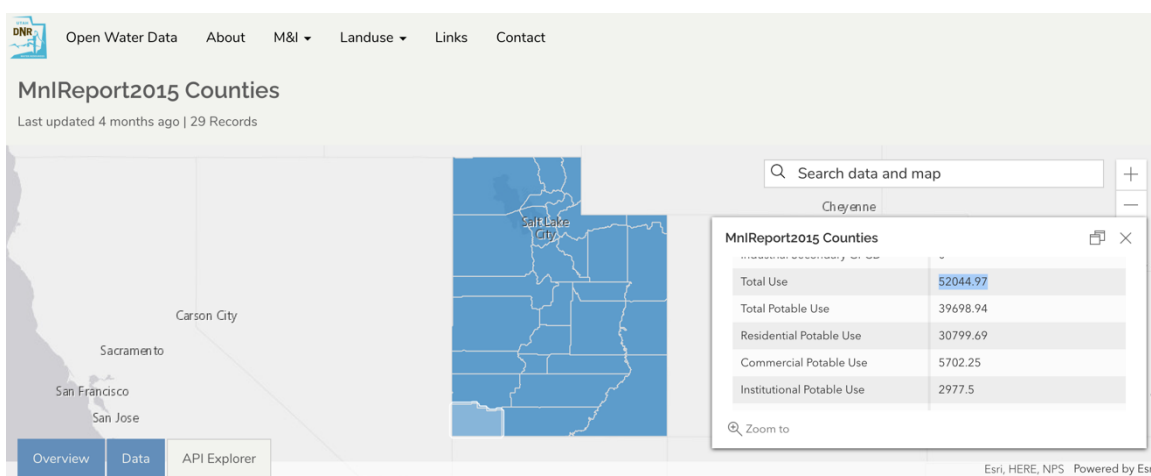
Figure 6: WCWD's 2010 Water Use

WATER USAGE 2010	Washington			Anderson Jct	Upper Pond		HVWS	Casa de Oro	St George City	Dixie springs	Bench Lake	Leeds Vault	3700 West
	City	Virgin	LaVerkin	Toquerville	Toquerville City	Kayenta				Hurricane City	Hurricane	Hurricane City	Hurricane City
January	13,760,000	1,225,700	0	0	0	2,673,600	809,000	113,880	157,067,000	785,000	0	0	0
February	14,620,000	1,021,200	1,674,000	0	0	1,547,400	711,000	96,280	159,570,000	1,407,000	0	991,000	0
March	24,100,000	1,475,100	0	0	0	2,821,300	919,000	142,390	274,189,000	1,189,000	0	0	0
April	40,810,000	2,703,800	1,869,000	240,800	0	3,961,400	1,222,000	292,420	474,479,000	1,681,000	0	0	0
May	53,140,000	3,381,300	0	0	0	3,904,100	1,517,330	460,730	546,410,000	2,557,000	0	0	0
June	71,015,000	4,034,400	3,018,000	0	0	4,459,940	1,848,580	518,420	636,698,000	2,444,000	0	0	17,132,100
July	80,905,000	4,562,000	4,562,000	0	0	7,061,800	2,833,714	684,850	852,296,000	3,217,000	0	0	33,680,400
August	76,220,000	4,157,700	3,981,000	0	0	5,402,100	1,870,210	436,080	834,762,000	2,216,330	0	0	5,935,900
September	65,800,000	4,159,600	2,998,000	0	0	4,917,000	1,667,220	452,830	748,213,000	2,401,272	0	0	0
October	41,230,000	2,466,300	3,359,000	0	0	4,328,900	1,526,000	197,090	499,307,570	1,127,000	0	29,172,000	0
November	24,500,000	2,490,100	3,414,000	0	0	2,926,700	1,279,000	146,280	304,341,000	1,272,000	0	0	0
December	19,510,000	1,223,200	4,548,000	0	0	1,903,200	473,220	76,520	122,016,000	3,095,670	0	0	0
TOTAL	525,610,000	32,900,400	29,423,000	240,800	0	45,907,440	16,676,274	3,617,770	5,609,348,570	23,392,972	0	30,163,000	56,748,400
Acre Feet	1,613.038	100.968	90.296	0.739	0.000	140.885	51.178	11.103	17,214.459	71.790	0.000	92.567	174.154

The water demand figures from these GRAMA requests coincide with a number of data points from other sources, affirming their reliability. For example, in 2011 the WCWD stated in a newsletter that they supplied to the public that this water district delivered 6.4 billion gallons, or roughly 19,600 acre-feet, of culinary water.⁴¹

Furthermore, data from the Utah Division of Water Resources' public data portal shows that all of Washington County, which is a larger geography and population area than WCWD, used about 52,000 total acre-feet of water in 2015.⁴² This is shown in Figure 7, taken from the DWRe's website in August of 2020.

Figure 7: DWRe 2015 Washington County Data



The DEIS shows that WCWD currently supplies about 48% of all the total water used in Washington County.⁴³ If this were true in 2015, which is a reasonable assumption to make, then WCWD's total demand in 2015 would have been roughly 25,000 acre-feet. Although this is a rough estimation method, the resulting total water demand figure is within the ballpark of the numbers obtained from the GRAMAs.

Similarly, in 2017 the WCWD reported to the official bond rating agency Fitch Ratings the following:

About 28% of the [Washington County Water Conservancy] district's 32,000 acre feet (af) per year of water sources is surplus and will be used to serve future growth and another 13,900 af will come online in the next few years.⁴⁴

⁴¹ WCWD. "Water Line." (Spring 2012).

⁴² Utah Division of Water Resources (UDWRe). 2015. "MnI Report2015 Counties." Accessed August 17, 2020. <http://dwre-utahdnr.opendata.arcgis.com/>.

⁴³ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 9.

⁴⁴ Fitch Ratings. 2017. "Correction: Fitch Upgrades Washington County Water Conservancy, UT's Water Revs;

This shows that in 2017, the WCWD delivered 72% of their available 32,000-acre-foot municipal water supply, meaning that the WCWD used roughly 23,000 acre-feet in 2017. This value is essentially identical to that received via the GRAMA for the same year.

All these sources – the GRAMA requests, the DWRe data portal, and the Fitch report – generally agree with each other that the WCWD typically uses between 20,000 and 23,000 acre-feet of water each year.

However, the DEIS erroneously claims that the WCWD demanded over 59,000 total acre-feet in 2015.⁴⁵ The table used to represent the DEIS’s demand estimates for the WCWD is reproduced in Figure 8. This is an aberrant exaggeration of past and future water demands for Washington County.

Figure 8: Demand Estimates for the WCWD from the DEIS

Table 6.2-1 Future Water Requirements for Washington County Water Conservancy District

Year	WCWD Service Area Population - Baseline Projection (calculated using the Gardner estimate multiplied by UDWRe system ratio)	GPCD per Applied Analysis that includes 20% conservation	System loss from Applied Analysis model	Demand (acre-feet) with System Loss
2015	151,360	302	0.154	59,038
2020	182,689	296	0.154	69,791
2025	214,408	283	0.154	78,483
2030	246,338	271	0.154	86,370
2035	280,731	260	0.154	94,289
2040	314,199	250	0.154	101,326
2045	348,064	240	0.154	107,999
2050	383,226	240	0.154	118,909
2055	420,257	240	0.154	130,399
2060	458,960	240	0.154	142,408
2065	500,349	240	0.154	155,250
2070	545,470	240	0.154	169,251
2075	594,660	240	0.154	184,513

59,000 acre-feet is substantially higher than any value reported by the GRAMA responses or other sources. In fact, 59,000 acre-feet is **178% larger** than the 21,000 acre-feet reported in the GRAMA response by the WCWD for 2015. This indicates that the Provo Office of the Bureau has dramatically inflated water demand in the DEIS.

Affirms GOs”.

⁴⁵ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 14.

Figure 9 summarizes the aforementioned points by comparing WCWD’s real water demand to the DEIS’s claimed water demand. It shows how much the DEIS inflated water demand in WCWD.

Figure 9: Summary of Observed vs. Inflated DEIS Demand Values

Source	Actual Water Demand	DEIS Claimed 2015 Water Demand	Percent Difference
GRAMA (2009)	18,907	59,038	212%
GRAMA (2010)	19,561		202%
WCWD (2011)	19,600		201%
GRAMA (2015)	21,172		179%
DWRe (2015)	25,000		136%
GRAMA (2016)	23,081		156%
GRAMA (2017)	23,587		150%
Fitch (2017)	23,000		157%
GRAMA (2018)	24,784		138%
GRAMA (2019)	21,580		174%
2015-2019 Avg.	23,172		

These examples make it evident that the DEIS significantly overestimates water demand in Washington County. This exaggeration constitutes a serious flaw in the LPP DEIS and a failure by the Provo Office of the Bureau to accurately review the proposed LPP project. It also invalidates the need for the LPP as stated in the DEIS.⁴⁶

An alternate way of demonstrating that the DEIS overestimates water demand in Washington County is by estimating the population that could reasonably be supported by the amount of water the DEIS claims the WCWD will need. Recent data from the Water Education Foundation confirms that the DEIS represents a gross overestimate.⁴⁷ Figure 10 demonstrates how many households are supported by a single acre-foot of water per year in various Southwest U.S. locations.

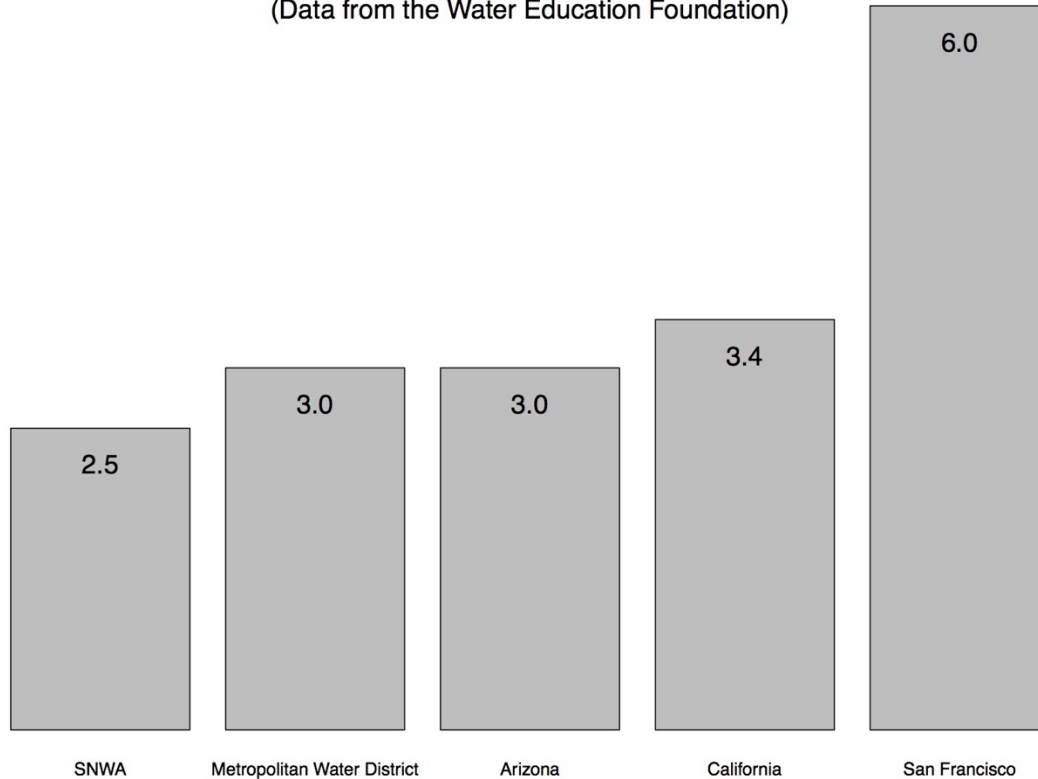
⁴⁶ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 17.

⁴⁷ Pitzer, Gary. “In Water-Stressed California and the Southwest, An Acre-Foot of Water Goes a Lot Further Than It Used To.” Water Education Foundation (2018). <https://www.watereducation.org/western-water/water-stressed-california-and-southwest-acre-foot-water-goes-lot-further-it-used>.

Figure 10: Water Use by Household

Households per Acre-Foot of Water

(Data from the Water Education Foundation)



In the Southern Nevada Water Authority’s district, 142,000 acre-feet is enough water for 355,000 households or 923,000 people, assuming the national average of 2.6 people per household.⁴⁸ That population size and water demand is nearly double those made in the Lake Powell Pipeline DEIS. In San Francisco, 142,000 acre-feet of water is enough for 852,000 households or just over 2.2 million people. That population size is nearly five times what is anticipated in the DEIS. In both instances, it is evident that Washington County will not need anywhere near the 142,000-acre-foot amount predicted by the DEIS. Figure 11 displays the actual population and water consumption numbers for a number of southwest cities with similar climates.⁴⁹

⁴⁸ United States Census Bureau. B25010: Average Household Size of Occupied Housing Units by Tenure. <https://data.census.gov/cedsci/table?lastDisplayedRow=10&table=B25010&tid=ACSDT1Y2018.B25010&hidePreview=true&q=B25010%3A%20AVERAGE%20HOUSEHOLD%20SIZE%20OF%20OCCUPIED%20HOUSING%20UNITS%20BY%20TENURE>

⁴⁹ Albuquerque Bernalillo County Water Utility Authority. (2018, March). Water 2120: Securing our Water Future. Albuquerque, NM.

http://www.abcwua.org/uploads/files/Your%20Drinking%20Water/2037_Water_Conservation_Plan.pdf

Rupprecht, C. (2019). Tucson Water Conservation Program 2018-2019 Annual Report. Tucson, AZ; Tucson Water. <https://www.tucsonaz.gov/files/water/docs/FY18-19-Conservation-Report-Final.pdf>

Figure 11: Population and Water Use, 2018

City	Water Authority	Water Consumption (af)	Population
Albuquerque, NM	Albuquerque/Bernalillo County Water Authority	98,000	678,000
Tucson, AZ	Tucson Water	105,106	731,236
Las Vegas, NV	Southern Nevada Water Authority	242,376	2,200,000
WCWD DEIS Demand Projections (2075)		184,513	594,660

Figure 11 shows that both Albuquerque and Tucson, cities with much more arid climates than Washington County, support very large populations with just about 100,000 acre-feet of water. By comparison, the DEIS claims that the WCWD will need much more water (184,000 acre-feet) to support far fewer people (595,000 people).⁵⁰ Las Vegas is able to support millions of people with just slightly more water than the DEIS claims WCWD will need in 2075. These real world data points demonstrate, yet again, that the DEIS’s demand claims are severely inflated.

I.B.2.b The Provo Office of the Bureau has failed to adequately evaluate how constructing the Lake Powell Pipeline will substantially decrease water demand as a function of future water rate increases required to pay for the project

The Provo Office of the Bureau has also inflated water demand as presented in the DEIS by failing to address how the Lake Powell Pipeline financing proposal and its required increase in water rates will substantially reduce water demand through the effects of price elasticity on water demand. The future water demand calculations in the DEIS failed to account for the decrease in water demand that would result from the planned

Southern Nevada Water Authority. SNWA conservation facts and achievements. (2019).

<https://www.snwa.com/importance-of-conservation/conservation-facts-and-achievements/index.html>.

⁵⁰ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 14.

massive increases in water rates and impact fees. This failure to consider this effect severely inflates future water demand estimates, which appears to be intentional.

Although we understand that the Provo Office of the Bureau's efforts to advance the Lake Powell Pipeline for the benefit of residents in Utah, we presume that this office's bias towards engineering projects has led it to ignore the basis of market economics. A qualified economist should be retained by the BOR through another office, which understands how commodity markets operate to evaluate the scope of reduction in water demand which will be caused by a 400-600% increase in water rates. The Provo Office of the Bureau and its engineers appear to be failing to understand that a massive increase in water rates is not a benefit to Utah residents, particularly those living in Washington County, and the Provo Office's failure to understand commodity delivery markets represents the BOR's failure to understand municipal water delivery economics. The size of these rate increases is no longer being contested, including by advocates of the Lake Powell Pipeline, and the DEIS must reflect this new understanding.

To finance the Lake Powell Pipeline, the State of Utah would act as a bank to pay for the Lake Powell Pipeline construction costs by issuing a series of bonds on the bond market.⁵¹ The State of Utah has the best possible bond rating, AAA, and neither the Utah Board of Water Resources nor the WCWD could afford to pay for the exorbitant costs of the Lake Powell Pipeline without the State of Utah issuing bonds.⁵² The State of Utah will bond to cover the construction and pre-construction costs of the LPP and include the financing costs of paying bond investors their interest payments into the Lake Powell Pipeline loan.⁵³ The State of Utah will then issue this LPP loan to the recipients of the LPP water, the WCWD, at a reasonable interest rate determined by the Utah Board of Water Resources.⁵⁴

This structure creates an obligation for the WCWD to repay the State of Utah for the full construction and preconstruction cost of the LPP plus interest,⁵⁵ an amount the 2019 Legislative Audit estimated could be as high as \$4.6 billion.⁵⁶ The WCWD plans to generate the revenues needed to cover these repayments by increasing property taxes, impact fees, and water rates.⁵⁷

⁵¹ Thompson, Ronald. "RE: Lake Powell Pipeline Financing." Received by Dennis Strong, August 14, 2008.

⁵² <https://www.fitchratings.com/research/us-public-finance/fitch-affirms-utah-idr-at-aaa-rates-439mm-gos-aaa-outlook-stable-08-05-2020>

⁵³ Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

⁵⁴ Utah Code §73-28-402(4)

⁵⁵ Ibid

⁵⁶ Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

⁵⁷ Thompson, Ronald. "RE: Lake Powell Pipeline Financing." Received by Dennis Strong, August 14, 2008.

The DEIS assumed that the rate increases stated in the 2019 Legislative Audit would be sufficient to cover the repayment obligations of the LPP.⁵⁸ The rate increases stated in the 2019 audit are the following:

- *Impact fees are planned to increase up to \$1,000 annually from the 2017 fee of \$7,417 through 2026, reaching \$15,448.*
- *Wholesale water rates are planned to increase \$0.10 annually from the 2016 rate of \$0.84 to \$3.84 per 1,000 gallons.*
- *Property taxes are planned to increase from the 2018 rate of 0.0648 percent to 0.1 percent by 2025.*⁵⁹

The Audit and therefore subsequently the DEIS used an unrealistically low estimate for elasticity. This is a direct contradiction to other portions of the DEIS, which state that a much larger elasticity should be used.⁶⁰

The price elasticity of demand for a certain good can be found by dividing the percent change in demand by the percent change in price. In the Audit, both these values are given, allowing us to calculate the elasticity implicitly used in the audit's analyses.

Specifically, on page 7 the audit states:

*Conservation and price elasticity will reduce water consumption by 15 to 25 percent per capita by 2065.*⁶¹

And on page 10 the audit states:

*Wholesale water rates are planned to increase \$0.10 annually from the 2016 rate of \$0.84 to \$3.84 per 1,000 gallons.*⁶²

Optimistically assuming that the entirety of the demand reduction was the result of price elasticity results in a percent change in demand of -25%. The percent change in price

⁵⁸ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix c-23: Socioeconomics*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 60.

⁵⁹ Legislative Auditor General. (2019). *A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline* (Report No. 2019-05).

⁶⁰ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix c-23: Socioeconomics*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>.

⁶¹ Legislative Auditor General. (2019). *A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline* (Report No. 2019-05).

⁶² *Ibid*

from \$0.84 to \$3.84 is 357%. Dividing these numbers into each other yields an elasticity of roughly 0.07 (i.e. $25\% / 357\% = 0.07$).

This is an unrealistically low estimate for the elasticity of demand of water. Notably, on page 65 of Appendix C-23, the Lake Powell Pipeline DEIS suggests that an elasticity of 0.65 is reasonable.⁶³ On August 19th, 2019 the Balmoral Group, a consulting agency contracted by the Executive Water Finance Board to study what the price elasticity of demand for water is in Washington County, found that municipal water price elasticities typically range from 0.5 to 1.16. They noted that their preliminary analysis indicated that Washington County would have a price elasticity of demand for water of roughly 0.76.⁶⁴

If an elasticity of 0.65 were used in the Audit and the DEIS, then the resulting decrease in demand from a 357% increase in water rates would be roughly 232%. If 0.76 were used, the resulting decrease in demand from a 357% increase in water rates would be roughly 271%. Both of these values are much larger than the assumed 25% demand decrease.

Future water demand would decrease so much that the total amount of revenue generated from water sales would also decrease. Since the WCWD would have to generate a certain amount of revenue to make payments on their LPP loan and avoid a default, they would have to raise water rates again to compensate for the decrease in revenue. This would lead to further demand reductions via elasticity and a restarting of the cycle. This “looping effect” would force the WCWD to raise water rates substantially more than the 2019 Legislative Audit and DEIS assume.

In fact, for the last 10 years, a group of PhD economists from several Utah academic institutions have been studying the financial obligations of the proposed Lake Powell Pipeline through a series of detailed economic analyses that have been shared with elected and appointed Utah officials, the public and the media.⁶⁵ These PhD, tenured university economists are highly-experienced in public lending standards and public and commercial financing practices to pay for large capital projects, like the Lake Powell Pipeline.

Their 96 pages of analyses document problems with the economically-infeasible nature of the proposed Lake Powell Pipeline, specifically with the increases in water rates, impact fees, and property taxes that the LPP would require.⁶⁶ The economists created a

⁶³ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 65.

⁶⁴ Balmoral Group. “Elasticity of Demand for Water Supply.” Presentation to the Executive Water Finance Board. August 19th, 2019.

⁶⁵ Blattenberger et al. (2015). *Lake Powell Pipeline Economic Feasibility Analysis for Washington County, UT*.

⁶⁶ Ibid

model that calculates the necessary rate increases to repay the LPP at varying initial costs.⁶⁷ We used this model to calculate what rate increases would need to occur to repay the LPP with the costs provided by the DEIS and the 2019 Audit.⁶⁸ The results are summarized in Figure 12.

Figure 12: Increases Needed to Repay the LPP

Cost Estimate	Rate & Fee Increases	
	Water Rate	Impact Fee
\$2.4 billion (Legislative Audit)	1233%	438%
\$1.5 billion (Southern Low)	521%	287%
\$1.7 billion (Southern High)	598%	309%
\$1.5 billion (Highway Low)	488%	278%
\$1.6 billion (Highway High)	560%	299%

This table demonstrates that, once elasticity is accounted for, water rates need to increase somewhere between 488% and 1,233% and impact fees need to increase somewhere between 278% and 438% to repay the LPP. This is substantially higher than the 357% water rate and 108% impact fee increase assumed by the 2019 Legislative Audit and DEIS.

These huge increases in water rates and impact fees will not only make the LPP very difficult or impossible to repay but will substantially decrease demand for water and housing. In fact, an elasticity of -0.65 applied to a rate increase of 1,233% results in a water demand decrease of over 800%. A brief literature review indicates that a reasonable elasticity for impact fees is -0.3,⁶⁹ meaning that housing demand would reduce 131% if a 438% impact fee increase occurs. However, when the DEIS calculated demand for the WCWD on page 14 of Appendix B, it did not account for either of these demand-reducing elasticities. This led the DEIS to conclude that water demand in the WCWD is much higher than it will actually be.

⁶⁷ Ibid

⁶⁸ Costs from the DEIS were obtained from Table 2.2-2 from page 23 of appendix C-23. Costs reflect construction costs plus interest during construction. OM&R costs are built into the economists' model so they were excluded from the input cost to avoid double counting.

⁶⁹ Green, R. K., Malpezzi, S., & Mayo, S. K. (2005). Metropolitan-specific estimates of the price elasticity of supply of housing, and their sources. *American Economic Review*, 95(2), 334-339.

The DEIS's refusal to take elasticity into account when creating water demand estimates for the WCWD is especially concerning given that elsewhere in the DEIS it is acknowledged that elasticity would likely depress demand.

In Appendix C-23, the DEIS states the following in regards to elasticity:

Assuming a long-run price elasticity of demand for domestic water supply of -0.65 and an annual increase in retail water rates of 5.2 percent as described for water costs in the Audit Report over 30 years, water use per user would decrease by 3.38 percent annually. A 1.5 percent increase in price would result in a 0.975 percent annual decrease in use per user. However, if the number of households and commercial users increase greater than the decrease in use, then total demand would increase. The estimated price elasticities less than -1.0 also indicates total water revenues from water charges would continue to increase overall.⁷⁰

There are a number of problems with this statement. First, this statement affirms that the DEIS assumed that the 357% water rate increase stated by the 2019 audit would be sufficient to repay the LPP. However, it was shown above that this is not the case. Water rate increases would, depending on the final cost of the project, be between 488% and 1,233%.

In addition, these water rate increases would decrease demand by a substantial amount. Yet, when the DEIS calculated WCWD's expected future demand on page 14 of Appendix B, they did not factor in these demand reductions whatsoever.

Even in Appendix C-23, which is dedicated to examining the effect of elasticity on water demand, the DEIS does not perform the calculations to see what the actual effect of price elasticity upon water demand inside Washington County is. Instead, the DEIS ends its analysis by posing a hypothetical claim that water demand will continue to increase so long as the rate of growth is larger than the accompanying reductions in demand.

Washington County water demand will reduce by at least 3.38% per year as a result of price elasticity⁷¹ and population growth will increase water demand at 2.516% per year.⁷²

⁷⁰ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix c-23: Socioeconomics*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 60.

⁷¹ This figure assumes that the 2019 Audit's conservative 357% water rate increase is the correct one to use. If a more realistic water rate increase is used (i.e. if 1,233% is used), the yearly annual decrease in demand would be much larger than 3.38%.

⁷² *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix c-23: Socioeconomics*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 20.

This means that demand reductions from rising prices outpace population growth, causing the annual demand for water in the WCWD to decrease.

This sets up a major and problematic contradiction in the DEIS. In Appendix C-23, the Provo Office's analysis shows that water demand in Washington County will decrease through time as a result of increasing water rates.⁷³ Yet, in Appendix B, the Provo Office ignores the findings of Appendix C-23 and states that water demand in the WCWD will grow through time.⁷⁴ This inconsistent treatment throughout the DEIS of how increasing water rates will affect water demand is arbitrary and capricious.

By not factoring price elasticity into their water demand estimates, the Provo Office contradicted itself and failed to accurately model demand in Washington County. This led the Provo Office to create inflated and severely inaccurate water demand estimates for Washington County in the DEIS.

The Lake Powell Pipeline Development Act requires that the construction costs of the Lake Powell Pipeline be repaid with interest. Yet the Provo Office has failed to properly evaluate whether repayment can occur in its rush to satisfy Utah water lobbyists. The ability to repay is a critical consideration used to measure whether there is actual demand for a new project in a specific area. If a prospective borrower, in this case the Washington County Water District, is unable to repay a loan it means that the loan in question is not meritorious. Yet the Provo Office of the Bureau has failed to consider this critical question, during a declining pandemic economy when public capital is even more precious than it was when the Utah's credible economists performed their analysis.

I.B.2.c The DEIS includes an erroneously high system loss percentage in its demand estimate, thereby unjustifiably inflating water demand

Column four of Table 6.2-1, reproduced as Figure 8, indicates that the WCWD loses about 15% of its water to system losses.⁷⁵ To account for this, Table 6.2-1 inflates demand by 15%. Problematically, however, the system loss coefficient never drops below 0.154 over many decades, meaning that the WCWD does not plan to reduce the amount of water they lose to system loss. This means that as WCWD's demand increases and the price of water inside Washington County increases alongside it, the amount of water lost to system loss will increase as well. Figure 13 shows how much water these system losses would result in.

⁷³ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix c-23: Socioeconomics*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 60.

⁷⁴ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 14.

⁷⁵ *Ibid.*

Figure 13: System Loss Amounts Under Various System Loss Percentages

Year	Water Lost with 15.4% System Loss	Water Lost with 10% System Loss	Water Saved by Reducing System Loss from 15% to 10%	Water Lost with 5% System Loss	Water Saved by Reducing System Loss from 15% to 5%
2015	7,885	5,120	2,765	2,560	5,325
2020	9,328	6,057	3,271	3,029	6,299
2025	10,467	6,797	3,670	3,398	7,069
2030	11,516	7,478	4,038	3,739	7,777
2035	12,591	8,176	4,415	4,088	8,503
2040	13,550	8,799	4,751	4,399	9,151
2045	14,410	9,357	5,053	4,679	9,731
2050	15,866	10,302	5,564	5,151	10,715
2055	17,399	11,298	6,101	5,649	11,750
2060	19,001	12,338	6,663	6,169	12,832
2065	20,715	13,451	7,264	6,726	13,989
2070	22,583	14,664	7,919	7,332	15,251
2075	24,619	15,987	8,632	7,993	16,626
Total	199,930	129,824	70,106	64,912	135,018

Notes: Values in acre-feet; values calculated using original numbers from Table 6.2-1, Appendix B, pg. 14

This table shows that by 2075, the WCWD would lose 24,619 acre-feet of water, a massive quantity of water for a relatively small community. To put this figure into context, this lost water volume is more than all the municipal water used in Washington County in each of the years from 2015 to 2020.⁷⁶ It is impossible to entirely eliminate system loss, but system loss can be reduced substantially, particularly through efficiency measures and basic infrastructure upgrades and repairs.⁷⁷ It is not unusual for water suppliers to obtain system loss values of around just 5% or less through software created by the American Water Works Association.

The more valuable the lost water is, the more worthwhile additional efficiency upgrades are.⁷⁸ Since the WCWD could potentially avoid the construction of the multi-billion dollar LPP by reducing system loss and implementing other conservation measures, the value of this saved water would likely be extremely high. Therefore, it would make sense for the WCWD to try and reduce this system loss number. If WCWD reduced their system loss to 5%, it could save 135,018 acre-feet of water over 50 years. Therefore, by including an erroneously high system loss ratio in the demand estimate, the BOR unjustifiably inflated water demand in the WCWD.

⁷⁶ WCWD Response to GRAMA.

⁷⁷ Ziegler, D., Sorg, F., Fallis, P., Hübschen, K., Happich, L., Baader, J., ... & Knobloch, A. (2012). Guidelines for water loss reduction. *A Focus on Pressure Management*.

⁷⁸ Ibid.

It is ironic that the Bureau of Reclamation, which has an active funding program of grants available to communities to eliminate system water losses in conveyance systems, is proposing a project that relies upon high system losses to justify its approval. This once again casts the Provo Office of the Bureau as proposing a project in contradiction to the ongoing policies and standards of the rest of this federal agency.

I.B.2.d The DEIS uses incorrect and outdated population estimates in its demand estimate, thereby once again unjustifiably inflating future water demand

The WCWD effectively has two jurisdictions, a taxable area and a service district. The taxable area is the area from which WCWD collects property taxes. According to the Utah State Tax Commission, WCWD's 2019 taxable area was essentially the entirety of Washington County.⁷⁹ This means that WCWD collects property taxes from almost the entire population of Washington County, even from those not receiving any water from the WCWD.

WCWD's service district, on the other hand, is the area and population to which WCWD actually provides water. The 2016 Water Needs Assessment, a document authored by the Division of Water Resources (DWRe), states that WCWD provides water to about 85% of Washington County's population.⁸⁰ This is significantly less than the population WCWD collects property taxes from.

The DEIS conflates these two geographies and wrongly assumes that the WCWD will serve water to the entirety of Washington County. In other words, the DEIS mistakes Washington County's taxable area as being synonymous with their service area. Figure 14 demonstrates this principal by comparing the expected future population of Washington County to the fraction the DEIS claims the WCWD will serve. It shows that the DEIS erroneously assumes that the WCWD currently services 98% of Washington County's population, which is effectively WCWD's taxable area.

⁷⁹ *2019 Tax Rates by Tax Area*. Utah State Tax Commission. Pg 332-344. <https://propertytax.utah.gov/tax-rates/area-rates/taxarearates2019.pdf>

⁸⁰ *Final Water Needs Assessment*. Utah Division of Water Resources (2016). Pg. 2-3.

Figure 14: Demonstration of WCWD's Inflated Population

Year	(DEIS) Pop in WCWD Service Area¹	Gardner Inst. Total Wash. County Pop Projections²	% Wash County Pop the DEIS Claims is in WCWD's Service Area
2015	151,360	154,602	97.90%
2020	182,689	186,618	97.89%
2025	214,408	219,019	97.89%
2030	246,338	251,636	97.89%
2035	280,731	286,768	97.89%
2040	314,199	320,956	97.89%
2045	348,064	355,549	97.89%
2050	383,226	391,468	97.89%
2055	420,257	429,295	97.89%
2060	458,960	468,830	97.89%
2065	500,349	508,952	98.31%
2070	545,470	-	-
2075	594,660	-	-

(1) LPP DEIS, Appendix B, Page 14

(2) KGPI 2017 County Projections

However, WCWD’s taxable area is substantially larger than their service area. Assuming that the WCWD provides water to their taxable area incorrectly inflates WCWD’s expected demand. WCWD actually services about 85% of Washington County’s population,⁸¹ meaning that a system ratio of 85% should have been used. It is also not clear that all future residents of Washington County will be serviced by the WCWD. Many in fact will be served by other local water suppliers with their own water supplies which are not being considered in this DEIS.

Figure 15 calculates what actual population in WCWD’s service area would be if the DEIS used the correct 85% value.

⁸¹ *Final Water Needs Assessment*. Utah Division of Water Resources (2016). Pg. 2-3.

Figure 15: Corrected WCWD Population

Year	% Wash County Pop Actually in WCWD's Service Area ¹	Gardner Inst. Total Wash. County Pop Projections	Pop in WCWD Service Area Using 85% System Ratio
2015	85%	154,602	131,412
2020	85%	186,618	158,625
2025	85%	219,019	186,166
2030	85%	251,636	213,890
2035	85%	286,768	243,753
2040	85%	320,956	272,813
2045	85%	355,549	302,216
2050	85%	391,468	332,747
2055	85%	429,295	364,901
2060	85%	468,830	398,506
2065	85%	508,952	432,609

(1) 2016 Water Needs Assessment (DWRe)

This table demonstrates that if WCWD’s actual service area population is used, rather than its taxable area, the expected population decreases by nearly 68,000 people. This reduces WCWD’s expected demand significantly.

I.B.3 The DEIS failed to analyze how the COVID-19 pandemic and the resulting economic recession will affect future water demand by slowing population growth and economic growth in Washington County

The COVID-19 pandemic hit the United States in early 2020. On March 6, 2020, Utah Governor Gary Herbert declared a state of emergency, and by mid-March “[t]he unraveling of the life Utahns once knew started to accelerate.”⁸² Reclamation issued the DEIS for the Lake Powell Pipeline in June 2020—three months after Governor Herbert declared a state of emergency and normal life in Utah was fundamentally changed. The DEIS, however, entirely omits any mention of the pandemic or the resulting economic recession.

⁸² Dennis Romboy, *The day everything changed: The Utah coronavirus story*, Deseret News, May 2, 2020, <https://www.deseret.com/utah/2020/5/2/21239082/coronavirus-covid-19-utah-salt-lake-city-nba-jazz-rudy-gobert-earthquake>.

The DEIS's failure to acknowledge and discuss the pandemic and the recession results in an arbitrary and capricious purpose and need statement. The purpose and need of the Lake Powell Pipeline is highly dependent on forecasts of future population growth and economic growth, and the pandemic and the recession will slow both. In short, the growth projections underlying the DEIS are now severely outdated.⁸³ Therefore, the FEIS must analyze how the pandemic and the recession will impact the purpose and need for the Lake Powell Pipeline.

The pandemic is depressing growth in Washington County in two ways. First, short-term growth in Washington County and migration to the county is being stifled by public health policies like “shelter-in-place,” which prohibit and/or strongly discourage people from physically moving to or visiting locations away from their homes. This is negatively impacting migration, thereby stifling the factor that is expected to drive about a third of Utah's future growth.⁸⁴

Second, the economic fallout of the pandemic will likely persist for many months if not years. The pandemic has created the worst economic downturn in United States history since the Great Depression.⁸⁵ Early estimates of national GDP for the second quarter of 2020 show a massive and unprecedented drop of nearly 35 points.⁸⁶ The Provo Office's failure to even address this massive change in economic conditions occurring in America and the project area is an egregious oversight.

It is difficult to estimate just how long the recession will last, but some peer-reviewed papers are already predicting that the world economy will not normalize for many years, even after a vaccine has been developed and distributed.⁸⁷ Unemployment in Washington County spiked to its highest level in 30 years during the midst of the pandemic.⁸⁸ This is discouraging investment in Washington County and dissuading migration.

Some of the state's top demographers are already saying that Utah will likely experience severely slowed population growth as a result of the COVID-19 pandemic.⁸⁹ This means

⁸³ University of Utah Kem C. Gardner Policy Institute (Gardner Institute). 2017. Utah's Long-term Demographic and Economic Projections. University of Utah, Salt Lake City, Utah.

⁸⁴ Ibid.

⁸⁵ Fernandes, N, *Economic effects of coronavirus outbreak (COVID-19) on the world economy*, Available at SSRN 3557504 (2020).

⁸⁶ <https://www.frbatlanta.org/cqer/research/gdpnow>

⁸⁷ Guerrieri, V., Lorenzoni, G., Straub, L., & Werning, I, *Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?* (No. w26918) National Bureau of Economic Research.

⁸⁸ U.S. Bureau of Labor Statistics, Unemployment Rate in Washington County, UT [UTWASH3URN], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/UTWASH3URN>, August 19, 2020.

⁸⁹ Davidson, Lee. “COVID-19 may finally tap the brakes on Utah's blazing fast population growth.” (05/13/20). <https://www.sltrib.com/news/politics/2020/05/13/covid-may-finally-tap/>

that the 2017 Gardner population projections, which estimate that Washington County's population will nearly triple, are unlikely to hold true. The severity of the public health and economic crises caused by COVID-19 will likely reduce the level of growth in Washington County substantially. Therefore, the DEIS should not base the need for the LPP off these now outdated population projections, and Reclamation must analyze for these new facts in the FEIS.

I.B.4 If The Provo Office of the Bureau used reasonable water supply and demand estimates, it would show that there is no need for the Lake Powell Pipeline

The DEIS compares water supply with water demand to determine whether Washington County needs water from the LPP. Since the DEIS narrowly defines the purpose of the project and then greatly inflated water demand and severely underreported water supply, it finds that there will be a water shortage in Washington County and that the LPP will be needed. Specifically, the DEIS claims approximately 86,000 acre-feet of water per year will be necessary to meet water demand in 2060.

As discussed above, this is a false justification for the Lake Powell Pipeline. The demand estimates underpinning this statement have been inflated 150% to 200%,⁹⁰ and the supply estimates exclude an enormous amount of water from both the Virgin River and from various secondary sources. If reasonable, water supply and demand estimates had been used, there would be no need for the LPP.

Figure 2 demonstrates that there will be at least 189,000 acre-feet of water in the Washington County, and Figure 10 demonstrates that one acre-foot of water can support at least 2.5 households (or 6.5 people). This means that Washington County's future water supply could reasonably support 1.2 million people, which is far more than 508,000 people the Gardner Institute projects will be present in Washington County in 2065.⁹¹ Moreover, these projections are now outdated, as they do not account for how the pandemic and the economic recession will impact population growth in Washington County.

The DEIS further claims that part of the need for the LPP project is to create a secure water supply. See the following quote:

A more diverse and secure water supply is needed to mitigate vulnerabilities to

⁹⁰ See Figure 9: Summary of Observed vs. Inflated DEIS Demand **Values**

⁹¹ University of Utah Kem C. Gardner Policy Institute (Gardner Institute). 2017. Utah's Long-term Demographic and Economic Projections. University of Utah, Salt Lake City, Utah.

*unexpected demand and supply scenarios and ensure reliable water deliveries into the future.*⁹²

This too is a false statement. Washington County currently has ample and diverse water sources. Figure 2 demonstrates that there is at least 189,000 acre-feet of reliable, non-groundwater sources in Washington County and Figure 1 shows that the BOR does not expect flows in the Virgin River to decline by any significant amount even with all the additional pressures of climate change. The BOR itself estimates that flows in the Virgin River will remain well above 160,000 acre-feet throughout the century.⁹³

Furthermore, the district claims to have access to a 100,000 acre-feet water “bank,” which will be used to shore up supplies during anomalously low-water years.⁹⁴ The district states that this emergency water storage will eventually grow to 300,000 acre-feet.⁹⁵ This is a tremendous quantity of water and is more than enough to provide a secure source to a population of just over 500,000 people.

I.B.5 The WCWD’s “pay-as-you-go” plan demonstrates that even the WCWD acknowledges that there is no serious or pressing need for additional water in Washington County

In public discussions related to the repayment of the proposed LPP, water officials from the DWRe and the WCWD devised a financial scheme they called “Pay-As-You-Go.”⁹⁶ In a 2008 correspondence between WCWD and the DWRe, the WCWD’s General Manager, Ron Thompson, outlined this pay-as-you-go concept, asking for confirmation from the DWRe about the proposal.⁹⁷ The concept would allow the WCWD to defer paying for the entire project by instead buying smaller portions of the LPP’s water, which they refer to as “blocks.”⁹⁸ According to these officials, the WCWD would only pay the costs and interest associated with one small block of water at a time.⁹⁹

This scheme was presented by the WCWD to the Executive Water Finance Board (EWFB)

⁹² *Lake Powell Pipeline Draft Environmental Impact Statement*, Bureau of Reclamation. (2020).

<https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 9.

⁹³ Reclamation. 2014. “Virgin River Climate Change Analysis Statistical Analysis of Streamflow Projections.” Technical Memorandum. Katrina Grantz. March 26, 2014.

⁹⁴ Fitch Ratings. 2017. “Correction: Fitch Upgrades Washington County Water Conservancy, UT’s Water Revs; Affirms GOs”.

⁹⁵ Ibid.

⁹⁶ Thompson, Ronald. “RE: Lake Powell Pipeline Financing.” Received by Dennis Strong, August 14, 2008.

⁹⁷ Ibid

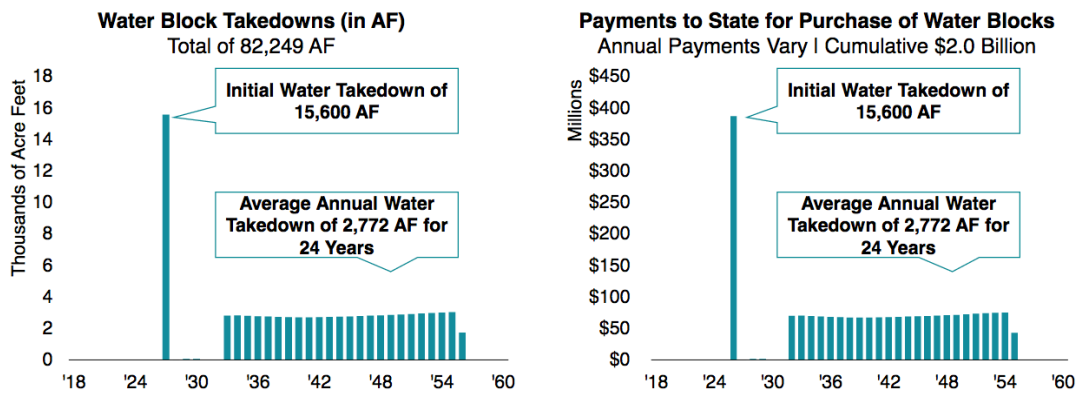
⁹⁸ Ibid

⁹⁹ Ibid

at a June 2018 meeting. The relevant slide from the presentation is shown in Figure 16.¹⁰⁰ This graphic demonstrates that the WCWD plans to withdraw an initial 15,600 acre-feet of water from the LPP and then slowly add 2,700 acre-foot increments. This demonstrates that even the WCWD recognizes that LPP water is not needed in Washington County.

Figure 16: Pay-as-you-go as Presented to the EWFB

How Might This Look from WCWCD's Perspective?

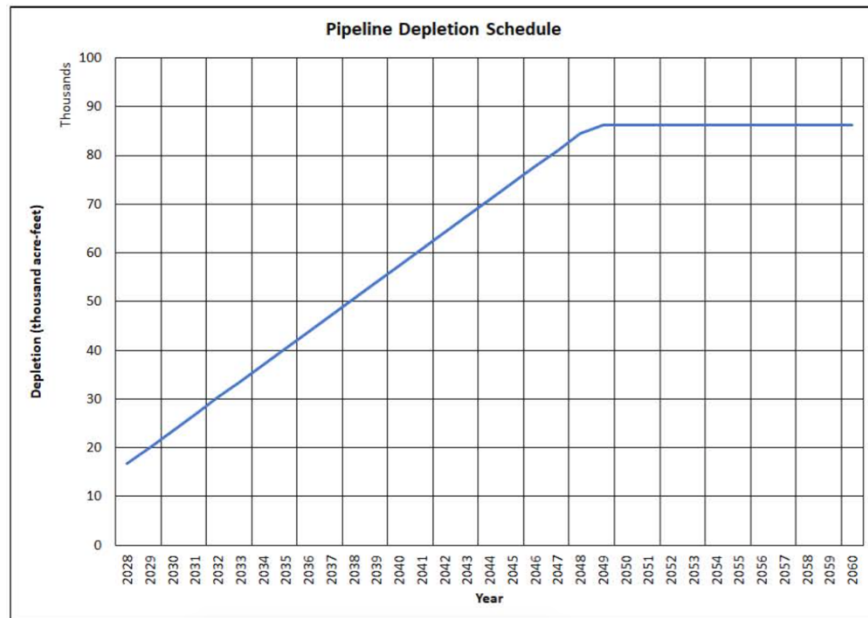


Similarly, Attachment B of Appendix C-10: Hydrology provides a chart of expected water withdrawals from Lake Powell by the LPP.¹⁰¹ It, like Figure 16, shows that the WCWD does not plan to fully use the LPP's water for many years. It is presented in Figure 17.

¹⁰⁰ Agüero, Jeremy. (2018, June). The Economic and Fiscal Implications of Water Policy in Washington County, Utah. Slides presented at Executive Water Finance Board meeting, Salt Lake City, UT. Electronic copy of presentation: <https://gomb.utah.gov/wp-content/uploads/2019/04/WCWCD-Economic-and-Fiscal-Implications-Jeremy-Aguero.pdf>

¹⁰¹ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-10*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Attachment B.

Figure 17: Pay-as-you-go as Represented in the DEIS



This figure demonstrates that the WCWD does not plan to withdraw 86,000 acre-feet of water from the LPP until about 2049. The WCWD’s pursuit of this unorthodox withdrawal schedule proves that they do not have a pressing or serious need for LPP water in Washington County.

I.B.6 Previous planning documents and official testimony from the WCWD and the Utah Board of Water Resources relating to need are contradictory and demonstrate these agencies’ troubling history of deception

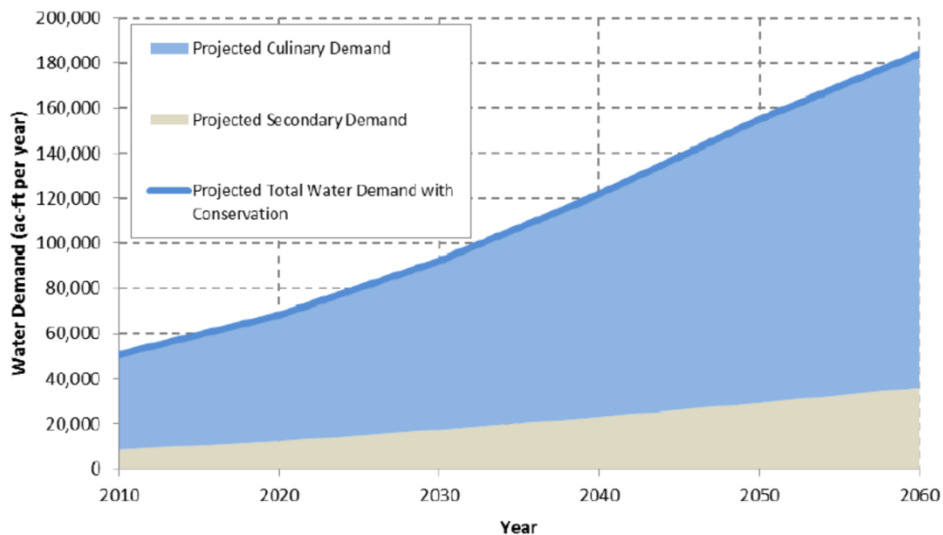
Both the WCWD and the Utah Board of Water Resources (UBWRe) have a disconcerting history of submitting contradictory and false information about the WCWD’s water supply and demand to state and federal officials. Exaggerating future or existing water use is no different than a government representative intentionally exaggerating the number of constituents needing services, or the amount of services an agency claims to deliver to said constituents. It also raises questions regarding the validity of the need estimates provided in the DEIS.

In their official document submissions to FERC to receive federal permits for the proposed Pipeline, DWRe clearly indicated that Washington County residents are using far more water than the U.S. average or Utah average. On page 45 (3S5) of the April 2016 *Final Lake Powell Pipeline Water Needs Assessment* submitted by the Utah Division of

Water Resources to FERC, Washington County residents used 325 gallons of municipal water per person per day.¹⁰²

The Division calculated future water needs using this water use figure of 325 from the year 2010, because they sought to demonstrate to FERC that Southwestern Utah needs the Lake Powell Pipeline. This can be plainly seen in the April 2016 *Final Lake Powell Pipeline Water Needs Assessment*, which includes the following water demand chart showing the long term water ‘needs’ of Washington County, based on this water use figure of 325 gallons.¹⁰³

Figure 18: Water Demand from the 2016 Water Needs Assessment



This water use figure of 325 has received immense criticism from Utah legislators, the public and the media since it is more than twice the national average and significantly higher than the per person water use of most Western U.S. cities. Perhaps that’s why on August 22 at the Water Development Commission, a representative of the Washington County Water District testified to the Commission that Washington County residents are using just 140 gallons of water per person per day:

So we’re about, with some second use, which is an estimate, we’re in the 140 gallons per capita per day. (Audio minute 2:16:51)

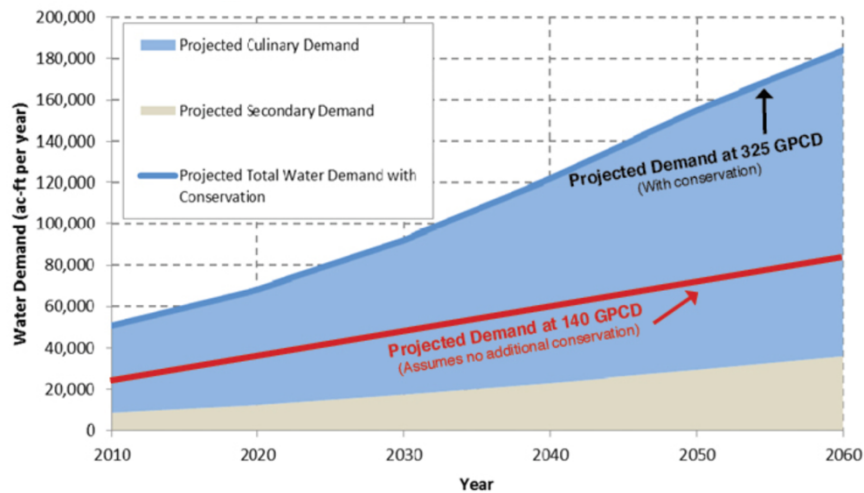
This 140-gallon figure is less than half the 325 gallon per day water use figure presented to FERC by the Division. If indeed Washington County residents are using just 140

¹⁰² Utah Division of Water Resources. *Final Lake Powell Pipeline Water Needs Assessment*, April 2016, sec. 3.2.1, pg. 42

¹⁰³ Utah Division of Water Resources. *Final Lake Powell Pipeline Water Needs Assessment*, April 2016, figure 4S6, pg. 45.

gallons per person per day, then there is no need for water from the Lake Powell Pipeline, and therefore the proposed RMP amendment. The water demand graph below and the line in red shows future water needs based on the District’s claim that Washington County residents are using just 140 gallons of water per day.

Figure 19: Water Demand with 140 gpcd

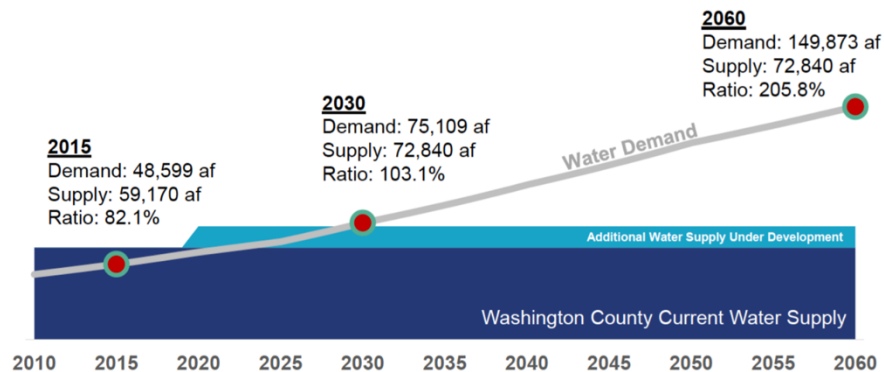


The graph above demonstrates that the District’s current water supply is enough to sustain growth beyond the year 2060 without water from the Lake Powell Pipeline. If Washington County residents are using 140 gallons of water a day, as presented by the District’s representative, then this is great news for taxpayers because it means the District is not running out of water and there is absolutely no need to spend billions on the Lake Powell Pipeline. This contradictory information is extremely disconcerting as it implies a concerted effort to misinform the Utah Legislature or FERC, or both. It also implies that BOR has been misinformed about the need for the proposed LPP project.

Incredibly, the District representative also presented data to the Commission, which contradicts his own testimony regarding water use and future water needs.

Figure 20: WCWD Presentation to FERC

Washington County Water Supply and Anticipated Demand



Accompanying a slide of the above graphic, the District’s General Manager testified at the August 22 Committee meeting that Washington County had nearly 50,000 AF of water demand in 2015:

The blue line here is current developed water supply within the County some of that is District water some of that is municipal. Our current demand in 2015 was about 50,000 acre-feet of water. By 2030 we project a demand of 75,000 acre-foot and by 2060, 149,000 acre foot. That’s assuming our population grows during that time frame to about a half a million people. That’s also assuming that we will have achieved a 35% per capita reduction by the 2060 time frame.¹⁰⁴

The District presented population data for the years cited in the above slide, 2015, 2030, and 2060. This makes it easy to calculate per person water use by dividing the Water Demand presented in this graph by the population numbers presented to Utah Legislative Committee by the District, which shows the per person water use is 289 in 2015, 268 in 2030 and 267 in 2060. Clearly these water use figures differ markedly from the 140 gpcd number the District representative testified to on August 22. The data presented on the slide contradicts the District’s statements about water needs.

I.B.7 The WCWD has previously provided contradictory and incorrect information to official governing bodies pertaining to elasticity, raising questions about the validity of the DEIS’ demand estimate

The WCWD has previously misinformed the public, Utah legislators, and the executive branch about the impact of water rate increases on Washington County’s water use. This

¹⁰⁴ Audio from the Legislative Water Development Commission meeting August 22, 2017, audio minute 2:04:50, http://utahlegislature.granicus.com/MediaPlayer.php?view_id=2&clip_id=21769&meta_id=741495


deception raises serious doubts as to the validity of the information the WCWD provided to the BOR.

On June 13, 2018, a representative of the WCWD misinformed the Executive Water Finance Committee about the impact of its proposed water rate increases upon water demand.¹⁰⁵ In his presentation, the representative noted that the WCWD is planning on raising water rates in Washington County by 300%.¹⁰⁶ This large increase in water rates is needed to pay the high construction costs of the proposed LPP. The slide below clearly indicates the water district’s intention to raise water rates.



Figure 21: WCWD Old Planned Rate Increases

Water Rate Increases Planned in Washington County

Period	Wholesale Rate Increase
2020	\$0.50
2025	\$1.00
2030	\$1.50
2035	\$2.00
2040	\$2.50
2045	\$3.00
2050	\$3.00
2055	\$3.00
2060	\$3.00
2018-2060	\$2.12



300% Water Rate Increases

However, the WCWD has failed to accurately account for the impact of reduced water demand as a function of increased water price. Getting price elasticity correlation estimates and water rate revenue calculations wrong is more than just unprofessional, it is financially irresponsible to a water agency’s customers. The intentional inaccurate forecasting and/or communicating erroneous future rate revenue can lead to increased indebtedness, the downgrading of bond ratings, staff termination and in some cases the conviction of financial fraud. It is equally disappointing to see the Provo Office fail to

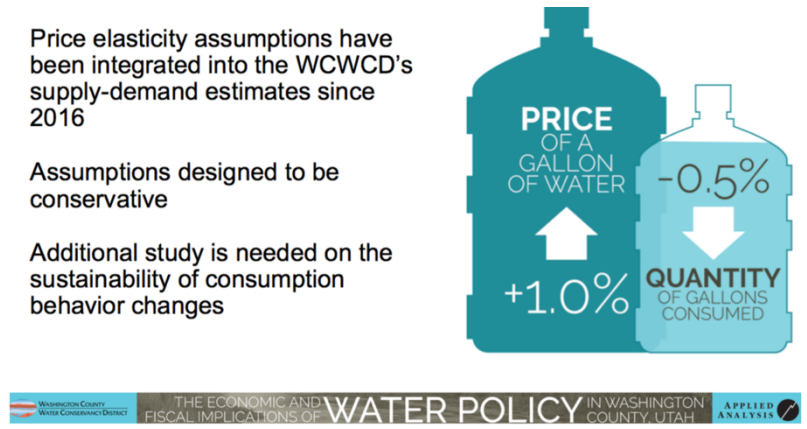
¹⁰⁵ Aguero, Jeremy. (2018, June). The Economic and Fiscal Implications of Water Policy in Washington County, Utah. Slides presented at Executive Water Finance Board meeting, Salt Lake City, UT. Electronic copy of presentation: <https://gomb.utah.gov/wp-content/uploads/2019/04/WCWCD-Economic-and-Fiscal-Implications-Jeremy-Aguero.pdf>

¹⁰⁶ Ibid

serve the public interest with this same disregard for the impact of water rate increases on Washington County’s population – particularly during the pandemic economy.

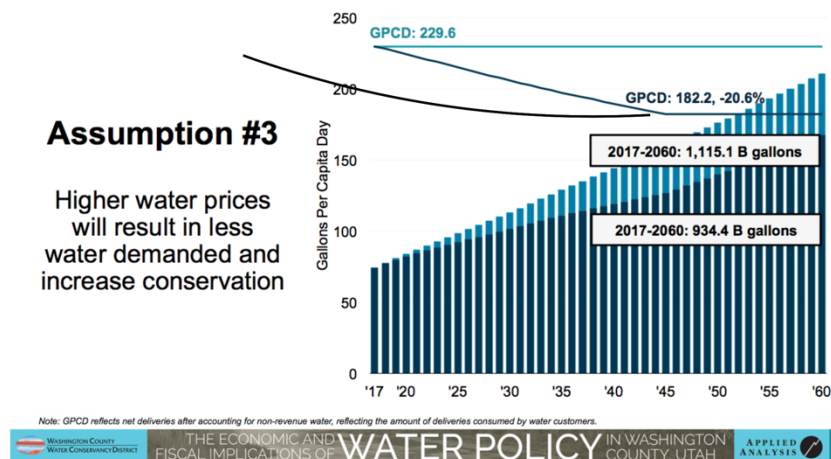
The WCWD’s representative assumed an elasticity rate of 0.5 during his June 2018 presentation. This is evidenced by the following graphic from the presentation:

Figure 22: WCWD's Assumed Elasticity



Alas, the WCWD failed to either understand basic market economics or chose to intentionally misinform this public body in the same presentation by failing to account for the elasticity of price upon demand. In spite of their stated intention to raise water rates by 300%, the WCWD did not present the real reduction in water use which would occur under this massive increase in water rates. At a water use of 304 gpcd, a 300% increase in price should reduce water use to roughly 152 gpcd. But instead, the WCWD presented the claim that water use would only drop some 20% to 182 gpcd in response to a 300% increase in water rates:

Figure 23: GPCD of 182 from the Same Presentation



In another slide, the WCWD provides an estimate of 215 gpcd for the same time period.

Figure 24: GPCD of 215 from the Same Presentation

		Water Rates			
		Adjusted GPCD	Total WCWCD Deliveries	Wholesale Rate Increase	Capital Yield
Sensitivity #3	2020	265.0	8.98 B gallons	\$0.50	\$4.49 M
	2025	253.9	11.2 B gallons	\$1.00	\$11.18 M
	2030	243.4	13.2 B gallons	\$1.50	\$19.77 M
	2035	233.0	15.2 B gallons	\$2.00	\$30.37 M
	2040	223.7	17.0 B gallons	\$2.50	\$42.41 M
	2045	215.3	18.7 B gallons	\$3.00	\$55.96 M
	2050	215.3	21.4 B gallons	\$3.00	\$64.25 M
	2055	215.3	24.3 B gallons	\$3.00	\$72.98 M
	2060	215.3	27.4 B gallons	\$3.00	\$82.10 M
	2018-2060	232.0	730.4 B gallons	\$2.12	\$1,746.6 M

Note: GPCD reflects net deliveries before accounting for non-revenue water, reflecting the amount of deliveries made by WCWCD. Wholesale Capital Charge per 1,000 gallons.



The WCWD has failed to accurately incorporate the elasticity of price upon demand for the purpose of accurately determining future water use and therefore future water rate revenues. The agency and its lobbyists have also failed to understand how elasticity impacts its ability to repay Utah taxpayers for their monetary investment in the LPP. For the WCWD to use either gpcd value, 182 or 215, after agreeing that elasticity is 0.5, is either intentional malfeasance or innocent incompetence about the fundamental basics of their chosen profession: water delivery. Either way, the revenues calculated in this testimony by the WCWD do not meet professional standards in the water supply industry. This demonstrates a troubling history of incompetence or deception within the WCWD relating to water demand. It is also further evidence that the flawed purpose and need statement for the Lake Powell Pipeline relied on incorrect and outdated data and assumptions.

II. The Provo Office of the Bureau failed to adequately account for the effects of climate change in the DEIS

II.A The BOR failed to address whether Utah will have enough water remaining in its allocation of the Colorado River to supply the Lake Powell Pipeline given water volume decreases caused by climate change

A vast chorus of scientists have published numerous studies demonstrating that climate change will substantially reduce Colorado River flows in the future in addition to the

impacts already observed. Consequently, Utah will likely not have enough water remaining in its Colorado River allocation to supply the additional water diversions proposed by the Lake Powell Pipeline without cutting other existing water uses in Utah. The Bureau's own 2012 climate change study on the Colorado River identified that 1 in every 4 or 5 years there will not be enough water in the Colorado River to satisfy all uses by the year 2060. Despite the consensus within the scientific community, the BOR failed to study this issue in the LPP DEIS. This failure to take a hard look at how climate change and declining Colorado River waters supplies will impact the Lake Powell Pipeline violates NEPA, and the FEIS must fully analyze this issue.

In order to determine the feasibility of the Lake Powell Pipeline, the Provo Office of the Bureau should have, but did not, study whether Utah will reasonably have enough water in its Colorado River allocation by the mid-century to support the additional diversions proposed by the Lake Powell Pipeline. Without this analysis, the BOR's study is incomplete and does not adequately consider the impacts of climate change to Utah's Colorado River allotment.

Instead the BOR examined what effects the LPP may have on the elevation level of Lake Powell *if the LPP could withdraw water without issue* from Lake Powell and included some climate change modeling in this analysis.¹⁰⁷ This is a fallacious and potentially specious analysis that not only undermines the BOR's own published science on climate change and its impacts to the Colorado River, it raises questions as to why the Provo Office would go out of its way to deny climate change impacts being observed in 2020.

In essence, the analysis conducted by the Provo Office of the Bureau in Appendix C-10 simply assumes that Utah will have enough water in their Colorado River allocation to supply the Lake Powell Pipeline as a matter of political expediency. The Provo Office of the Bureau does not conduct any analysis or cite any studies to prove the legitimacy of this assumption. We once again must raise the ethical question of who the Provo Office of the Bureau is serving – the public or Pipeline lobbyists?

Furthermore, the analysis conducted by the Provo Office of the Bureau in Appendix C-10 does not attempt to accurately model the elevation level of Lake Powell, creating results that are not applicable to real world policy decisions, like the pending ROD. This is stated explicitly by the BOR on Appendix C-10, page 32:

Note that these model results do not represent what the actual reservoir elevations or releases would be in any particular year. Model results should be interpreted based on the relative differences between the Pipeline and No

¹⁰⁷ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-10*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>.

*Action Alternatives.*¹⁰⁸

This occurs because the BOR uses unrealistic demand assumptions to simplify their modeling process. They admit to this on page 32 of Appendix C-10:

*It is recognized that the Upper Basin States plan to develop their compact allocated Colorado River water and, as such, it is highly unlikely that depletions would remain at the 2020 level in the future. It should also be noted that the modeling effect of holding most Upper Basin depletions constant at 2020 levels results in depletions significantly lower than the future long-term depletion projections provided by the Upper Basin States, which assume that Upper Basin depletions would grow through 2060.*¹⁰⁹

This is problematic because Lake Powell is projected to quickly reach cavitation, effectively halting hydropower generation at Glen Canyon Dam.¹¹⁰ This would likely be a violation of the Upper Basin’s Drought Contingency plan, which aims to preserve hydropower generation at the Glen Canyon Dam through various demand management strategies.¹¹¹ Building the LPP would only exacerbate this process, accelerate Lake Powell’s decline and violate the Drought Contingency Plan by failing to address demand management among some of the biggest water wasters in the Colorado River Basin – Washington County water users and their 300+ gpcd water use.

By failing to even attempt to accurately project elevation levels in Lake Powell if the Pipeline is built, the BOR is essentially refusing to study what effect the LPP may have on hydropower generation at Lake Powell. This failure to take a hard look at how the Lake Powell Pipeline would affect hydropower generation violates NEPA.

In addition, by failing to accurately model Lake Powell’s elevation level, the BOR is effectively refusing to study whether or not the LPP’s intake pipe will be above or below the water line in Lake Powell, an essential component of the LPP’s technical feasibility. This violates NEPA’s hard look requirement. If the LPP’s water intake is above the water line in Lake Powell, it will not be able to withdraw water from the LPP, thus resulting in a “dry” pipeline.

¹⁰⁸ Ibid, page 32.

¹⁰⁹ Ibid.

¹¹⁰ See Figure 26

¹¹¹ Bureau of Reclamation. “AGREEMENT FOR DROUGHT RESPONSE OPERATIONS AT THE INITIAL UNITS OF THE COLORADO RIVER STORAGE PROJECT ACT” (2019).

<https://www.usbr.gov/dcp/docs/final/Attachment-A1-Drought-Response%20Operations-Agreement-Final.pdf>

II.B Numerous scientific studies demonstrate that climate change will reduce flows in the Colorado River significantly

NEPA requires the BOR to use “high quality information and accurate scientific analysis” when it prepares an EIS.¹¹² The BOR must “insure the professional integrity, including the scientific integrity, of the discussion and analyses” in an EIS.¹¹³ Accordingly, an EIS cannot rely on outdated or stale data.¹¹⁴ The Lake Powell Pipeline DEIS is arbitrary and capricious, and it fails to take a hard look at the environmental consequences of the pipeline, because the DEIS does not use the most recent and best scientific data that details how climate change will decrease water supplies in the Colorado River basin.

Voluminous studies conducted by credible research institutions, local, state, and federal water suppliers, and independent scientific organizations, which have been published consistently in peer-review journals, demonstrate widely that climate change has reduced the flows of the Colorado River, and will continue to do so.¹¹⁵ A report by the Western Water Assessment entitled *Colorado River Basin Climate and Hydrology: State of the Science* reviewed and summarized over 800 peer-reviewed papers and reports dealing with climate and hydrology in the Colorado River Basin.¹¹⁶ Its findings support the claim made above. Specifically, it states:

*Together, these uncertainties regarding the magnitude of future temperature and precipitation change, and regarding the true sensitivity of basin hydrology to specific temperature and precipitation changes, have led to a broad range of potential future hydrologic outcomes. However, across the many studies and assessments of future [Colorado River Basin] hydrology, **this range of outcomes is strongly tipped toward reduced runoff**, reflecting the pervasive impact of the projected warming (emphasis added).¹¹⁷*

This report, and the plethora of scientific literature that it cites makes clear that flows in the Colorado River, and subsequently Utah’s Colorado River allocation, will decrease in the coming decades as the effects of climate change worsen.

A wealth of scientific, peer-reviewed, and published studies quantify what annual naturalized flows at Lees Ferry will likely be in the mid-21st century given the effects of climate change. The studies referenced within the DEIS are Udall & Overpeck (2017),

¹¹² *Lands Council v. Powell*, 395 F.3d 1019, 1031 (9th Cir. 2005); *see also* 40 C.F.R. § 1500.1(b).

¹¹³ 40 C.F.R. § 1502.24.

¹¹⁴ *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1086 (9th Cir. 2011).

¹¹⁵ Lukas, Jeff, and Elizabeth Payton, eds., *Colorado River Basin Climate and Hydrology: State of the Science. Western Water Assessment*, University of Colorado Boulder, DOI (2020) <https://doi.org/10.25810/3hcv-w477>

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.* Page 427.

Milly & Dunne (2020),¹¹⁸ and the Bureau’s own 2012 *Colorado River Basin Supply and Demand Study*.¹¹⁹ Unfortunately, the BOR relies heavily on their own 2012 study to model predictions about flows to the Colorado River, despite more recent studies that providing an updated picture for the Colorado River Basin (CRB).

The BOR’s 2012 study almost certainly underestimates the effects climate change will have on the Colorado River Basin. In the eight years since the BOR’s 2012 study, new science has come out that suggests that a 9% flow decrease is optimistic and that true flow declines will likely be larger. The Bureau’s continued reliance on the 2012 report, especially given the more recent scientific consensus showing otherwise, is troubling.

Udall & Overpeck (2017) predict that annual naturalized flows at Lees Ferry could decrease 20% to 30% from the 1906-1999 average of 15.2 maf.¹²⁰ This would bring annual naturalized flows down to 12.16 maf or 10.64 maf respectively.

While Milly & Dunne (2020) do not exactly quantify what annual naturalized flows at Lees Ferry will likely be in the mid-century, they do quantify how climate change will affect annual mean discharge, or runoff, in the Upper Colorado River Basin.¹²¹ Their findings support those of Udall & Overpeck (2017). Specifically, Milly & Dunne (2020) find that mean discharge under RCP4.5¹²² could decrease 5% to 24% and that mean discharge under RCP8.5¹²³ could either increase 3% or decrease 40%. To Milly & Dunne (2020), these findings demonstrate that “an increasing risk of severe water shortages is expected.”

Yet, the BOR’s 2012 Colorado River Supply and Demand study, which is Central to the BOR’s findings in the DEIS, finds a less severe decline in annualized natural flows at Lees Ferry. By 2060, the BOR 2012 study estimates that mean naturalized flows at Lees Ferry will drop 9% from the 1906-2007 baseline period.¹²⁴ However, if the median flow decrease is used instead of the mean, this decrease could be closer to a 15% (a drop from 15 maf

¹¹⁸ The Udall and Milly studies were mentioned by the LPP DEIS on page 16 of appendix B

¹¹⁹ The 2012 Supply and Demand study is mentioned by the LPP DEIS on page 6 of appendix C-10: Hydrology

¹²⁰ Udall, B., & Overpeck, J. (2017). The twenty-first century Colorado River hot drought and implications for the future. *Water Resources Research*, 53(3), 2404-2418.

¹²¹ Milly, P. C., & Dunne, K. A. (2020). Colorado River flow dwindles as warming-driven loss of reflective snow energizes evaporation. *Science*, 367(6483), 1252-1255.

¹²² RCP stand for “Representative Concentration Pathways” and come from the IPCC’s 5th Assessment Report (AR5). RCP4.5 models a scenario where greenhouse gas emissions peak in 2040 and total global temperature increases reach +2 and +3 degrees C by the year 2100.

¹²³ RCP 8.5 is the “worst case scenario” pathway where emissions increase through the year 2100.

¹²⁴ *Colorado River Basin Water Supply and Demand Study, Technical Report B*, Bureau of Reclamation (2012). https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20B%20-%20Water%20Supply%20Assessment/TR-B_Water_Supply_Assessment_FINAL.pdf

to 12.7 maf).¹²⁵ The difference in the projected mean and median flow levels is accounted for by a few unusually high flow years skewing the average upward. The BOR's 2012 study is not the most accurate picture of what is happening in real time in the CRB and should not be utilized as the primary source to model future flows in the basin.

Udall & Overpeck (2017) specifically highlight the shortcomings of the Colorado River forecasts noting that:

*Fifteen years into the twenty-first century, the emerging reality is that climate change is already depleting Colorado River water supplies at the upper end of the range suggested by previously published projections.*¹²⁶

Udall and Overpeck demonstrate that many previous climate models underestimate the effects of climate change. They provide evidence highlighting that these underestimates occurred because many previous climate models do not adequately account for megadroughts. A megadrought is a multi-decadal drought that has the potential to dramatically reduce water supplies in the Colorado River Basin.¹²⁷

In recent years, a number of studies have explored this phenomenon more closely. A 2016, Ault *et al* publication found the following:

*We find changes in the mean hydroclimate state, rather than its variability, determine megadrought risk in the American Southwest. Estimates of megadrought probabilities based on precipitation alone tend to underestimate risk. Furthermore, business-as-usual emissions of greenhouse gases will drive regional warming and drying, regardless of large precipitation uncertainties. We find regional temperature increases alone push megadrought risk above 70%, 90%, or 99% by the end of the century, even if precipitation increases moderately, does not change, or decreases, respectively. While each possibility is supported by some climate model simulations, the latter is the most common outcome for the American Southwest in Climate Model Intercomparison generation models.*¹²⁸

Ault *et al* (2016) found that the climatological patterns associated with climate change in the Colorado River Basin (i.e. rising temperatures and declining precipitation) will

¹²⁵ Ibid.

¹²⁶ Udall, B., & Overpeck, J., *The twenty-first century Colorado River hot drought and implications for the future Water Resources Research*, 53(3), 2404-2418 (2017).

¹²⁷ Ault, T. R., Mankin, J. S., Cook, B. I., & Smerdon, J. E., *Relative impacts of mitigation, temperature, and precipitation on 21st-century megadrought risk in the American Southwest*, *Science Advances*, 2(10), e1600873 (2016)

¹²⁸ Ibid.

increase the chances that a megadrought will occur in the next century to 99%—a certainty. Undoubtedly, this will have severe consequences on water supplies in the CRB and, as Udall & Overpeck (2017) indicate, is not accounted for in the BOR 2012 study.

Additionally, a paper published in April 2020 by Williams *et al* demonstrates how severe megadroughts can be. Specifically, they say:

We use hydrological modeling and new 1200-year tree-ring reconstructions of summer soil moisture to demonstrate that the 2000-2018 [Southwest North America] drought was the second driest 19-year period since 800 CE, exceeded only by a late-1500s megadrought. The megadrought-like trajectory of 2000-2018 soil moisture was driven by natural variability superimposed on drying due to anthropogenic warming. Anthropogenic trends in temperature, relative humidity, and precipitation estimated from 31 climate models account for 47% (model interquartiles of 35 to 105%) of the 2000-2018 drought severity, pushing an otherwise moderate drought onto a trajectory comparable to the worst [Southwest North America] megadroughts since 800 CE.

This evidence provided in the Williams *et al* study emphasizes that climate change has already created one of the worst megadroughts in CRB history. The drought began in 2000 and lives on today. It is the second worst drought in CRB since 800 CE, the same year Algebra was invented.¹²⁹ Also, Williams *et al* shows that the reason this drought became so prolific is due to climate change. As the effects of climate change intensify over the coming century, so too will the severity of droughts in the CRB.

Furthermore, the aforementioned Western Water Assessment report categorizes every major publication since 2005 that estimates climate change affected flows in the Colorado River.¹³⁰ Their summary is reproduced in Figure 25.

Figure 25: WWA Summary of Climate Change Studies

Methodology	Studies or assessments using these simulations	Synthesis of results of these studies for Upper Basin runoff in mid-21st century	Comments
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¹²⁹ *Al-Khwārizmī*, Encyclopedia Britannica, <https://www.britannica.com/biography/al-Khwarizmi>

¹³⁰ Lukas, Jeff, and Elizabeth Payton, eds., *Colorado River Basin Climate and Hydrology: State of the Science. Western Water Assessment*, University of Colorado Boulder, DOI (2020) <https://doi.org/10.25810/3hev-w477>

CMIP3 GCM projections + BCSD statistical downscaling + hydrologic model	Christensen and Lettenmaier (2007); Reclamation (2011); Woodbury et al. (2012); CWCB (2012); Reclamation (2012e); Harding, Wood, and Prairie (2012); Ficklin, Stewart, and Maurer (2013)	Most (60–80%) simulations show reduced runoff; median change -10% (-25% to +10%)	All studies used the VIC model except Woodbury et al. (Sac-SMA and WEAP)
CMIP3 GCM projections + delta method downscaling + hydrologic model	Deems et al. (2013)	Median change -10% to -20%	Individual simulations not reported; study also examines effects of dust on snow
CMIP3 GCM projections + dynamical downscaling with RCMs; runoff directly with RCMs; runoff directly from the RCMs	Gao et al. (2011)	Most (2 of 3) simulations show reduced runoff; changes -16% to +5%	Very small projection ensemble; study domain includes Lower Basin headwaters
CMIP3 GCM projections; runoff directly from the GCMs	Milly, Dunne, and Vecchia (2005); Seager et al. (2007)	Nearly all (~95%) simulations show reduced runoff; median change -10% to -20%	This method is less reliable for basin-scale runoff than other methods
CMIP5 GCM projections + BCSD statistical downscaling + hydrologic model	Reclamation (2016b; 2020)	About half of simulations show reduced runoff; median change 0% (-25% to +20%)	Outcomes are shifted wetter than other methods due to the BCSD bias-correction procedure's effects on precipitation
CMIP5 GCM projections + other statistical downscaling + hydrologic model	Alder and Hostetler (2015); Reclamation (2020)	Most (~70%) of simulations show reduced runoff; median change -5 to -10% (-25% to +10%)	Alder and Hostetler (2015) used a variant of BCSD lacking the procedure that leads to wettening; Reclamation (2020) used LOCA
CMIP5 GCM projections + observed runoff sensitivities to temperature and precipitation	Lehner et al. (2019)	All simulations show reduced runoff; median change -17% (-31% to -3%)	Future time period varies by GCM and corresponds to temperature increase of 2°C vs. 1950-2008

CMIP5 GCM projections; runoff changes directly from the GCMs	Seager et al. (2013)	Most (~80%) of simulations show reduced runoff; median change -10% (-30% to +10%)	Results are for the 2021-2040 period; for mid-century, the reductions would be more prevalent and larger
Generalized temperature change from GCMs + hydrologic models (or runoff sensitivity to temperature derived from hydrologic models)	McCabe and Wolock (2007); Udall and Overpeck (2017); Milly and Dunne (2020); Reclamation (2020)	All simulations show reduced runoff; median change -20% (-40% to -5%)	Results only reflect future changes in temperature, not changes in precipitation

Of these studies, only three predict that the median change in natural flows at Lees Ferry will decrease as a consequence of climate change by less than 9% (less than the BOR 2012 study predicts). Two of these three studies were produced by the BOR. All the other papers listed predict median decreases of 10% to 20%.

The DEIS recognizes that recent science shows that the Colorado River Basin is headed for a hotter, drier future than previous studies indicated, but to argue for development, rather than identifying a potential problem in the future. The BOR states the following on page 16 of appendix B:

Under warmer, wetter climate change scenarios, the LPP would deliver a surplus of water to the WCWCD’s service area. However, these scenarios are unlikely according to recent scientific literature regarding climate change in the Colorado River basin (Udall and Overpeck 2017; Milly and Dunne 2020).

It is clear that the BOR is underestimating the impacts of climate change on Colorado River flows, especially in comparison to the majority of the scientific literature published on the topic. This point is further supported by real-world, empirical observations. In order to adequately consider the impacts of climate change on the Colorado River and comply with NEPA, the BOR must base their projections on the most recent data available.

Real naturalized flow data attained from the BOR in 2020 shows that the mean natural flow at Lees Ferry for the 2011-2018 period (the latest year available) was 12.9 maf.¹³¹

¹³¹ Colorado River Basin Natural Flow and Salt Data, Bureau of Reclamation (updated Jan. 10, 2020) <https://www.usbr.gov/lc/region/g4000/NaturalFlow/current.html>

This is nearly 800,000 acre-feet lower than what the BOR 2012 study predicted.¹³² The BOR 2012 study also critically underestimates the elevations in Lake Mead and Lake Powell, again demonstrating the BOR’s optimistic 2012 study estimates. Utilizing this study as the primary resource to determine the feasibility of LPP and the continued decline of the CRB is shortsighted and ignores the updated science and disturbing trends presented by the most recent elevation levels in Lake Powell and Lake Mead. This violates Reclamation’s duty to use “high quality information and accurate scientific analysis” in the Lake Powell Pipeline EIS.¹³³

Figure 26 demonstrates this point by comparing the historical elevation levels of Lake Powell to the predictions made by the BOR in their 2012 study, and Figure 27 does the same for Lake Mead.

The observed data (i.e. the black line) for the Lake Powell graph was collected from the BOR’s online data portal.¹³⁴ For the Lake Mead graph, the observed data was gathered from the BOR’s webpage.¹³⁵ Both datasets used monthly observations, and neither were seasonally adjusted. The data for the BOR projections (i.e. the red and blue lines) was collected from figures G-4 and G-6 in the BOR 2012 study.¹³⁶ Since the raw data was not provided for either of these figures, an online data-scraping tool was used to estimate the data from the graphs.¹³⁷ The figures were then created using the statistical analysis program R.

¹³² *Colorado River Basin Water Supply and Demand Study, Technical Report B*, Bureau of Reclamation (2012). https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20B%20-%20Water%20Supply%20Assessment/TR-B_Water_Supply_Assessment_FINAL.pdf

¹³³ *Lands Council v. Powell*, 395 F.3d 1019, 1031 (9th Cir. 2005); 40 C.F.R. § 1500.1(b).

¹³⁴ Bureau of Reclamation. *Historic Data Portal*. Accessed June 2020.

<https://www.usbr.gov/rsvrWater/HistoricalApp.html>

¹³⁵ “Lake Mead at Hoover Dam, End of Month Elevation” Reclamation (accessed June 2020).

<https://www.usbr.gov/lc/region/g4000/hourly/mead-elv.html>

¹³⁶ *Colorado River Basin Water Supply and Demand Study, Technical Report G*, Bureau of Reclamation (2012). https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20G%20-%20System%20Reliability%20Analysis%20and%20Evaluation%20of%20Options%20and%20Stategies/TR-G_System_Reliability_Analysis_FINAL.pdf

¹³⁷ <http://www.graphreader.com/>

Figure 26: Lake Powell Elevations

Historic Lake Powell Elevation Compared to BOR Predictions

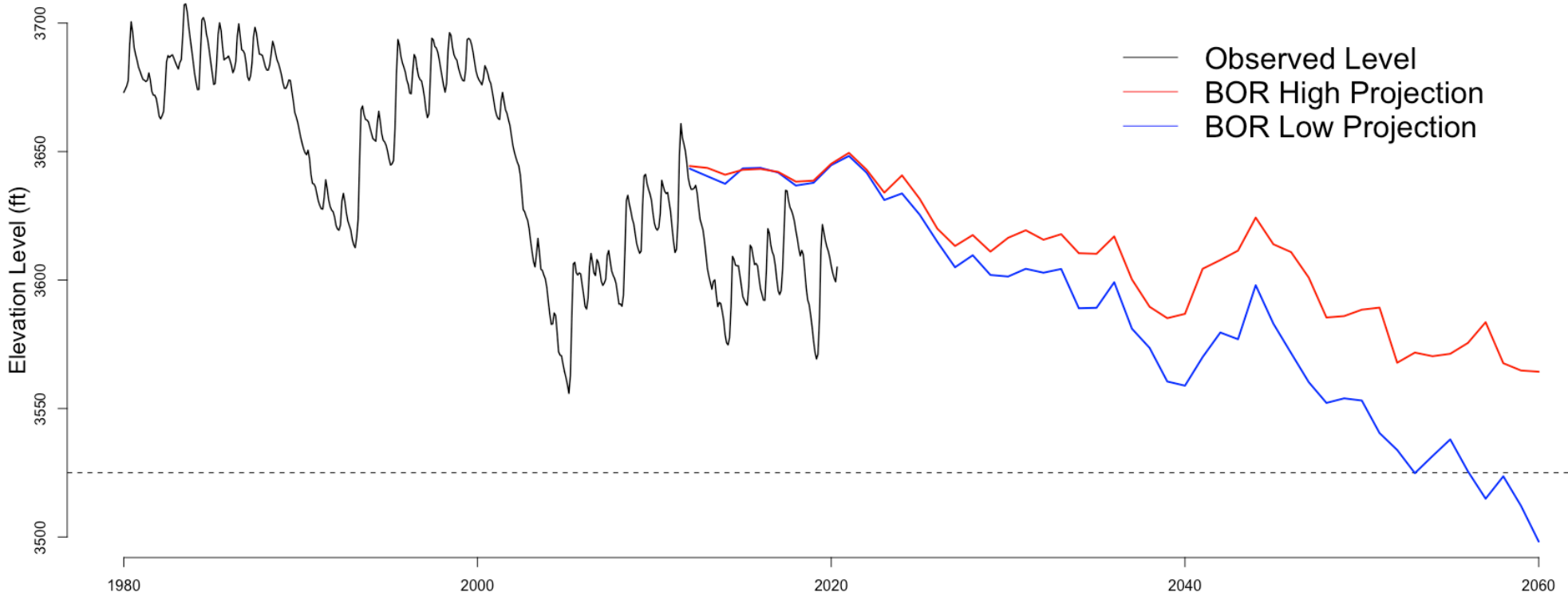
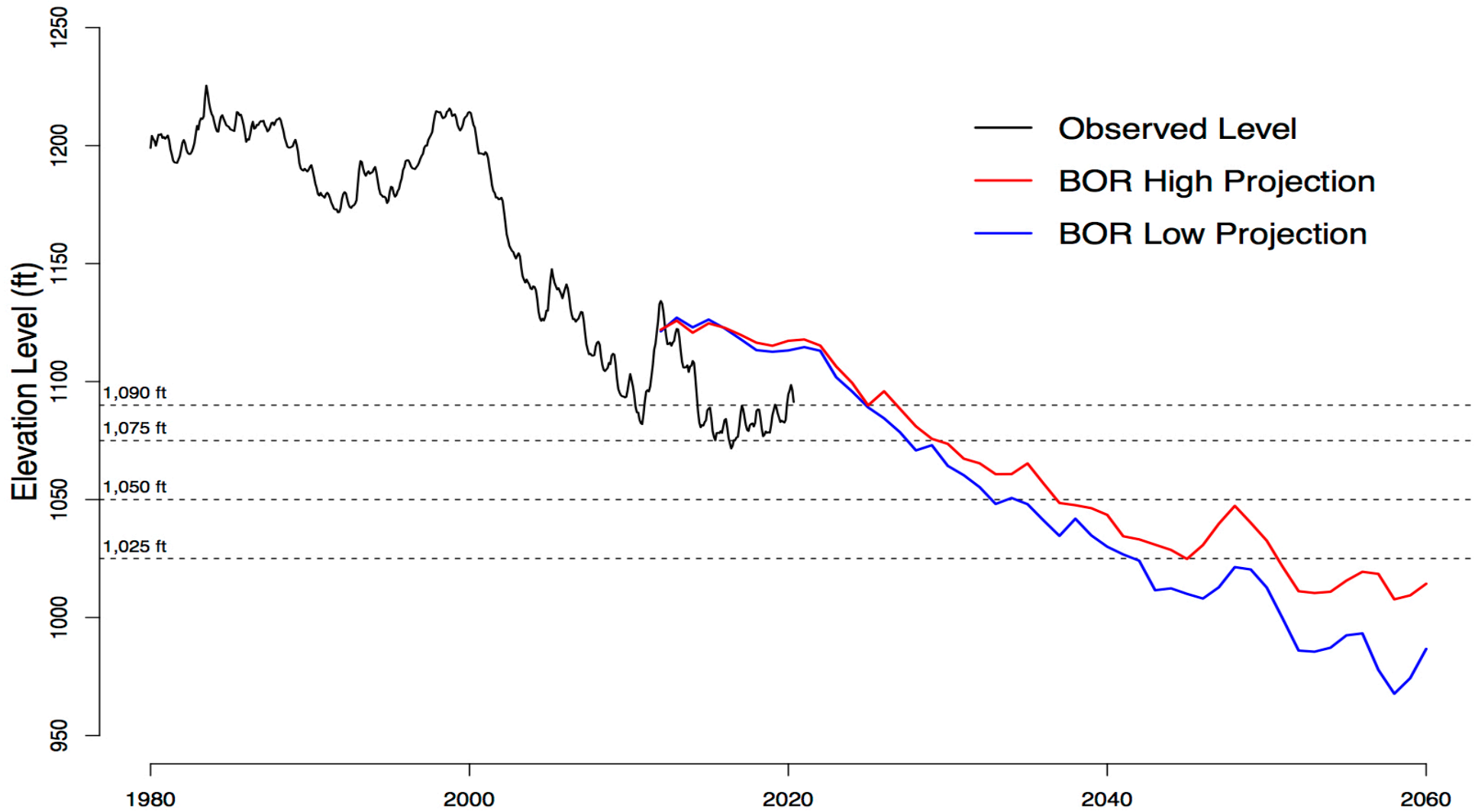


Figure 27: Lake Mead Elevations

Historic Lake Mead Elevation Compared to BOR Predictions



There are a few key takeaways from these figures. First, in both figures the observed reservoir levels are lower than the BOR projections. The BOR projections were created using the BOR 2012 climate model (the same model which predicted that flows in the Colorado River would decline 9%). These figures suggest that the BOR 2012 study overestimated how much water would be in the Colorado River system and that real flow declines in the Colorado River will likely be greater than 9%.

Second, both these figures paint a dire picture of the Colorado River system. The BOR 2012 study estimated that both Lake Powell and Mead will decline quickly in the coming decades, as can be seen by the swiftly declining projections in the figures. As stated above, these estimates are likely overestimates. The true reservoir declines will likely be larger and occur sooner than the BOR predicted. This means that Lake Powell could reach cavitation (3,525 ft) in the next few decades. Similarly, Lake Mead will continue to drop past water-shortage triggering elevation levels (as enacted by the recent Lower Basin Drought contingency plan), forcing Lower Basin states to take larger and larger cuts to their water supplies.

These charts, coupled with the weight of the numerous scientific studies listed above strongly suggest that the BOR 2012 study—the results of which were used by the DEIS to model the LPP’s effect on Lake Powell—underestimated the amount that flows will decline in the Colorado River system over the coming decade as a result of climate change. The 2012 study estimated that flows would decline by roughly 9%, however, the litany of evidence provided above suggests that true flow declines are likely in the 20% to 30% range.

This brings into question the veracity of the DEIS’s conclusion that the LPP will not have a significant effect on Lake Powell. The BOR’s failure to use the most current science available to inform its analysis of the LPP’s effects on Lake Powell violates NEPA. Accordingly, Reclamation must update the discussion of climate change and hydrology impacts in the FEIS.

II.C The Colorado River cannot support the Lake Powell Pipeline

The 1922 Colorado River Compact grants the Upper Basin the right to the water remaining after 7.5 million acre-feet (maf) has been delivered to the Lower Basin each year.¹³⁸ The Upper Colorado River Basin Compact of 1948 entitles Utah to 23% of the Upper Basin's water right.¹³⁹ This means that Utah's Colorado River allocation is contingent on the level of flow in the Colorado River, specifically on the annual naturalized flow at Lees Ferry.

In addition to the Colorado River Compact of 1922 and the Upper Colorado River Basin Compact of 1948, there are several other legal authorities determining the amount of Colorado River water Utah is entitled to. These further obligations make it all but certain that Utah will overdraw its allocation of Colorado River water.

Most notably, the *Winters v. United States* decision and subsequent negotiations established that Tribes in the Upper Basin are guaranteed a fixed amount of water diversions and depletions from the Colorado River.¹⁴⁰ The exact amount guaranteed to each Tribe varies, but the Colorado River Basin Ten Tribes Partnership's recent *Tribal Water Study Report* states that the total Tribal diversion right in the Upper Basin is roughly 1.8 maf and that total Tribal depletions in the Upper Basin in 2060 are likely to be roughly 0.8 maf.¹⁴¹ The priority date of these Tribes' water rights also differ from Tribe to Tribe, but all rights are senior to the LPP's March 12th, 1996¹⁴² priority date.

Furthermore, it is BOR policy that system losses in the Upper Basin (i.e. reservoir evaporation, evapotranspiration, etc.) be counted as part of the Upper Basin's beneficial use.¹⁴³ In 2018 (the most recent data available), these losses totaled roughly 0.45 maf.¹⁴⁴ This means that system losses essentially represent a portion of the Upper Basin's water right which is unavailable to the Upper Basin states for actual use. For that reason, system losses should be considered subtractions from the Upper Basin's legal Colorado River water supply.

Therefore, to find Utah's actual Colorado River water right, one must determine what annual naturalized flows at Lees Ferry are, subtract the quantities of water guaranteed

¹³⁸ Reclamation. (1922). "Colorado River Compact." US Bureau of Reclamation.

¹³⁹ Reclamation. (1948). "Upper Colorado River Basin Compact." US Bureau of Reclamation.

¹⁴⁰ *Winters v. United States*, 207 U.S. 564, 28 S. Ct. 207, 52 L. Ed. 340 (1908).

¹⁴¹ Colorado River Basin Ten Tribes Partnership, Reclamation (2018). *Tribal Water Study Report, Chapter 5.11*. <https://www.usbr.gov/lc/region/programs/crbstudy/tws/finalreport.html>

¹⁴² Reclamation. (2020). "Lake Powell Pipeline Project Draft Environmental Impact Statement" US Bureau of Reclamation. Page 6.

¹⁴³ Reclamation (2020). "Provisional Upper Colorado River Basin Consumptive Uses and Losses Report 2016-2020" US Bureau of Reclamation. Data prepared through 2018.

¹⁴⁴ Ibid.

to the Lower Basin and the Tribes, subtract the likely Upper Basin system losses, and then find 23% of whatever quantity of water remains. In other words, Utah’s Colorado River allocation can be approximated via the following:

$$UTR = (ANF - LBR - TR - SL) \times 0.23$$

Where UTR means Utah’s Colorado River water right, ANF means annual naturalized flow at Lees Ferry, LBR means Lower Basin Colorado River water right, TR means depletions by the Tribes that have water rights from the Colorado River, and SL means Upper Basin system loss. This is similar to the methodology used by Robison (2016).¹⁴⁵

Figure 28 uses the various flow decreases estimated by the studies mentioned in the DEIS (Udall & Overpeck 2017; Reclamation 2012) as starting points to apply the UTR calculation above.¹⁴⁶ The table shows that Utah’s Colorado River allocation will shrink substantially by the mid-century.

Figure 28: Utah's Colorado River Allocation Under Various Climate Scenarios

Scenario	Mid-Century Flow at LF	Lower Basin Delivery per 1922 Compact	2060 Tribal Water Depletions	System Losses (2018)	Upper Basin Water Right	Utah's Colorado River Allocation
BOR Avg (9% Dec.)	13.7	7.5	0.8	0.45	4.95	1.14
BOR Median (15% Dec.)	12.7				3.95	0.91
2000-2018 Observed	12.4				3.65	0.84
Udall (20% Dec.)	12.16				3.41	0.78
Udall (30% Dec.)	10.64				1.89	0.43

Note: Values in millions of acre-feet per year

In 2018 (the most recent year available), Utah consumptively used 1.048 maf of water from the Colorado River system.¹⁴⁷ If the LPP were built and Utah’s other Colorado River uses did not decrease, Utah’s annual Colorado River use would grow by 0.086 maf to 1.134 maf by the mid-century (when the LPP proposes to begin withdrawing the full 0.086 maf

¹⁴⁵ Robison, J. A. (2016). Climate Change and Allocation Institutions in the Colorado River Basin. *Water Policy and Planning in a Variable and Changing Climate*, 289.

¹⁴⁶ The data for the Mid-Century Flow at LF for the 2000-2018 observed scenario was taken from the BOR’s Colorado River Natural Flow and Salt Data website:

<https://www.usbr.gov/lc/region/g4000/NaturalFlow/documentation.html> in May 2020.

¹⁴⁷ Reclamation (2020). “*Provisional Upper Colorado River Basin Consumptive Uses and Losses Report 2016-2020*” US Bureau of Reclamation. Data prepared through 2018.

of water). This means that in every scenario presented above, Utah would use more water from the Colorado River than it is legally entitled.

The only scenario where Utah's Colorado River water supply is close to Utah's water demand is the scenario entitled "BOR Avg (9% Dec)." This scenario comes from the BOR 2012's study, which was shown in Section II.B to underestimate the effects of climate change.

The results of Figure 28 are further supported by the BOR's own 2012 study. The 2012 study by the BOR found that there is a 17 to 24% chance of a Lees Ferry Deficit occurring by 2060.¹⁴⁸ In other words, the BOR finds that roughly every 4 to 5 years, the Upper Basin will use more water than they are legally entitled to use. A Lees Ferry Deficit is essentially a violation of the 1922 Colorado River Compact where the Upper Basin fails to deliver 75 maf over 10-years to the Lower Basin.¹⁴⁹ Since the 2012 study has been shown to underestimate the effects of climate change, the actual likelihood of a Lees Ferry Deficit is almost certainly much larger than 24%.

This finding states that once every four or five years, Utah will have to cut its water supply to make up for the Upper Basin's overdraw, an overdraw which, Utah would have helped to produce via LPP withdrawals. This means that either the LPP or other Colorado River water users in the state will have to cut its water use. The BOR 2012 study further found that unless significant demand management strategies were implemented, demand for Colorado River water would outpace supply creating a basin-wide deficit of 3.2 million acre-feet by 2060.¹⁵⁰ In other words, the 2012 study demonstrates that there is not enough water in the Colorado River to support the LPP.

Real world observations further support the data found in scientific literature. In 2000, the reservoirs of the Colorado River were at 94% capacity. Today they are at 53% capacity and are projected to end water year 2020 at 50% capacity.¹⁵¹ This exemplifies the stress the Colorado River system is already under. Future rising temperatures and droughts will exacerbate this, will continue to drive reservoir levels down, and will make projects like the LPP wholly infeasible.

¹⁴⁸ *Colorado River Basin Water Supply and Demand Study, Technical Report G*, Bureau of Reclamation (2012) https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20G%20-%20System%20Reliability%20Analysis%20and%20Evaluation%20of%20Options%20and%20Strategies/TR-G_System_Reliability_Analysis_FINAL.pdf

¹⁴⁹ Ibid.

¹⁵⁰ *Colorado River Basin Water Supply and Demand Study, Executive Summary*, Bureau of Reclamation (2012) https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Executive%20Summary/CRBS_Executive_Summary_FINAL.pdf

¹⁵¹ *24-Month Study*. Bureau of Reclamation. May, 12, 2020. <https://www.usbr.gov/uc/water/crsp/studies/>

The BOR even wrote a letter in 1982 expressing their belief that Utah would soon tap out its Colorado River water supply. Water Right 41-2963 (A30414) for 8,000 cfs (power production) and 3,960,000 AF (storage in Flaming Gorge Reservoir) was originally assigned to the BOR and filed with a Priority Date of 8/7/1958. Various quantities of water were segregated out of the water right over the years.

The BOR, as the holder of the original water right, has previously expressed concerns about the amount of water available for appropriation from the original water right 41-2963 (A30414). In particular, on September 27, 1982, the Bureau of Reclamation sent a letter to the Utah State Engineer regarding WR 41-2963 (A30414) regarding concerns to the enlargement of the Carter Creek Canal sponsored by the Sheep Creek Canal Company. The body of the letter states:

While it is true that under water rights application No. 30414 (41-2963) covering Flaming Gorge Reservoir there was 500,000 AF reserved for Central Utah Project through Flaming Gorge Aqueduct, we realize that the primary purpose for which Flaming Gorge Reservoir was constructed to provide water regulation so the Upper Colorado Basin States can develop their entitlement to the Colorado River system through projects such as that sponsored by the Sheep Creek Canal Company. Our main concern is that the company be aware that if they proceed to make the investment in the enlargement of Carter Creek Canal that at some future date there may be a lack of water under a 1982 priority to realize the water supply that may be envisioned by the company. This circumstance could result from the fact that presently undeveloped water rights in Utah to appropriate waters tributary to the Colorado river system far exceed Utah's entitlement of the Colorado River System. These rights include those held by the United States for units of both the initial and ultimate phases of the Central Utah Project.¹⁵²

The concern by the BOR in 1982 was that if an entity water company (such as WCWCD) made the investments in improvements to canal improvements (or other improvements such as a Lake Powell Pipeline), with a 1982 water right priority date, at some future date there may be a lack of water under a 1982 priority to realize the water supply that may be envisioned by the company. This circumstance could result from the fact that presently undeveloped water rights in Utah to appropriate waters tributary to the Colorado river system far exceed Utah's entitlement of the Colorado River System.

¹⁵² BOR. Letter to Mr. Dee C. Hansen. September 27th, 1982.

This is a major concern with respect to the major financial investment by the State of Utah in the Lake Powell Pipeline in 2020. If the investment of billions of dollars is made into the Lake Powell Pipeline over a period of years, and then it is discovered that there is insufficient water available from the Green River (Flaming Gorge Reservoir) to pump into the Lake Powell Pipeline, the State of Utah, the Utah Board of Water Resources, and the WCWD may have a very expensive (\$2 Billion or more) and unusable white elephant pipeline on their hands, with no water available.

If the Bureau of Reclamation was concerned in 1982 that the presently undeveloped water rights in Utah to appropriate waters tributary to the Colorado river system far exceed Utah's entitlement of the Colorado River System, it is ironic and a major concern (Conflict of Interest) that the same Bureau of Reclamation is now producing the Draft EIS for the Lake Powell Pipeline in 2020 and is now promoting "adequate water availability."

It is also a concern that if the availability of water in Water Right 41-2963 (A30414) was in question by the Bureau of Reclamation in 1982, then the availability of water under the subsequent Water Right 41-3479 (A30414d) is also in question. In addition, the change Application for Water Right 41-3479 (a45683) includes a note indicating "Water Rights which the State Engineer has identified may Experience Quantity Impairment."

In case of a shortfall in Colorado River water delivery to the Lower Basin States (resulting in a Compact Call under the 1922 Colorado River Compact), the impact on Upper Basin States such as Utah is likely to be significant, especially for junior water rights. A new Water Right with a Priority Date in 2020 would be more recent (and significantly junior to) a priority Date of 1982 or even 1958, and is much more likely to be subject to Upper Basin State water restrictions in case of a Colorado River Compact call.

The availability of sufficient water to support the Lake Powell Pipeline is a major concern with respect to the above concerns, but especially in relation to the well documented lower water flows in the Colorado River due to climate change and the current drought conditions. These concerns are not addressed in the Draft EIS and need to be included in the Final EIS.

The upshot of all these sources is that climate change will deplete flows in the Colorado River so much that many states, including Utah, will face significant reductions in their Colorado River allocation. The Colorado River cannot support the Lake Powell Pipeline, and it is reckless at best for the BOR to give approval to this project. The DEIS violates NEPA because it fails to analyze how these Colorado River shortages will impact the operation of the Lake Powell Pipeline. The DEIS also violates NEPA because it fails to analyze how the Lake Powell Pipeline will exacerbate these water shortages, and in turn

impact other water users in Utah and the Upper Basin. Diverting an additional 86,000 acre-feet of water per year from the Colorado River through the Lake Powell Pipeline will cause massive socioeconomic impacts throughout Utah and the Upper Basin, and the FEIS must fully analyze and take a hard look at these impacts.

II.D The Lake Powell Pipeline will exacerbate water shortages in the Lower Basin

In December 2017, the Bureau of Reclamation called on the seven Colorado River Basin states to develop Drought Contingency Plans in response to the noticeable effects of climate change and the likelihood of critical reservoirs falling to dangerously low elevations. In May of 2019, the DCP plans were finalized.¹⁵³ The DCP establishes that Arizona, California, and Nevada must now reduce their use from the Colorado River as Lake Mead levels continue to drop. Figure 29 from the 2019 DCP shows how the water supply cuts will be distributed to Colorado River Basin states as Lake Mead levels continue to drop.¹⁵⁴

¹⁵³ Bureau of Reclamation. Drought Contingency Plans. <https://www.usbr.gov/dcp/>

¹⁵⁴ Bureau of Reclamation. “Lower Basin Drought Contingency Operations” (2019).
<https://www.usbr.gov/dcp/docs/final/Attachment-B-Exhibit-1-LB-Drought-Operations.pdf>

Figure 29: Lower Basin Water Cuts from DCP

Projected January 1 Lake Mead Elevation (feet msl)	2007 Interim Guidelines Shortages		DCP Contributions			Combined Volumes (2007 Interim Guidelines Shortages & DCP Contributions)			Lower Division States Total
	Arizona	Nevada	Arizona	Nevada	California	Arizona	Nevada	California	
	<i>(thousand acre-feet)</i>								
At or below 1,090 and above 1,075	0	0	192	8	0	192	8	0	200
At or below 1,075 and at or above 1,050	320	13	192	8	0	512	21	0	533
Below 1,050 and above 1,045	400	17	192	8	0	592	25	0	617
At or below 1,045 and above 1,040	400	17	240	10	200	640	27	200	867
At or below 1,040 and above 1,035	400	17	240	10	250	640	27	250	917
At or below 1,035 and above 1,030	400	17	240	10	300	640	27	300	967
At or below 1,030 and at or above 1,025	400	17	240	10	350	640	27	350	1,017
Below 1,025	480	20	240	10	350	720	30	350	1,100

Each August, the Bureau completes a two-year projection of the Colorado River’s supply to determine if there is an official shortage, a move that would reduce water diversions of the Lower Basin states of Arizona, Nevada, and California.

The latest 24-month projection from the Bureau estimates that Lake Mead will end water year 2020, 2021, and 2022 with an elevation of just over 1,080 ft.¹⁵⁵ As per the DCP agreements represented by Figure 29, Arizona will have to cut 192,000 acre-feet of water use and Nevada will have to cut 8,000 acre-feet.

Moreover, modeling by the BOR in 2019 found that there was up to a 43% chance that Lake Mead would fall below 1,075ft by 2021.¹⁵⁶

The BOR 2012 study paints an even more dire picture for the long-term future of Lake Mead. Figure 27 demonstrates that the BOR expects elevation levels in Lake Mead to continue dropping rapidly and reach 1,025 by 2040. This would trigger a total Lower Basin cutback of 1.1 million acre-feet. This Bureau forecast, paired with previous

¹⁵⁵ Bureau of Reclamation. 24-month Study. August 2020. <https://www.usbr.gov/lc/region/g4000/24mo/2020/AUG20.pdf>

¹⁵⁶ SNWA. Joint Water Conservation Plan. (2019). Page 14.

warnings, all point to the same reality for Lake Mead: prolonged dry periods and rising demand will drain so much water from the reservoir that larger and larger mandatory cutbacks will soon occur.

This will have serious detrimental effects to Lower Basin residents. For example, Pinal County, Arizona is already facing severe water cuts. This water supports 540 farms that generate about \$1 billion in annual sales. Without this imported water, more than a third of the county's 1.2 million acres of farmland could be put out of production. This is stifling growth and endangering over 140,000 households.¹⁵⁷ The Lake Powell Pipeline plans to deplete 860,000 acre-feet of water from the Colorado River every 10-years. This would dramatically accelerate Lake Mead's decline and cause places like Pinal County serious harm. Over 30 million people across multiple states and countries depend on the Colorado River to sustain their livelihood. Continuing to advance LPP puts their livelihood and their future at risk. The Colorado River is already extremely stressed and cannot support an additional massive diversion like the Lake Powell Pipeline.

The BOR is well aware of how critically important adequate Colorado River water supplies are for the 35 million residents of the Colorado River Basin, as it helps lead, manage, coordinate and assist with innumerable efforts and programs by states, other federal agencies and a myriad of water users to slow the decrease in water supplies, particularly as a reaction to climate change. For example, the DCP includes a "system augmentation" component, which includes enhanced cloud seeding and removal of tamarisk and other non-native vegetation.¹⁵⁸ The upper basin DCP also includes a "demand management" component, which attempts to incentive agricultural users and municipalities to use less water.¹⁵⁹

Many other offices of the BOR, under the direction of leadership from Washington D.C, are helping Colorado River Basin states and other waters users find ways to leave more water in the Colorado River. Yet the Provo Office of the Bureau is now proposing to approve a new depletion of 86,000 acre-feet of water per year. The Provo Office completely fails to even consider how diverting an additional 86,000 acre-feet of water per year from the Colorado River system will impact the Colorado River system in the DEIS, nor has it identified how this one office's proposal impacts the many other policy priorities of the BOR to keep Lake Mead levels as high as possible to avoid a second level of curtailment reductions under the lower basin Drought Contingency Plan. This failure

¹⁵⁷ Gardiner, Dustin. "A recipe for disaster!: Pinal County might not have enough water for 139,000 planned homes" <https://www.azcentral.com/story/news/local/arizona-environment/2019/02/28/drought-contingency-plan-pinal-county-colorado-river-lake-mead-arizona-water-shortage-groundwater/2915799002/>

¹⁵⁸ Colo. River Dist., Colorado River Planning/FAQs, <https://www.coloradoriverdistrict.org/supply-planning/colorado-river-planning-2/>.

¹⁵⁹ *Id.*

to take a hard look at the socioeconomic impacts of the Lake Powell Pipeline violates NEPA, and the FEIS must fully analyze these socioeconomic impacts.

II.E The Lake Powell Pipeline is an unreliable source of water and, therefore, does not meet the purpose or need as stated by the DEIS

The BOR states the following as the purpose of the project:

The purpose of the Proposed Project is to deliver a reliable annual yield of approximately 86,000 acre-feet of water per year from outside the Virgin River Basin into Washington County to meet projected water demands in 2060.¹⁶⁰

This is an arbitrarily narrow purpose statement, but it conveys the true purpose of the project: to secure water for Washington County’s growing population. However, as demonstrated above, the BOR’s own 2012 study finds that the LPP will be prohibited from withdrawing water once every four to five years and more recent science highlights that the Colorado is not a reliable source of water. As such, the LPP fails to meet the purpose and need for Washington County as it will not be able to “deliver a reliable annual yield” of water to Washington County. The BOR further states that only alternatives which meet the following criteria can be considered reasonable:

1. *Met the need for the Proposed Project as described in Section 1.2.1, above;*
2. *Accomplished the purpose of the Proposed Project as described in Section 1.2.3, above;*
3. *Was practical or feasible from an economical and technical standpoint.¹⁶¹*

Since the LPP fails to meet the project purpose and the project need, it should not have been included for detailed study in the DEIS. Furthermore, the LPP action alternatives should be eliminated from the final EIS since they are unreasonable alternatives. Neither the BOR, The DWRe, or the WCWCD can demonstrate that the Colorado River can be an annually reliable source of water, especially given the high chances of a Compact violation in the coming years.

¹⁶⁰ *Lake Powell Pipeline Draft Environmental Impact Statement*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 9.

¹⁶¹ *Ibid*, page 12.

II.F The Lake Powell Pipeline will threaten the water supplies of the Central Utah Project and other Colorado River users in Utah

In the years that there is not enough water available in the Colorado River Basin to meet the requirements of the Upper Basin States to deliver 7.5 million acre-feet to the Lower Basin States, CUP water will be threatened. Under Article IV of the Upper Colorado River Basin Compact:

In the event of curtailment of use of water by the States of the Upper Division at any time shall become necessary in order that the flow at Lee Ferry shall not be depleted below that required by Article III of the Colorado River Compact, the extent of curtailment by each State of the consumptive use of water apportioned to it by Article III of this Compact shall be in such quantities and at such times as shall be determined by the Commission upon the application of the following principles: [...] If any State or States of the Upper Division [...] shall have consumptively used more water than it was or they were [...] entitled to use under the apportionment made by Article III of this Compact, such State or States shall be required to supply at Lee Ferry a quantity of water equal to its, or the aggregate of their, overdraft of the proportionate part of such overdraft, as may be necessary to assure compliance with Article III of the Colorado River Compact, before demand is made on any other State of the Upper Division [...].

The compact makes clear that should Utah overdraw their Colorado River supply, they will have to supply an amount of water equal to the amount they overdrew to account for the difference. This means that other Colorado River water users in Utah, like the Central Utah Project, will have to sacrifice some of their supply. This will doubtlessly have a host of economic consequences and will cause harm to a number of Utahns.

Yet, these economic consequences were not considered in the DEIS and were not factored into the “cost-benefit” analysis conducted in Appendix C-23. Had this been done, it is plausible that either action alternative would have been found to be financially infeasible, again violating the BOR’s definition of what should be considered a reasonable alternative. It is also against the public’s interest to construct the LPP given that there is a reasonable chance that it will force other water users in Utah to forgo some of their water supply. Spending billions on a capital infrastructure project that fundamentally threatens existing infrastructure that has been built and funded by Congress makes little sense. The DEIS’s failure to analyze these socioeconomic impacts violates NEPA, and the FEIS must fully analyze these socioeconomic impacts.

II.G The project proponents have not conducted any climate change studies to determine whether the Colorado River is a secure source of water for the Lake Powell Pipeline

The LPP requires that Utah's share of the Colorado River be large enough throughout the operating lifetime of the pipeline to be used to its full capacity. If Utah's Colorado River water supply were to shrink, as numerous scientists and the BOR predict it will, then there may not be enough water to utilize the pipeline. In such a situation, the residents of Washington County would be stuck paying off the debt for a multi-billion-dollar water pipeline from which they are not receiving any water.

To avoid this catastrophe, it is necessary to rigorously demonstrate that the Colorado River can support the LPP prior to developing the project. However, the Utah Division of Water Resources has not conducted any official study (peer-reviewed or otherwise) which attempts to understand climate change's effects on Utah's water supplies. Furthermore, the agency has authored no evidence that shows that the Colorado River can support the Lake Powell Pipeline.

This is not just irresponsible planning by the DWRe but an example of how ill-prepared they are to deal with the effects of climate change. Their unwillingness to study and addresses the serious ramifications that climate change will have on Utah's water supply demonstrates a failure in leadership, especially when other similar water management agencies in other states have published multiple studies examining nearly every aspect of climate change's impact to their water supplies.

Listed here are a few of the studies conducted or contracted by other water managers in the CRB. This is far from an exhaustive list. Colorado River Basin states, with the exception of Utah, have published many more peer-reviewed study and official reports than shown here. For example:

- Arizona Department of Water Resources. (2014). Arizona's Next Century: A Strategic Vision for Water Supply Sustainability.
- Arizona Department of Water Resources. (2019). Arizona Drought Preparedness Annual Report.
- Baker, E., Ekstrom, J., and Bedsworth, L. (2018) Climate information? Embedding climate futures within social temporalities of California water management. *Environmental Sociology* <https://doi.org/10.1080/23251042.2018.1455123>

- Colorado Water Conservation Board. (2019). Colorado River Availability Study Phase II Task 7: Climate Change Approach and Results.
- Ekstrom, J. A., Klasic, M. R., Fencl, A., Lubell, M., Baker, E., & Einterz, F. (2018). Drought Management and Climate Adaptation of Small, Self-Sufficient Drinking Water Systems in California.
- Ekstrom, JA, Bedsworth, L, and A Fencl. 2017. Gauging preparedness to managing drinking water quality for climate change in California. *Climatic Change* 140: 467. doi:10.1007/s10584-016-1870-3 <https://link.springer.com/article/10.1007/s10584-016-1870-3>
- Environmental Protection Agency. “Southern Nevada Water Authority Assesses Vulnerability to Climate Change.” <https://www.epa.gov/arc-x/southern-nevada-water-authority-assesses-vulnerability-climate-change>
- Gordon, E., & Ojima, D. (2015). Colorado climate change vulnerability study. Report by the University of Colorado Boulder and Colorado State University to the Colorado Energy Office.
- Green Nysten, N., Kiparsky, M., Owen, D., Doremus, H., & Hanemann, M. (2018). Addressing Institutional Vulnerabilities in California’s Drought Water Allocation, Part 1: Water Rights Administration and Oversight During Major Statewide Droughts, 1976–2016.
- Green Nysten, N., Kiparsky, M., Owen, D., Doremus, H., & Hanemann, M. (2018). Addressing Institutional Vulnerabilities in California’s Drought Water Allocation, Part 2: Improving Water Rights Administration and Oversight for Future Droughts.
- Herman, J., Fefer, M., Dogan, M., Jenkins, M., Medellín-Azuara, J., & Lund, J. R. (2018). Advancing Hydro-economic Optimization to Identify Vulnerabilities and Adaptation Opportunities in California’s Water System: A Report for California’s Fourth Climate Change Assessment. California Natural Resources Agency.
- Lukas, J., Barsugli, J., Doesken, N., Rangwala, I., & Wolter, K. (2014). Climate change in Colorado: a synthesis to support water resources management and adaptation. University of Colorado, Boulder, Colorado.
- Schwarz, A., Ray, P., Wi, S., Brown, C., He, M., & Correa, M. (2018). Climate change risks faced by the California Central Valley water resource system. California’s Fourth Climate

Change Assessment. Publication number: CCCA4-EXT-2018-001 https://www.energy.ca.gov/sites/default/files/2019-07/Water_CCCA4-EXT-2018-001.pdf.

- Wang, J., Yin, H., Reyes, E., Smith, T., & Chung, F. (2018). Mean and Extreme Climate Change Impacts on the State Water Project. California's Fourth Climate Change Assessment. Publication Number: CCCA4-EXT-2018-004.
- Water Utility Climate Alliance. (2016). 2017-2021 Strategic Plan.

Despite having conducted no studies, the DWRe still claims that the Colorado River is a reliable source for the LPP. Climate change will decrease flows in the Colorado River somewhere between 9% and 30%, although recent studies suggest the true decrease is closer to the latter end of this range. These flow decreases will drive demand-supply imbalances, quickly drop elevations in Lake Mead and Lake Powell to critical levels, steadily increase the likelihood that the Upper Basin violate the 1922 Colorado River Compact by failing to supply the Lower Basin with 75 MAF over a 10-year period and deplete Utah's Colorado River allocation to the point where they will be overdrawing water.

Utah code section 73-3-8(1)(a)(i) requires sufficient unappropriated water for the proposed appropriation or change. In other words, Utah law says that there must be enough unused water in the Colorado River for the LPP. Without having studied this topic, the DWRe cannot claim that there is enough water for the LPP.

III. The DEIS's alternatives analysis violates NEPA because the Provo Office of the Bureau excluded reasonable alternatives from detailed study

NEPA requires agencies to analyze the "alternatives to the proposed action" in an EIS.¹⁶² The alternatives analysis is the "heart" of an EIS and the NEPA process, as it requires an agency to analyze less environmentally damaging alternatives to the proposed action.¹⁶³ An agency must "[r]igorously explore and objectively evaluate all reasonable alternatives," and briefly discuss why it eliminated alternatives from detailed study.¹⁶⁴

¹⁶² 42 U.S.C. § 4332(2)(C)(iii).

¹⁶³ 40 C.F.R. § 1502.14; *see also Or. Natural Desert Ass'n v. Bureau of Land Mgmt.*, 625 F.3d 1092, 1122 (9th Cir. 2010) ("The touchstone for courts reviewing challenges to an EIS under NEPA is whether an EIS's selection and discussion of alternatives fosters informed decision-making and informed public participation." (internal quotation marks omitted)); *New Mexico ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 708 (10th Cir. 2009) ("The 'heart' of an EIS is its exploration of possible alternatives to the action an agency wishes to pursue.").

¹⁶⁴ 40 C.F.R. § 1502.14.

The alternatives analysis for the Lake Powell Pipeline DEIS is flawed in numerous ways and violates NEPA. The only two alternatives that the DEIS examined in detail both involved construction of the Lake Powell Pipeline, with only relatively minor differences in where the pipeline would be located. This narrow alternatives analysis violates NEPA because there are other feasible and reasonable alternatives that would achieve the overarching purpose of meeting Washington County’s future water demands. The DEIS should have analyzed a water conservation alternative to the Lake Powell Pipeline because conservation is a feasible and proven method for meeting Washington County’s future water demand. Yet the Bureau unreasonably dismissed conservation alternatives because they would not satisfy the DEIS’s overly narrow purpose and need statement. In addition, the DEIS should have analyzed how converting agricultural water to municipal use, utilizing secondary water supplies, and eliminating inefficient property tax subsidies would collectively meet Washington County’s future water demands.

III.A The DEIS should have included a water conservation alternative to the Lake Powell Pipeline

III.A.1 The DEIS improperly excluded the No Lake Powell Water Alternative and the Local Waters Alternative from a detailed analysis

The range of alternatives that the Provo Office of the Bureau must analyze in the Lake Powell Pipeline EIS is determined by the agency’s objectives for the project.¹⁶⁵ Accordingly, the purpose and need statement determines which alternatives an EIS should consider in detail. Courts, however, have explained that when preparing an EIS, agencies cannot define the purpose and need of a project “so narrowly as to preclude a reasonable consideration of alternatives.”¹⁶⁶ As one court has noted, “[i]f the agency constricts the definition of the project’s purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role.”¹⁶⁷

The overarching purpose of the Lake Powell Pipeline is to secure an adequate water supply that will meet Washington County’s future water needs. The purpose and need statement, however, is much narrower than that and would eliminate essentially any alternative to supply water to Washington County except the Lake Powell Pipeline. In fact, page 12 of the DEIS, explicitly notes that the Provo Office of the Bureau only

¹⁶⁵ *New Mexico*, 565 F.3d at 709.

¹⁶⁶ *Wyoming v. U.S. Dep’t of Agric.*, 661 F.3d 1209, 1244 (10th Cir. 2011) (quoting *Citizens’ Comm. to Save Our Canyons v. U.S. Forest Serv.*, 297 F.3d 1012, 1030 (10th Cir. 2002)); see also *Nat’l Parks & Conservation Ass’n v. Bureau of Land Mgmt.*, 606 F.3d 1058, 1072 (9th Cir. 2009) (agency cannot “craft a purpose and need statement so narrowly drawn as to foreordain approval of the [proposed project]”).

¹⁶⁷ *Simmons v. U.S. Army Corps of Eng’rs*, 120 F.3d 664, 666 (7th Cir. 1997)

considered an alternative to be reasonable if it satisfied this narrow purpose and need statement. This overly narrow purpose and need statement caused the Provo Office of the Bureau to eliminate otherwise reasonable alternatives.

One alternative to the Lake Powell Pipeline that the DEIS should have analyzed in detail is a water conservation alternative. Washington County consumes an unusually large amount of water per capita, and water conservation is a proven method in other arid cities to meet water demand. Moreover, there were two specific water conservation alternatives proposed for the Lake Powell Pipeline: the No Lake Powell Water Alternative proposed by FERC and the Local Waters Alternative proposed by Western Resource Advocates. Yet, Provo Office of the Bureau dismissed this alternative because it would not meet the narrowly drawn purpose and need statement. This is a textbook example of an agency violating NEPA by “defining-away . . . alternatives” through an overly narrow purpose and need statement.¹⁶⁸

Tellingly, when BOR eliminated the No Lake Powell Water Alternative from detailed study it stated that “[t]his alternative would satisfy water demands for the Proposed Project.”¹⁶⁹ But BOR went on to state that it eliminated the alternative because “[i]t would not diversify the water supply because Washington County would not have a second secure, reliable water source outside of the Virgin River Basin, as described in the purpose and need statements and Project Proponents’ objectives.”¹⁷⁰ In other words, the BOR acknowledges that Washington County can meet its growing water demand without using any water from Lake Powell, thereby meeting the true purpose of the project. Yet, the BOR refused to include this alternative for detailed study in the DEIS on the basis that the water provided from this alternative would not come from outside the Virgin River Basin. This, as is described elsewhere, is a ridiculous requirement for a water project. It effectively eliminates any non-pipeline alternative from being considered even if that alternative can securely and reliably meet projected water demands. Moreover, even if water conservation alone would not meet all of the future water needs of Washington County, it would not justify excluding a water conservation alternative from the alternatives analysis. Courts have recognized that agencies must consider alternatives that would not achieve all of a project’s goals when the alternative, in conjunction with other measures, would collectively achieve the goals.¹⁷¹

In making this statement, the Provo Office of the BOR is effectively arguing that of all the many communities inside both the upper and lower portions of the Colorado River Basin, it is only Washington County that needs a second water source. This is a

¹⁶⁸ *Id.*

¹⁶⁹ LPP DEIS, page 14

¹⁷⁰ LPP DEIS, page 14

¹⁷¹ *Davis v. Mineta*, 302 F.3d 1104, 1120-21 (10th Cir. 2002).

fantastical claim since the DEIS offers no explanation or justification as to why among all the possible new diversions of the Colorado River it is only Washington County that deserves a transbasin diversion of Colorado River water, while other communities with more serious water needs and future water demands should not have additional water sources to diversify their water portfolios.

Inside Washington County, a variety of other combinations of existing water sourcing alternatives, including an array of meaningful water conservation programs and measures, could easily provide water for Washington County's future. Yet if the Provo Office is intent on ignoring these local water sourcing alternatives in favor of building a transbasin water diversion via the Lake Powell Pipeline, it should explain why a transbasin water project is necessary if it is not for the future need for water.

Given the impacts caused by climate change and its reduction in snowpack depths and water flow quantities occurring on the Colorado River, which are reducing the water supplies of the basin, we question why the Provo Office would propose a new transbasin water diversion in which the water isn't needed by the recipient community in question. If the Provo Office believes that the purpose of the Lake Powell Pipeline is to provide Utah with more water under the Colorado River Compact, then it should state that in the DEIS. If the Provo Office believes that the purpose of the Lake Powell Pipeline is to develop water supplies to keep lower basin states from "using Utah's share of Colorado River water" as many Utah legislators have openly claimed, it should state that purpose clearly in the DEIS. If the Provo Office is proposing the Lake Powell Pipeline for some other purpose besides using water inside Washington County, that purpose needs to be clearly stated in the DEIS.

The BOR also eliminated the No Lake Powell Water Alternative due to claims that the alternative may not be technically feasible.¹⁷² However, the feasibility concerns raised by the BOR for this alternative are mostly speculative. It is unreasonable for the BOR to eliminate a valid alternative from detailed study in the DEIS on claims that the alternative *may* be infeasible. The alternative should have been studied in the DEIS with a detailed explanation as to why utilizing perfected, existing water rights currently available in Washington County constitute an infeasible use of water. The BOR should have included the No Lake Powell Water Alternative and/or the Local Waters Alternative in the DEIS's alternatives analysis and studied those water conservation alternatives in detail.

This failure to consider a conservation alternative is particularly problematic because the DEIS impermissibly limited the alternatives analysis to essentially one alternative

¹⁷² DEIS, page 14

to supply water to Washington County: the Lake Powell Pipeline. When a feasible alternative exists, an agency cannot structure its alternatives analysis so that the only alternative it considers is effectively the proposed alternative.¹⁷³ Yet that is precisely what the Provo Office of the Bureau has done with the Lake Powell Pipeline DEIS. For the same reasons that the Provo Office of the Bureau concluded that a conservation alternative would not accomplish the purpose and need of the project, the no action alternative would likewise not achieve the project's purpose. For example, under the no action alternative WCWD would pursue other water projects that would not provide a second water supply source for Washington County outside the Virgin River Basin. Therefore, the DEIS's alternative analysis is limited to the Southern Alternative and the Highway Alternative for the Lake Powell Pipeline.¹⁷⁴ But both of these alternatives involve constructing the Lake Powell Pipeline, and the only difference between the two is the location of the pipeline. Consequently, Provo Office of the Bureau presents the possible choices here as the Lake Powell Pipeline with one pipeline route, or the Lake Powell Pipeline with a slightly different pipeline route. This outcome determinative analysis violates NEPA, as the DEIS excluded other feasible means for supplying water to Washington County, including water conservation.

III.A.2 Water conservation is a feasible and proven method for meeting Washington County's future water needs

The Provo Office of the Bureau failed to consider the many water conservation programs, incentives and efficiency measures which could significantly lower water demand inside Washington County as a viable alternative, or combination of alternatives, to the proposed Lake Powell Pipeline in the DEIS. Thousands of water suppliers across the United States, and for that matter across the globe, have implemented water conservation and efficiency programs which have greatly reduced water demand among their customers, reduced utility operating expenses, lowered operation and maintenance costs and reduced water rates for customers over the long term by avoiding or deferring

¹⁷³ See, e.g., *Natural Res. Def. Council, Inc. v. Evans*, 232 F. Supp. 2d 1003, 1041 (N.D. Cal. 2002) (“[D]efendants acted arbitrarily in only considering in effect one alternative—the chosen one—and not considering a feasible alternative . . .”).

¹⁷⁴ Ironically, even the Southern Alternative and the Highway Alternative would not satisfy the overly narrow purpose and need statement. Both alternatives propose to divert approximately 86,000 acre-feet of water annually from the Colorado River. And as discussed elsewhere, climate change is quickly depleting flows in the Colorado River, thereby making it an insecure source of water. Modeling by the BOR demonstrates that, if built, the Lake Powell Pipeline would be unable to withdraw water at least once every four to five years. *Colorado River Basin Water Supply and Demand Study, Technical Report G*, Bureau of Reclamation (2012) https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20G%20-%20System%20Reliability%20Analysis%20and%20Evaluation%20of%20Options%20and%20Stategies/TR-G_System_Reliability_Analysis_FINAL.pdf. Additionally, the DEIS's analysis of the financial feasibility of either action alternative is methodologically flawed and excludes a number of large costs. This is discussed in depth in SECTION. If these methodological flaws were corrected and the missing costs included, the BOR would have found that the action alternatives are financially infeasible.

the need for additional water supplies. Among many water suppliers in the American West, demand management has become a major component of their operations which include an array of sophisticated water conservation measures designed to reduce the water use of their customers. U.S. per person water use has declined significantly in the last several decades because of the popularity of water conservation programming.

Some members of the water development industry in Utah are seeking large construction contracts from the LPP for their pecuniary business interests and thereby often discourage and downplay the many financial benefits of water demand reduction policies. Acknowledging this financial interest is meritorious, particularly by federal agencies which are charged with making policy decisions which benefit the public interest and not exclusively a handful of construction companies. Whether the Provo Office of the Bureau has rejected any and all water conservation and efficiency alternatives from the LPP DEIS out of ignorance of the water utility business or whether it was done out of a preference to support construction interests, this rejection of any combination of water conservation and efficiency alternatives in the DEIS is capricious and arbitrary and should be rectified in the FEIS.

The American Water Works Association (AWWA), is an international non-profit, scientific and educational association founded to improve water quality and supply. Founded in 1881, the AWWA is the largest organization of water supply professionals in the world. Their membership includes over 4,300 utilities that supply roughly 80 percent of the nation's drinking water.

The AWWA's Manual 52, *Water Conservation Programs, A Planning Manual*, lists a comprehensive overview of why water conservation should be considered by utilities and water planning agencies. It is the foremost publication in the world regarding water conservation. The manual provides peer reviewed insight on conservation, setting goals, water use & water savings, and program planning & execution that is used by cities and towns around the world because as stated on page 3:

*Conservation, implemented as a long-term water management practice, is fiscally responsible and can enhance our ability to grow.*¹⁷⁵

The Provo Office's rejection in the LPP DEIS of any water conservation program and efficiency measures from further consideration is fiscally irresponsible. AWWA begins

¹⁷⁵American Water Works Association. *Water Conservation Programs – A Planning Manual (M52)*, December 2017. Retrieved from https://www.awwa.org/Portals/0/Awwa/Publishing/Manuals/M52%20ed2%20_withErrataLookInside.pdf?ver=2020-01-07-110651-213

their 217-page manual with 13 case studies comparing water conservation programs across the United States and Canada.

On page 4, the AWWA notes the reasons why water conservation programs should be implemented:¹⁷⁶

There are many reasons for water utilities to pursue wise water use and establish a water conservation program. The specific reasons will be different for each utility, and the appropriate level of conservation for a utility should be tailored to local needs.

There is a broad array of reasons to pursue efficient water use, for example:

- **Cost savings:** Lowering water production and/or distribution costs will save the utility and its customers (or ratepayers) money in reduced operating costs and possibly deferred capital costs. Conservation is often an important part of a least-cost future water supply plan.
- **Wastewater treatment and disposal benefits:** Reduction of indoor water use cuts wastewater flows, resulting in cost savings and lessened environmental impacts of treated wastewater disposal.
- **Environmental benefits:** Water removed from a water body for human use could be used for environmental or other purposes. For example, protection of endangered species often requires a reliable source of good quality water, which might be lessened by water withdrawals.
- **Competing beneficial uses:** In addition to the environment, water left in place could be used for agriculture, power production, recreation, aesthetic enjoyment, wildlife, and so on.
- **Water supply limitations:** Few places now enjoy unlimited water supplies. Water conservation can stretch existing supplies, whether supply is from groundwater or surface water.

¹⁷⁶ American Water Works Association. *Water Conservation Programs – A Planning Manual (M52)*, December 2017. Retrieved from https://www.awwa.org/Portals/0/Awwa/Publishing/Manuals/M52%20ed2%20_withErrataLookInside.pdf?ver=2020-01-07-110651-213

- ***Avoiding the need for new supply development:*** Developing new water supplies is often controversial, and those opposed to supply projects often declare a preference for conservation as an alternative.
- ***Utility stewardship and sustainability:*** Utilities that conserve water demonstrate leadership in resource management and are working towards a goal of sustainability. The same water resources can sustain enhanced economic activity.
- ***Energy savings:*** Reducing water production will save energy and reduce greenhouse gas emissions.
- ***Improved supply reliability:*** Conservation can reduce or postpone drought water use curtailments by essentially increasing supply (i.e. building a drought reserve).
- ***Customer benefits:*** Customers who conserve water may enjoy lower water bills and possibly lower wastewater and energy bills.
- ***Regulatory compliance:*** Some state regulatory agencies require water conservation plans and/or implementation progress to qualify for permits, grants, and loans. Some states have set per capita use reduction targets, which implies the need to increase conservation efforts.

Public perception: The public often insists on demonstrating efficient use of existing water supplies before supporting expansion of supplies to meet new water needs.

Water conservation is a viable alternative to new supply developments projects, such as the Lake Powell Pipeline. Water conservation can also save both the utility and customer (or ratepayer) money, especially in the long-run and when compared to billion-dollar project such as the Lake Powell Pipeline. The BOR must consider water conservation as a secure and reliable alternative to the Lake Powell Pipeline in the DEIS.

Washington County's water use is exceptionally high. According to the DEIS, the WCWD uses 302 gallons per person per day. This rate of use is more than twice the national average, twice the water use of Denver, and nearly three times the per person water use of Las Vegas, itself just 90 miles away from Washington County.

The BOR needs to analyze the potential of significant water conservation achievements in Washington County as an alternative to the Lake Powell Pipeline. If enough water could be conserved, then the project would not be necessary. We fear that the meager water conservation projections proposed by the Division have biased the Provo Office, thereby allowing all of the many water conservation alternatives to be rejected by this office in the LPP DEIS. The Provo Office of the Bureau is putting their foot on the scale for water development by accepting the Division’s faulty and bias data and reporting.

The Division and WCWD have developed a municipal water conservation goal for the Washington County area, in a document called the 2019 Report on Utah’s Regional M&I Water Conservation Goals.¹⁷⁷ The Washington County region is listed as the Lower Colorado River South region by the Utah Division of Water Resources in this document. The following table is taken from this plan, which lists gpcd levels for M&I water use among the various regions of Utah across future periods. These are the potential gpcd numbers under the "With All Aggressive Policy Options" scenario according to the table

Figure 30: Water Conservation Goals Report

Table 4-11: Total Potential M&I Water Use (gpcd) by Region – With All Aggressive Policy Options

Region	2015	2030	2040	2065
Bear River	304	236	221	212
Green River	284	226	215	213
Lower Colorado North	284	217	203	194
Lower Colorado South	305	246	232	222
Provo River	222	167	153	148
Salt Lake	210	177	169	161
Sevier River	400	307	284	281
Upper Colorado	333	254	236	228
Weber River	250	189	174	167
Statewide Average	240	190	178	171

The table below converts these water conservation levels for the Lower Colorado River South regions (LPP region) into annual water conservation rates for the 50-year period between 2015 and 2065. This demonstrate a total water use reduction target of 22% by 2065 for the Lower Colorado River South region. This translates into a yearly water demand savings of just 0.44% per year.

¹⁷⁷ Bowen Collins & Associates. *Utah’s Regional M&I Water Conservation Goals*. November 2019. Retrieved from <https://water.utah.gov/wp-content/uploads/2019/12/Regional-Water-Conservation-Goals-Report-Final.pdf>

Figure 31: Analysis of Water Conservation Goals

URC Analysis of 2019 Conservation Goals Report						
<i>Source: Division of Water Resources State Water Plan (Table on page ES-3)</i>						
Region	Baseline (gpcd) from 2015	2030	2040	2065	% Reduction Over 50 Years	% Reduction Per Year
Bear River *	304	249	232	219	28	0.56
Salt Lake *	210	187	178	169	19	0.38
Weber River *	250	200	184	175	30	0.60
Lower Colorado River South **	305	262	247	237	22	0.44
Green River	284	234	225	225	21	0.42
Lower Colorado River North	284	231	216	205	28	0.56
Provo River	222	179	162	152	32	0.64
Sevier River	400	321	301	302	24	0.48
Upper Colorado River	333	267	251	248	25	0.50
Statewide	240	202	188	179	26	0.52
<i>* Proposed \$2.5B Bear River Development Recipients</i>						
<i>** Proposed \$3.2B Lake Powell Pipeline Recipients</i>						

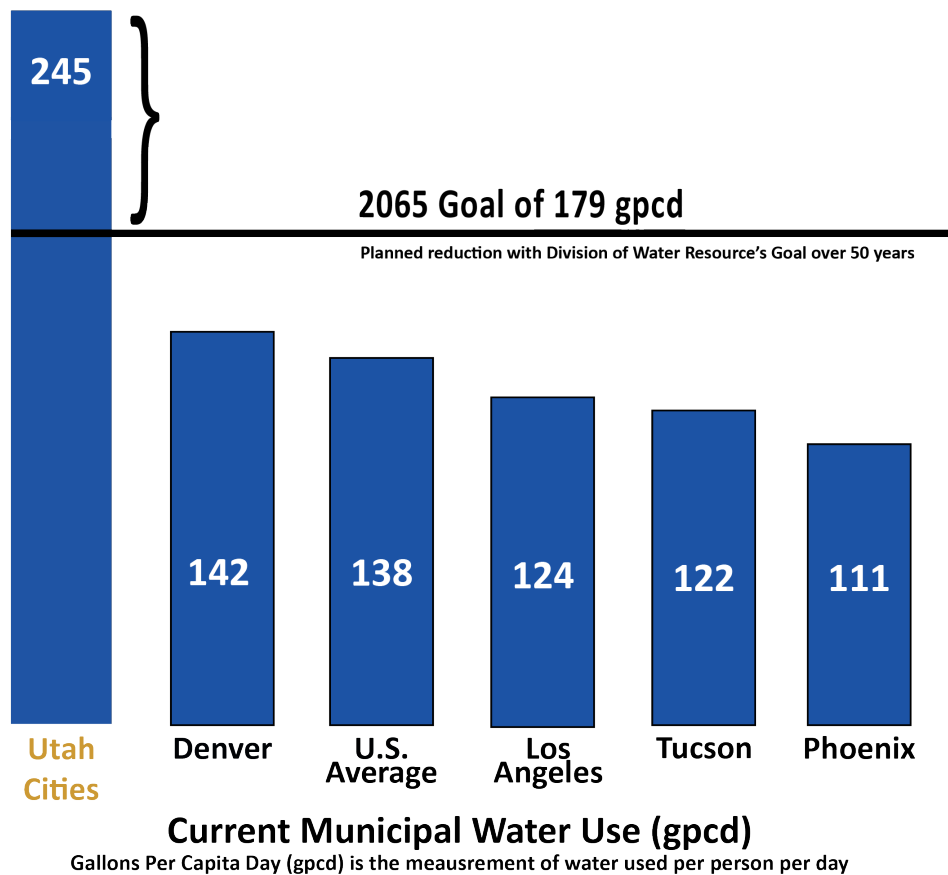
WCWD’s water conservation goals are far from aggressive compared to other western communities which have been able to achieve and reach ambitious water use reduction targets. The image below shows how western communities have achieved annual reductions in water use ranging from 2% per year up to 25% per year. Even 26 years ago, Albuquerque managed to reduce water use by 2.2% per year, in the year 1994. The BOR must address this level of water conservation programming and goal-setting for the Washington County area when preparing the FEIS.

Figure 32: Comparison of Utah's Water Conservation Goals to Actual Savings



Cities such as Phoenix, Albuquerque, Sacramento, Tucson, Denver, and Los Angeles have managed to save over 2% of water per year for several years. Some cities have saved well over that 2% number as in the case of Los Angeles from 2015 to 2017, which managed to save 7.5% per year. California as a whole managed to reduce water usage by 25% in a single year, five years ago. Yet the Division's methodology projects that, under the most aggressive possible water conservation, the Lower Colorado South region 45 years from now will still use nearly 81% more water than Tucson, Arizona used in 2019:

Figure 33: GPCD Comparison



However, despite the disappointing water conservation targets prepared by the Division, the Provo Office of the Bureau has taken it one step further and lowered the goals even further. The DEIS shows a 2075 water conservation target of 240 gpcd for Washington County. This represents a 21% decline in water use over a 60-year period, or a 0.34% annual reduction. It is preposterous to believe that this is the best water conservation goal that the WCWD can achieve.

Most notably, a 2019 Legislative Audit publicized that wholesale water rates in Washington County would have to rise 357% to pay for the Lake Powell Pipeline.¹⁷⁸ It is common knowledge, as described by the AWWA’s Manual 52, that as the price for water goes up, demand for water will decrease. The Provo Office of the Bureau is ignoring decades of published water supply practices and publications about market economics, to capriciously favor the Lake Powell Pipeline. Depending on the chosen elasticity rate, the 357% wholesale price increase could cause water demand to drop from 302 to 150 gpcd or less. These figures are significantly lower than both the forecasted 222 gpcd by the Division and 240 gpcd by the Bureau. We worry that the Provo Office of the Bureau has ignored basic economics or did not accurately and professionally project how the Lake Powell Pipeline’s repayment plan would reduce water demand enough to negate the need for this costly boondoggle.

As further evidence of how weak the Provo Office of the Bureau’s forecasts are, the table below lists a few examples of the many cities inside Utah that currently have water use lower than the 2075 Washington County projection of 240 gpcd. The data was sourced from Lake Powell Project applicant’s own website, the Utah Division of Water Resources, which lists water conservation plans produced by each of the cities listed below. All water suppliers below had a gpcd below 206 in 2017. When put in this light, the Provo Office’s projection that the WCWD use 240 gallons per person per day in 2075 is foolish.

Figure 34: 2017 Actual GPCD

Water Supplier	2017 Total GPCD
Salt Lake City	204
Provo City	176
Granger-Hunter	170
West Jordan	162
Ogden	189
Taylorsville-Bennion	154
Logan	192
Kearns	143
Jordan Valley Water District (retail)	158
Herriman	153
Pleasant Grove	205
Eagle Mountain	153
Tooele	154

¹⁷⁸ Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

Magna	125
Clearfield	149
Saratoga Springs	133
Midvale	144
Payson	150
Draper City	182
Santaquin	200
White City Water Improvement District	191
South Salt Lake	156
Vineyard City	79

If dozens of water suppliers in Utah have already surpassed the 2075 water conservation gpcd target from the Provo Office of the Bureau, how can these 2075 projections be considered aggressive in the slightest? How come the WCWD does not take water conservation advice from their peer water supply agencies across the West? Why does the Provo Office of the Bureau insist on ignoring successful water conservation programs and practices in the American West? Do the staff of the Provo Office share the same level of hostility to water conservation programs that the proponents of the Lake Powell Pipeline promote?

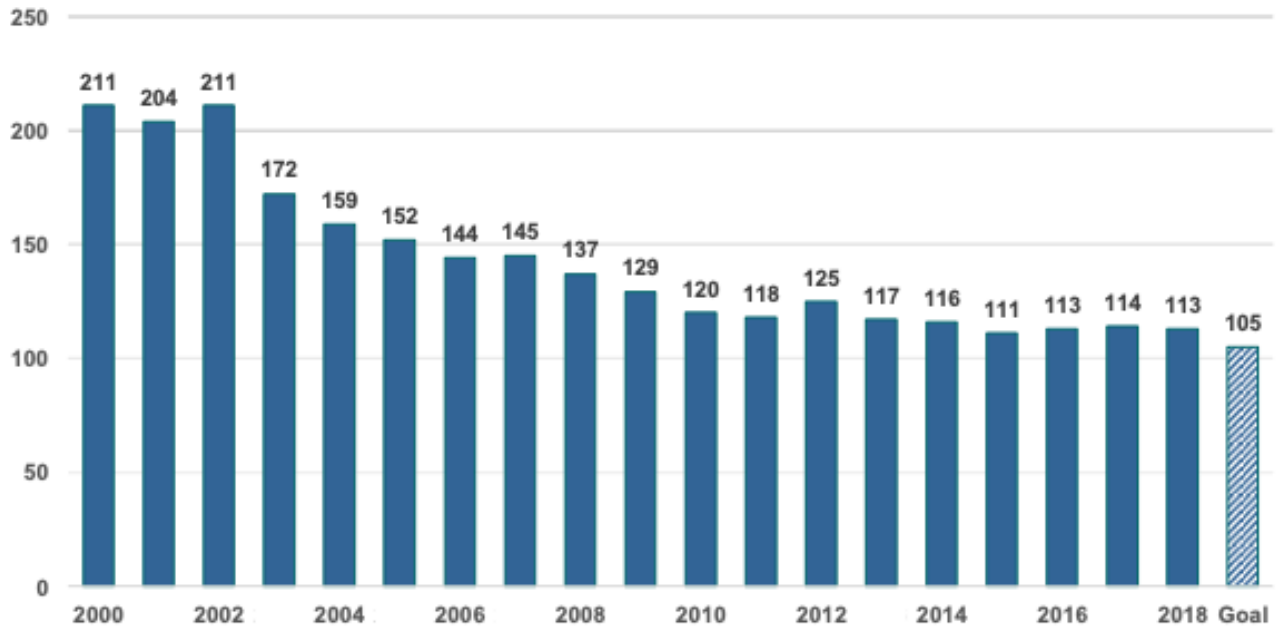
If WCWD could lower their water use to 149 gpcd, half their current use, they could support twice as many people and alleviate the need for the LPP, saving billions of dollars in the process. Combined with its existing water supply, the conversion of agricultural water, secondary metering and meaningful inclining water rate structures would easily provide enough water for the future of Washington County under any of its forecasted population growth scenarios. This alternative needs to be reviewed as an alternative to the Lake Powell Pipeline in the FEIS.

Just 90 miles away from St. George lies the growing metropolis Las Vegas, Nevada. In just 18 years, the Southern Nevada Water Authority has led credible conservation measures that have significantly reduced their water use. According to the chart below from their 2019 Joint Water Conservation Plan,¹⁷⁹ they have lowered their use from 211 gpcd in the year 2000, to just 113 gpcd in the year 2018, a 47% reduction. That’s a decline of over 100 gpcd in just 18 years and comes from a community that is geographically and climatically similar to Washington County. In half the time, the Southern Nevada Water Authority has saved double the amount of water than WCWD plans to save over a 45-year period.

¹⁷⁹ *Joint Water Conservation Plan*, Southern Nevada Water Authority (2019), page 43 Appendix 1 <https://www.snwa.com/assets/pdf/reports-conservation-plan-2019.pdf>

What’s more, two years ago Las Vegas used 63% less water than the WCWD uses today. Even more alarming, is the Provo Office’s projection that the WCWD will use 240 gpcd in the year 2075, which will still be 13% higher than Las Vegas’ water use of 211 gpcd in 2000. The Provo Office of the Bureau must explain in the FEIS why the WCWD will be 75 years behind a similar desert community’s water use that is a mere 90-miles away.

Figure 35: Southern Nevada Water Conservation Successes.



The LPP project proponents and the Provo Office of the Bureau have discredited valid conservation programs by falsely claiming that they would be “too costly” to implement. We find this deeply concerning as water efficiency and conservation is widely regarded as the cheapest source of water. As Peter Mayer expressed publicly, “the cheapest water source for a water supplier is the water it already manages.” The BOR must consider viable water conservation alternatives in the DEIS.

The true cost of water conservation can be easily seen in any of the many published works on water conservation economics. A trio of respected water researchers in California found that, once you consider savings to maintenance costs, water conservation not only saves consumers water, but saves them money as well. “*The cost of alternative urban supply and efficiency options in California*” by Heather Cooley, Rapichan Phurisamban, and Peter Gleick offers a good idea of the true financial benefits of water efficiency. This is peer-reviewed, published science that should be used in the Bureau’s analysis of potential water conservation Alternatives to the Lake Powell Pipeline in their FEIS.

Note that California uses far less water than Utah, so Utah likely has more low-hanging fruit for water conservation available. Therefore, the cost of water conservation in Utah is likely even cheaper than the figures in this paper. Despite starting at a much lower water use baseline than Utah, California was able to achieve far more aggressive water conservation than Utah as stated in Cooley's Report:

California has made considerable progress in implementing water conservation and efficiency, as seen in the decline in residential water use (including both indoor and outdoor) from 620 liters per person per day (lpcd) in 2000 to under 500 lpcd in 2010

When these numbers are translated to gpcd, this quote states that residential use dropped from 163 gpcd to 132 gpcd in 10 years. And as explained before, since 2010 California has become even more aggressive with saving water. To help explain the financial estimates of water conservation numbers given in the paper, Cooley assumes new, water-efficient devices would be purchased:

For most efficiency measures, we assume that the customer is in the market for a new device because the old device has reached the end of its useful life, referred to as natural replacement.

This concept of natural replacement is based on the idea that as appliances and fixtures wear out, the increased costs of replacement (if any) to more efficient devices are less of a detriment to adoption by consumers. Therefore, it is not the total costs of replacement for these fixtures which should be considered but the incremental costs as described by the following:

Annual water savings are then calculated as the difference in water use between the two options, multiplied by the estimated average frequency of use. The incremental cost is the cost difference between a new efficient and a new inefficient device and is based on price surveys of commercially available models.

In fact, water efficiency and conservation programs often save money and many have a negative cost. This occurs because:

Some efficiency measures have a 'negative' cost, which means that reductions in operation and maintenance expense that accrue over the lifetime of the device exceed the cost of the water efficiency investment. This is especially true for efficiency measures that save customers energy, but also for those that provide savings in labor, fertilizer or pesticide use, and reductions in

wastewater treatment costs—sometimes called ‘avoided costs.’ For example, a high-efficiency clothes washer costs more than a less-efficient model; however, over its lifetime it uses less energy and produces less wastewater than inefficient models, thereby reducing household energy and wastewater bills. Over the estimated 14-year life of the device, the reductions in energy and wastewater bills are more than sufficient to offset the cost of the more efficient model, resulting in a negative cost of conserved water.

The Bureau needs to estimate the potential consumer savings in maintenance with water-efficient devices and land conservation as part of their Water Conservation Alternative in the FEIS. Once those savings are included, Cooley’s Report shows that the costs for water conservation are extremely low, and if included in the Bureau’s FEIS, will likely show a comparison between the cost of Lake Powell Pipeline and water conservation. Below is a table from Cooley’s Report which details residential water conservation measures, converted from cubic meters and liters to acre feet and gallons.

Figure 36: Residential Water Conversion and Efficiency Measures.

Efficiency measure	Statewide water savings per year in acre-feet	Yearly water savings in gallons	Low end cost per acre-foot	High end cost per acre-foot
Toilet	291,857	4,755	-\$629	-\$197
		687	\$1,172	\$4,564
Showerhead	170,250	1,400	-\$3,022	-\$2,837
Clothes washer	267,536	7,133	-\$752	-\$185
Dishwasher	11,350	423	\$11,928	\$19,316
Landscape conversion	891,785 2,026,785	to 19 to 25 gallons per square foot	-\$4,552	-\$2,566
			\$580	\$1,456

Table 7 of Cooley’s Report also describes the costs of non-residential water conversation measures.

Figure 37: Non-Residential Water Conversion and Efficiency Measures.

Efficiency measure	Yearly water savings (gallons)	Low end cost per acre-foot	High end cost per acre-foot
Toilet	5,283	-\$678	-\$74
	766	\$1,813	\$6,525
Urinal	2,642	\$974	\$1,826
Showerhead	4,227	-\$3,034	-\$2,837
Faucet aerators	1,611	-\$1,221	-\$678
Pre-rinse spray valve	6,868	-\$1,715	-\$1,159
Medical steam sterilizer modification	449,100 to 660,430 gallons	-\$1,270	-\$1,221
Food steamer	52,834	-\$14,012	-\$13,457
Ice machine	12,944	-\$3,602	-\$1,122
Waterless wok	169,070	-\$1,048	-\$876
Clothes washer	36,984	-\$1,604	-\$1,122
Landscape conversion	19 to 25 gallons per square foot	-\$4,552	-\$2,566
		\$580	\$1,456
Rotary nozzle	2,087 to 3,963 gallons	\$197	\$1,036

The cost of landscape “conversion” for new development is estimated at \$22 per square meter. The cost of landscape conversion in existing development is estimated at \$54 per square meter. This is why two measures for landscape conversion are listed in the tables above.

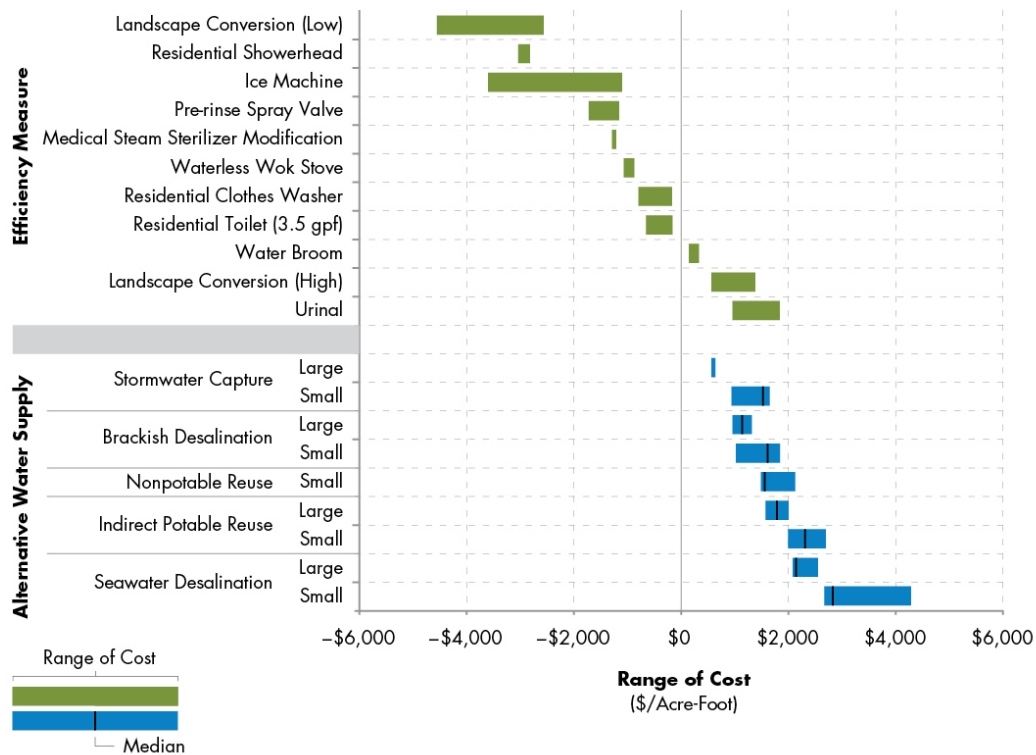
Not mentioned on these two tables is storm water capture. However, Cooley did estimate these costs as well in the paper. See the following:

Large stormwater capture projects are among the least expensive of the water supply options examined, with a median cost of \$0.48 per cubic meter.

The table below shows Cooley's estimates of water conservation costs. If included in the FEIS, it will clearly show the stark differences between the cost of water conservation versus the cost of new supply development, such as the Lake Powell Pipeline.

Figure 38: Cost of Water Conservation

Levelized Cost of Alternative Water Supply and Water Conservation and Efficiency Measures, in 2015 dollars per acre-foot



Notes: All values are rounded to two significant figures. Costs for water supplies are based on full-system cost, which includes the cost to integrate the supply into a water distribution system. Ranges for water supplies are based on 25th and 75th percentile of project costs, except for large stormwater projects, which include the full cost range of the two projects. Conservation and efficiency measures shown in this figure represent only a subset of the measures examined in this study due to space limitations. Cost ranges for water conservation and efficiency measures are based on varying assumptions about the incremental cost and/or water savings associated with a measure.

Figure from: Heather Cooley, Rapichan Phurisamban. (2016). *The Cost of Alternative Water Supply and Efficiency Options in California, Calif.*: Pacific Institute.



The BOR must conduct its own analysis, using peer-reviewed documents produced by impartial individuals and organizations on the cost and effectiveness of true water conservation efforts in their FEIS. An independent cost-benefit analysis of water conservation by an independent source versus the cost of building the Lake Powell Pipeline, also conducted by an independent source is what is needed to identify true alternatives in the FEIS process. That source should not be a hired lobbyist, marketing firm, or consulting firm employed by either the Washington County Water District or the Utah Division of Water Resources, ensuring the Bureau’s independence.

The BOR must not continue to source information from the Lake Powell Pipeline project applicant, the Division of Water Resources as their only reliable source. The applicant continues to hire outside firms to justify the need for Lake Powell Pipeline, however, these same firms will likely receive multi-billion dollar contracts to build the LPP on the Utah taxpayers dime and at the expense of Washington County ratepayers. This major conflict-of-interest is unfair to the taxpayers and to the future generations who will be saddled by debt for water projects they did not need.

The degree to which Utah residents, specifically in Washington County, are overusing water for their landscapes is very important and a topic Utah Rivers Council has examined for decades. Unfortunately, the DEIS overlooks this aspect as a potential alternative to the Lake Powell Pipeline.

Total efficiency is defined as irrigation efficiency multiplied by delivery efficiency. Delivery efficiency calculates how much water is lost in the transportation of water and the Bureau neglected to address this aspect of water delivery in the DEIS. Often times secondary water is delivered in open, unlined canals. These canals lose a great deal of water to seepage and evaporation. Water loss rates for unlined canals both for agricultural and secondary water uses, can be anywhere from 20 – 60% depending upon the soil type and terrain. If delivery efficiency is only 50%, then total efficiency is extremely low regardless of how high or low irrigation efficiency is.

The Division has claimed that irrigation efficiency in Southern Utah is currently 92% and projected to reach 99% in 2065. However, given the information above, it is highly unlikely that Washington County has achieved 92% irrigation efficiency. The district still has many unlined and open canals that are likely losing up to 50% of their water.

The Division explains that 100% efficiency is unlikely to be achieved and that drip-feed systems are more efficient than sprinkler systems, and we agree on both points. It may be challenging to pick an accurate figure for potential irrigation efficiency, but the Bureau must conduct its own independent analysis of the potential future water savings Washington County could achieve through irrigation efficiency. Agriculture makes up 70 – 80% of all water use in the county and has a massive potential to extend current water supplies for future growth.

Figure 39: Water Efficiency Claims by the DWRe

Table 4-6: Irrigation Efficiency

Baseline – Ratio of Efficiency to Best Expected				
	Current¹	2030	2040	2065
Wasatch Front/Population Centers	0.88	0.93	0.96	0.98
Wasatch Back/Rural Areas	0.82	0.90	0.94	0.98
Southern Utah	0.92	0.96	0.97	0.99
Policy Option E1 – Ratio of Efficiency to Best Expected				
	Current¹	2030	2040	2065
Wasatch Front/Population Centers	0.88	0.98	1.0	1.0
Wasatch Back/Rural Areas	0.82	0.97	1.0	1.0
Southern Utah	0.92	0.99	1.0	1.0

¹ DWRe records

We understand that the numbers in the table are an estimated ratio between current irrigation efficiency and potential irrigation efficiency. However, even as a ratio, the numbers the Division used don't make much sense and the Bureau would be wise to be cautious with other numbers provided by the Division. As shown earlier, with just mild policy changes, the water usage of some Southern Utah cities would go down dramatically. Yet the Division suggests that Southern Utah is 92% efficient. If cities in Southern Utah can achieve such massive water savings with moderate price increases, they clearly can significantly improve their irrigation efficiency and thus the data in this table is erroneous.

The high irrigation efficiency numbers are even more ridiculous in the context of secondary water in Utah. Unmetered secondary systems are so inefficient that merely metering these systems reduces water usage by 30%-50%. We have serious concerns about why secondary water inefficiency was not incorporated into an irrigation efficiency model as a potential alternative to the Lake Powell Pipeline by the Provo Office of the Bureau in the DEIS. The Bureau should include this as an Alternative to the Lake Powell Pipeline in their FEIS.

It is for these reasons, that the Bureau of Reclamation's Provo Office should include an independent analysis of the true water conservation potential in Washington County to satisfy future population growth, as a secure and reliable alternative to the Lake Powell

Pipeline. The Lake Powell Pipeline official applicant, the Division of Water Resources has shown a lack of integrity and professionalism in their 2019 Goals Report, which is a driving factor in their decision to build the Lake Powell Pipeline. The Bureau's DEIS's continued use of the project applicant's data demonstrates their inability to provide an independent analysis of the Lake Powell Pipeline, as required under NEPA regulations.

To prove the Provo Office of the Bureau's independence, they must include a Water Conservation Alternative in the FEIS that uses all available science and evidence of conservation working models that other nearby cities and states have implemented.

III.B The DEIS failed to consider as part of its alternatives analysis the conversion of agricultural water to municipal water supply in Washington County which would have negated any need for the proposed Lake Powell Pipeline

Washington County has a wealth of agricultural water that will be converted to municipal supplies as the county's population grows. The DEIS's alternatives analysis should have analyzed these agricultural water transfers, as they would meet the overarching purpose of supplying additional water to meet Washington County's future water demands. As future urban development replaces former agricultural lands, a surplus of water supply is created that was formerly used to irrigate crops. This growth in municipal water was documented in the 2015 Legislative Audit on Water in Chapter 4, titled *Growth in Future Water Supply Should Be Reported to Policy Makers*:

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.¹⁸⁰

This Chapter is pivotal to findings by the Auditors that the Division of Water Resources staff have intentionally been ignoring this growth in water supply occurring as irrigated farmlands are developed into urban lands:

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.¹⁸¹

¹⁸⁰ Legislative Auditor General. (2015). A Performance Audit of Projections of Utah's Water Needs (Report No. 2015-01).

¹⁸¹ Ibid.

The Provo Office acknowledges that some conversion will occur but drastically underestimates the extent to which these agricultural water conversions will occur. In the DEIS, the Provo Office assumes that only 10,080 acre-feet of water will be converted from agricultural to municipal use. This number greatly underestimates the scope of future water transfers which are certain to occur as farmland is unavoidably converted to new municipal landscapes in the wake of the 300,000 – 400,000 new people moving into Washington County as the Provo Office claims. The Provo Office is effectively ignoring a massive quantity of water as a future alternative, even though such agricultural water conversions are commonly occurring every day across Utah and the American West. The Provo Office appears to have eliminated this local water sourcing option to hide this vast quantity of future agricultural water conversions which will occur.

The 1993 State Water Plan for the Virgin River Basin (the most recent edition) reported that agricultural water use in Washington County was 87,800 acre-feet.¹⁸² Similarly, the 2017 Census of Agriculture states that in 2017 there were 12,984 irrigated acres in Washington County.¹⁸³ Furthermore, the 2016 Water Needs Assessment states that:

The portion of Washington County most likely to be developed has a duty value of 6 ac-ft per year per acre of irrigated land.¹⁸⁴

The duty amount is the multiplier used as designed by the Utah State Engineer to calculate water use conferred to beneficial use in Utah. Therefore, via simple multiplication, the rough amount of water used for irrigation in Washington County can be calculated:

$$12,984 \text{ acres} \times 6 \text{ acre-feet per acre} = 77,904 \text{ acre-feet}$$

This estimate aligns with data from the USGS that puts the Washington County's 2010 irrigated water use at roughly 87,000 acre-feet and their 2015 irrigated water use at roughly 55,000 acre-feet.¹⁸⁵

If Washington County's population expands as presented in the DEIS, that will lead to the development of much of this farmland. It has been estimated by the American

¹⁸² Utah Board of Water Resources. "Utah State Water Plan Kanab Creek/Virgin River Basin." (1993).

¹⁸³ USDA, National Agricultural Statistics Service. 2017 Census of Agriculture – County Data, Utah, Table 10. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Utah/st49_2_0010_0010.pdf

¹⁸⁴ *Final Water Needs Assessment*. Utah Division of Water Resources (2016). Pg. 2-15.

¹⁸⁵ United States Geological Survey. (2019). Water Use Data. Retrieved from <https://water.usgs.gov/watuse/data/index.html>

Farmland Trust that Utah loses 30 acres of farmland each day due to development from population expansion.¹⁸⁶ This will free up a significant portion of Washington County's 80,000+ acre-foot agricultural water supply.

But the Provo Office has refused to contemplate the vast amount of agricultural water that will be transferred to urban uses, including secondary water use, as a function of this population expansion. By intentionally ignoring this future farmland water conversions, the Provo Office of the Bureau has inappropriately narrowed the consideration of viable alternatives for the Lake Powell Pipeline. Transferring agricultural water to municipal use, in conjunction with the other measures discussed in this section, would achieve the project's overarching goal of meeting Washington County's future water demand. The DEIS should therefore have fully analyzed this alternative to the Lake Powell Pipeline.¹⁸⁷

III.C Washington County is ignoring rampant waste within municipal systems, which if addressed through inexpensive efficiency programs could eliminate the need for the Lake Powell Pipeline water

In the DEIS, the Provo Office of the Bureau provided a figure displaying projections for WCWCD's future water requirements. Included in the figure, in the 4th column, was the total amount of water that is lost annually (system loss) in Washington County's water infrastructure delivery systems. Interestingly, in the 60 years of future data that is reported in the DEIS chart, the 15.4 percent total system loss does not change. This means that there is no effort to address a very high system loss throughout the 60 year period. The fact that both the WCWCD and the Provo Office of the Bureau accept this system loss as status quo for more than 6 decades is disturbing. Both the WCWCD and the Provo Office of the Bureau are admitting that the WCWCD is making no effort to reduce high levels of water waste within their infrastructure systems.

¹⁸⁶ American Farmland Trust. "Farms Under Threat: the State of the States" (2020). https://s30428.pcdn.co/wp-content/uploads/sites/2/2020/05/AFT_FUT_StateoftheStates-1.pdf

¹⁸⁷ *Davis*, 302 F.3d at 1120-21.

Figure 40: System loss as presented in the DEIS

Table 6.2-1 Future Water Requirements for Washington County Water Conservancy District

Year	WCWCD Service Area Population - Baseline Projection (calculated using the Gardner estimate multiplied by UDWRe system ratio)	GPCD per Applied Analysis that includes 20% conservation	System loss from Applied Analysis model	Demand (acre-feet) with System Loss
2015	151,360	302	0.154	59,038
2020	182,689	296	0.154	69,791
2025	214,408	283	0.154	78,483
2030	246,338	271	0.154	86,370
2035	280,731	260	0.154	94,289
2040	314,199	250	0.154	101,326
2045	348,064	240	0.154	107,999
2050	383,226	240	0.154	118,909
2055	420,257	240	0.154	130,399
2060	458,960	240	0.154	142,408
2065	500,349	240	0.154	155,250
2070	545,470	240	0.154	169,251
2075	594,660	240	0.154	184,513

Key:

GPCD = gallons per capita per day

UDWRe = Utah Division of Water Resources

WCWCD = Washington County Water Conservancy District

Per their own data, the WCWCD is losing 10,747 acre-feet of water in 2020 and by 2075, the agency would lose an estimated 28,415 acre-feet of water annually. In making their water systems more efficient and reducing leaks, WCWCD and other local water suppliers have the potential to save up to 28,000 acre feet of water annually by 2075. To put this number into context, it is exactly 1/3 of the 86,000-acre foot allocation from the Lake Powell Pipeline. Saving 28,000 acre feet of water would help Washington County meet future water needs and, if combined with other water saving strategies described in these comments, could easily avoid the need to spend billions of dollars to develop the risky Lake Powell Pipeline.

The American Water Works Association, the AWWA, is one of the largest water trade organizations in the world. The AWWA has developed a software system that can analyze and detect inefficiencies within municipal water systems to eliminate water waste, like what is identified in this table in the DEIS. Implementing this industry standard technology that identifies waste and leaks would easily help Washington County reduce

their very high 15.4 percent total system loss within their water systems through an inexpensive investment to the ratepayer.

This technology has been implemented in communities across Utah and the U.S. with great success. In the 2020 Utah Legislature, House Bill 40 (HB 40) would have implemented this AWWA software across Utah. By using this technology to find and fix leaks within municipal water systems, the bill would have saved between 26,000 – 40,000 acre-feet of water annually for an initial cost of \$1.5 million and \$300,000 for subsequent years. Washington County Water Conservancy District lobbyists opposed this legislation and the bill did not advance in its original intent.

As evidenced above, Washington County is a prime candidate for this software technology that would help to eliminate the 15.4 percent total system loss and would help to extend WCWCD's current water supply. Eliminating this total system loss helps WCWCD avoid the need to spend billions on future development projects. Rather than assuming that WCWCD's profligate total system loss is unavoidable for over six decades, the Provo Office of the Bureau must consider waste saving technologies like the one introduced in HB40 as an alternative to the Lake Powell Pipeline and give these systems an adequate and thorough review.

III.D The DEIS's alternatives analysis should have analyzed how utilizing secondary water supplies would provide additional water to Washington County

In 2011, the WCWD delivered over 26 billion gallons (nearly 80,000 acre-feet) of secondary water, accounting for roughly 80 percent of water delivered by the District.¹⁸⁸ This is problematic because secondary water use is especially wasteful.

Secondary water systems utilize the surplus irrigation water left over after farmlands are converted to municipal landscapes. These systems allow residents to irrigate grass with untreated water sources through either pressurized sprinkler systems or by flood irrigation. Using secondary water to irrigate lawns and gardens encourages overuse because these systems are generally unmetered and the water is offered at a low flat annual rate. In the WCWD, for example, a resident with a 0.5-acre lot can use an unlimited amount of secondary water for just \$130 per year.¹⁸⁹ Much like an all-you-can-eat buffet, a flat fee leads to water waste.

¹⁸⁸ WCWD. *Water Line*. Spring 2012 edition.

¹⁸⁹ WCWD. Toquerville Secondary Water System: Fee Schedule 2020. <https://www.wcwc.org/wp-content/uploads/2020/05/2020-TSWS-Fee-Schedule.pdf>

This is because the annual fee allows secondary water users to use as much water as they access through their delivery system and often times these users have no meters to measure water volumes used. When polled, secondary users are often aware of their over-use, and justify it by noting that “they have already paid for this use” in the annual fee and therefore have already been incentivized to use as much as they can to recoup their investment. It is not uncommon for these secondary users to be flood-irrigating grass which is a notoriously inefficient use of water, as many BOR efficiency experts know. These users may use anywhere between 50 – 100% more water than they need, according to a study prepared by the sponsor of the Lake Powell Pipeline, the Utah Division of Water Resources.

Another reason why secondary water users may waste large volumes of water is because their use can cost as little as 10 – 50 cents per thousand gallons, as paid in their annual water use fee. This means these users are paying a value far below market value for this precious water. Yet the Provo Office failed to evaluate any of the range of options which could lower the wastefulness of secondary water users, including through the use of simple pricing structures.

A 2015 legislative audit criticized the lack of good data surrounding secondary water use totals, highlighting that the state has to rely on crude estimates for current secondary water use totals. In fact, the Auditors found that when attempting to quantify secondary water use, the Division of Water Resources simply guessed.

Because most secondary water use is unmetered, the division relies on its staff to estimate the amount of secondary water used in each community. This practice means about 23 percent of the water use reported by the Division is not based on actual data but on staff estimates.¹⁹⁰

Simply installing meters on secondary water systems and informing users about the real quantity of water they are using has the potential to reduce Washington County water use substantially. A research project published by Endter-Wada et al at Utah State University, funded in part through a grant from the BOR, found that installing meters on end secondary water users has the potential to greatly lower water demand and provide water for new uses. This lengthy research project found that secondary metering is a low cost mechanism that can lead to huge water savings.¹⁹¹ The researchers installed meters

¹⁹⁰ Legislative Auditor General. (2015). A Performance Audit of Projections of Utah’s Water Needs (Report No. 2015-01).

¹⁹¹ Endter-Wada, J., D.T. Glenn, C.S. Lewis, R.K. Kjelgren, and C.M.U. Neale. 2013. *Water User Dimensions of Meter Implementation on Secondary Pressurized Irrigation Systems*. Research Report for Weber Basin Water Conservancy District and the US Bureau of Reclamation. April 2013. 75 pages.

on hundreds of secondary water connections in the Weber Basin and sent each participant a monthly summary of use and a comparison of their use to the local average. Water use declined by an average of 25 percent on the metered connections without any mandate to curtail use or increase in secondary water rate prices.

The study showed that metering secondary sources and informing residents of their use decreases secondary water consumption substantially. The cost to equip all secondary water systems in the district with meters would fall between \$20 - 100 million, a nominal fee in comparison to the multibillion dollar price tag of the Lake Powell Pipeline. Since the Provo Office has ignored the quantity of secondary water users inside Washington County it is hard to make a more detailed cost estimate, and the costs to install secondary meters could be less than this figure.

Several bills have been run at the Utah Legislature to phase in meters on secondary systems but secondary water users inside Washington County have worked to oppose these measures. This is unfortunate because simply by understanding how much secondary water is being used gives water suppliers a wealth of information that they can use to make secondary water systems more efficient.

Installing meters is a low-cost option for the WCWCD to extend their current water supply and to make their secondary systems more efficient. Saving 25 percent annually could free up 20,000 acre-feet of water, saving 50% of the secondary water volume annually could free up an additional 40,000 acre-feet of water. These savings do not consider how much water could be saved if this secondary water was also delivered and priced to end users based on the volume of water used through an inclining block rate structure instead of through an annual fee. A progressive block rate structure could add an additional water waste reduction of between 20-50% on top of these figures, which translates into another 15,000 - 40,000 acre-feet of additional water that could be saved through simple conservation measures.

To summarize, if the secondary water use sourcing was adequately addressed by the Provo Office of the Bureau, it is likely that some 35,000 – 60,000 acre-feet of additional water could be provided through modernizing the secondary water system inside Washington County. Metering secondary water users could clearly alleviate the need for the Lake Powell Pipeline, particularly if it is combined with other local water sourcing alternatives currently available inside Washington County. This alternative would dramatically extend the water supply of Washington County, deferring the need to construct the Lake Powell Pipeline and saving billions of dollars in future spending, avoiding the need for future water rate increases to municipal water users, and avoiding the pipeline cost indebtedness of Washington County residents and businesses during

this pandemic economy. This alternative needs to be considered by the Provo Office of the Bureau.¹⁹²

III.E The DEIS's alternatives analysis should have analyzed how Washington County could save a large amount of water by eliminating inefficient property tax subsidies

Most water conservancy districts in Utah bring in a large percentage of their revenues from property tax collections. These tax revenues are in addition to revenues earned from water sales and impact fees. Financial statements acquired from the State Auditor's office show 21 out of 24 water conservancy districts collect property taxes from taxpayers. The other three water districts do not have audited financial statements and may therefore be inactive government agencies. All of the 21 financial statements analyzed showed that Utah water districts made more money collecting property taxes than they did selling water.

Because water wholesalers in Utah make over half of their revenues from property taxes and impact fees, they are not as reliant on water sales to support their operations. This enables them to charge below-market prices for water. Consequently, the true cost of delivering water is not represented in residents and businesses water bills.

Several state agencies acknowledge this subsidy. The Division of Water Resources admits that the true price of water is being distorted, as stated in their 2010 report, *The Cost of Water in Utah*:

*For customers, this means lower monthly water bills but does somewhat distort the true cost of water, because the property tax is collected separately.*¹⁹³

The Legislative Auditor General's Office also confirmed this subsidy in their 2015 Audit, *A Performance Audit of Projections of Utah's Water Needs*:

*Pricing water below cost prevents normal market forces from taking effect; no strong pricing signal leads consumers to use the resource efficiently.*¹⁹⁴

Property tax collections by Utah water districts are perpetuating Utah's water waste cycle by subsidizing and distorting the true price of water to consumers.

¹⁹² *Davis*, 302 F.3d at 1120-21.

¹⁹³ Utah Division of Water Resources. (2010). *The Cost of Water in Utah: Why Are Our Water Costs So Low?*

¹⁹⁴ Legislative Auditor General. (2015). *A Performance Audit of Projections of Utah's Water Needs* (Report No. 2015-01).

Because wholesale water rates in Utah are subsidized by property tax collections, Utah's retail water providers, the cities and towns, buy their water far below-market rates. In turn, municipalities offer residents, businesses and exempt water users cheaper retail water prices. This explains why municipal water rates in Utah are some of the lowest in the United States.

The legislative Auditors studied this as part of their 2015 Audit and concluded:

*Utah residents pay some of the lowest water prices in the nation...*¹⁹⁵

The Auditor's findings are supported by the Division of Water Resources, who noted in 2010:

*The cost to consumers of water provided by water suppliers in Utah is well below the national average and regionally one of the lowest.*¹⁹⁶

National media outlets have also picked up on this. Circle of Blue, an independent, non-partisan, media organization analyzed water rates for 30 major U.S. cities in 2014, and found that Salt Lake City had one of the lowest water rates of all of the cities surveyed.¹⁹⁷ St. George had lower rates than Salt Lake in 2014. Additionally, a Food and Water Watch study completed in 2016 ranked Utah water providers in the bottom 22% of the 500 largest community water systems in the U.S. by cost of water.¹⁹⁸

Utah water districts don't dispute that water rates in Utah are cheap, but they misinform people about why rates are so cheap. To try and preserve their continued collection of property taxes, these water districts have at-times created specious arguments attempting to explain why Utah has such cheap water prices. Although some claim Utah's abnormally low water prices are caused by our proximity to the mountains, which allows water to flow downhill to its residents. Others have claimed that Utah's inexpensive water rates are from our low treatment and delivery costs for water.¹⁹⁹

¹⁹⁵ Legislative Auditor General. (2015). A Performance Audit of Projections of Utah's Water Needs (Report No. 2015-01).

¹⁹⁶ Utah Division of Water Resources. (2010). *The Cost of Water in Utah: Why Are Our Water Costs So Low?* Accessed August 30, 2018. <https://water.utah.gov/OtherReports/The%20Cost%20of%20Water%20in%20Utah.pdf>

¹⁹⁷ Circle of Blue. (2014). *Circle of Blue's 2014 Water Pricing Survey*. [PDF file]. Retrieved from <https://www.circleofblue.org/wp-content/uploads/2014/05/WaterPricing2014TableInteractive.pdf>

¹⁹⁸ Food and Water Watch. *Survey Of The 500 Largest Community Water Systems*, February 2016

¹⁹⁹ Utah Division of Water Resources. (2010). *The Cost of Water in Utah: Why Are Our Water Costs So Low?* Accessed August 30, 2018. Retrieved from <https://water.utah.gov/OtherReports/The%20Cost%20of%20Water%20in%20Utah.pdf>

But cities such as Denver, Reno, and Cheyenne, who have similar water treatment and delivery costs, still have a substantially higher retail cost of water to discourage water waste. It is clear that low treatment and delivery costs do not account for the low retail cost of water in Salt Lake City, as demonstrated by the table below.

Figure 41: Water Treatment Costs

Price (\$/1,000 gals)	Salt Lake City	St. George	Denver	Reno	Cheyenne
Treatment & Delivery Costs	\$0.70	\$0.82	\$0.79	\$0.74	\$0.89
Retail Cost of Water (@ 20,000 gal)	\$1.78	\$1.61	\$5.50	\$2.95	\$5.01

Property taxes collected by Utah water districts explain why Utah has America’s cheapest water rates and the highest municipal water use, per person. Countless peer-reviewed studies demonstrate that the economic principle of supply and demand applies to water just as it does to other commodities in the marketplace. When the price of water goes up consumers use less water.²⁰⁰ Conversely, when water prices decrease water consumers use more water.

In studies released by the U.S. Geological Survey (USGS) from 1995 to 2015, Utah has consistently ranked as one of America’s highest per person municipal water users. Municipal water use includes water used by homes, businesses, and government institutions. In 1995, 2000, and 2005, Utah was the 2nd highest water user in the U.S.²⁰¹ In 2010 USGS data established Utah as the nation’s #1 highest per person user of municipal water.²⁰² More recently, data for 2015 ranked Utah as the 2nd highest per person user of municipal water in the country.²⁰³

This wasteful cycle is especially true for the WCWD.

The Washington County Water District makes more money collecting property taxes than the agency does from selling water, according to its’ own newsletter and audited financial statements. As seen in the graph below, less than 25 cents of every dollar for

²⁰⁰ Price elasticity of residential demand for water: A meta-analysis. (1997). *Water Resources Research*, 33(6), 1369-1374.

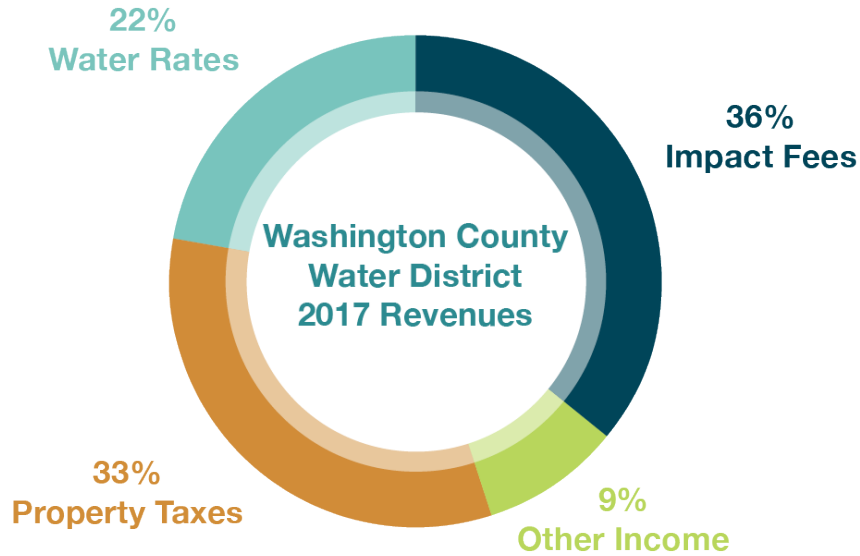
²⁰¹ U.S. Geological Survey. (2004). *Estimated Use of Water in the United States in 2000*. Accessed August 23, 2018. <https://pubs.usgs.gov/circ/2004/circ1268/pdf/circular1268.pdf>.

²⁰² U.S. Geological Survey. (2014). *Estimated Use of Water in the United States in 2010*. Accessed August 23, 2018. <https://pubs.usgs.gov/circ/1405/pdf/circ1405.pdf>.

²⁰³ U.S. Geological Survey. (2017). *Estimated Use of Water in the United States in 2015*. Accessed August 16, 2018. <https://pubs.usgs.gov/circ/1441/circ1441.pdf>.

the District is from the sale of water. The collection of property taxes by the District perpetuates water waste by lowering the price of water and shifting the delivery costs of wasteful water users to conscientious water users and lower income populations.

Figure 42: WCWD's 2017 Revenue Breakdown

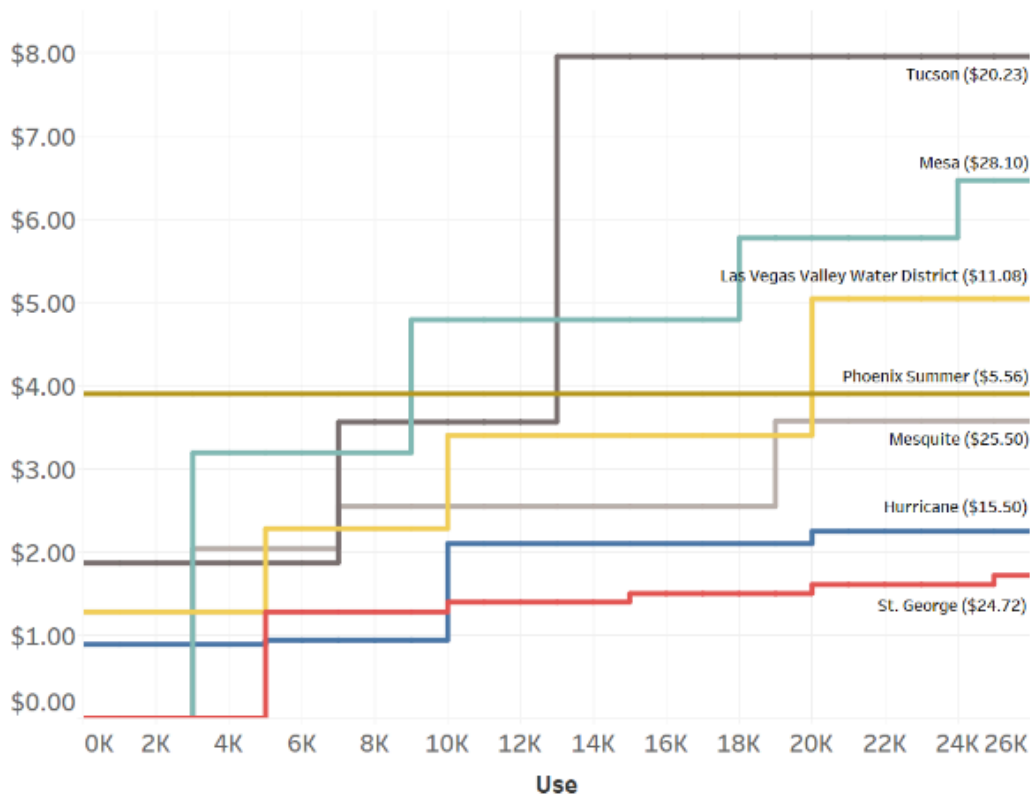


Washington County has some of the lowest water rates in the American West.²⁰⁴ These low water rates do not incentivize conservation or penalize water waste. As seen in the water price graph, St. George is home to incredibly low water rates- well below those of comparable cities. While cheap water rates sound like a good deal for consumers, these taxes subsidize the water use of large landowners and non-profit entities that may use large volumes of water.

²⁰⁴ Legislative Auditor General. (2015). A Performance Audit of Projections of Utah's Water Needs (Report No. 2015-01).

Figure 43: Water Rate Structure from the 2019 Audit

Figure 2.6 Water Rate Structures. Washington County cities have lower rates than surrounding desert cities in other states. The base rates are noted in the parenthesis follow the city names.



Washington County residents use more than twice as much municipal water as the average American, with each person using a staggering 306 gallons every day on average.²⁰⁵ In other Southwestern cities, consumption is between 100-150 gallons per day per person. Low water prices, driven by property tax collections, drive higher levels of consumption without worry for an expensive water bill at the end of the month.

The WCWD could save a huge quantity of water simply by eliminating their property tax subsidy and raising rates on outdoor water use. This plan was studied by Erin Moulding, a masters student in economics at the University of Utah, in her thesis.²⁰⁶ Moulding discovered that by removing property tax subsidies for water in Utah and raising water rates on outdoor water use, water districts could reduce their water demand without

²⁰⁵ DEIS, Appendix B page 12

²⁰⁶ Moulding, E. "Elasticity Modeling of Water: Effect of Property Tax Removal on Salt Lake Valley Water Use." (2011).

losing any revenue. Furthermore, she found that the new pricing structure was more equitable as property tax subsidies for water use are regressive and disproportionately burden low-income residents.

Moulding’s plan reinstates price signals for water in Utah. This means that if water users are unhappy with the size of their water bill, they can lower their water use and see a direct effect in their next bill. Therefore, residents using lots of water outside on lawns on gardens have an incentive to reduce their outdoor water use, which is usually nonessential and purely aesthetic. Figure 44 shows Moulding’s findings for the following cities.

Figure 44: Water Savings from Eliminating Property Tax Subsidy

City	Water Savings	Current Price at 15,000 gal	Change in Price	Average Property Tax Refund
Salt Lake City	-16%	\$2.15	\$0.93	\$98
Sandy	-14%	\$2.63	\$0.96	\$109
South Jordan	-13%	\$1.77	\$0.55	\$116
West Jordan	-25%	\$1.26	\$0.98	\$80
Riverton	-24%	\$1.33	\$0.95	\$101
Herriman	-15%	\$1.85	\$0.73	\$105
Bluffdale	-26%	\$1.95	\$1.57	\$153
St. George	-27%	\$1.00	\$0.88	\$193

As can be seen above, St. George could lower their water demand 27% simply by eliminating the property tax subsidy for water and raising outdoor water rates. This would not only delay and eliminate the need for the LPP, it would create a more equitable water payment structure where residents are charged based on the amount of water they use. Eliminating the property tax subsidy for water and raising outdoor water rates, in conjunction with the other measures discussed in this section, would achieve the project’s overarching goal of meeting Washington County’s future water demands. The DEIS should therefore have fully analyzed this alternative to the Lake Powell Pipeline.²⁰⁷

IV. The DEIS does not properly evaluate the environmental consequences of the Lake Powell Pipeline

²⁰⁷ *Davis*, 302 F.3d at 1120-21.

NEPA requires agencies to take a “hard look” at the environmental consequences of their actions.²⁰⁸ An EIS must analyze the proposed action’s direct, indirect, and cumulative effects.²⁰⁹ Direct effects are “caused by the [project] and occur at the same time and place.”²¹⁰ Indirect effects are those that “are caused by the [project] and are later in time or farther removed in distance, but are still reasonably foreseeable.”²¹¹ Cumulative impacts are those that “result[] from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.”²¹² When an agency examines the environmental impacts of a project in an EIS, it must also examine the socioeconomic consequences of the project.²¹³

The Lake Powell Pipeline DEIS fails to take a hard look at numerous environmental consequences that will occur if the BOR and the other federal agencies approve the pipeline. As discussed in detail below, the DEIS fails to take a hard look at the socioeconomic, cultural resources, visual resources, and biological impacts of the Lake Powell Pipeline. The DEIS therefore violates NEPA and is unlawful. The FEIS must correct these deficiencies. The BOR must also provide the opportunity for additional public comments on the FEIS, as an updated analysis will likely include new information on issues that are central to the Lake Powell Pipeline’s environmental impacts.

As discussed in more detail below, there are many instances where the DEIS does not take a hard look at various indirect effects and cumulative impacts of the Lake Powell Pipeline. We recognize that the Council on Environmental Quality (CEQ) recently finalized amendments to its NEPA regulations, which will take effect on September 14, 2020.²¹⁴ The amended rules will no longer directly define or reference “indirect effects” and “cumulative impacts.”²¹⁵ The BOR should not, however, rely on these amended regulations as an excuse to limit its analysis of any of the issues raised in these comments for several reasons. First, the BOR issued the DEIS for the Lake Powell Pipeline in June 2020, three months before the new regulations go into effect. The new regulations only apply to projects that begin the NEPA process after the September 14, 2020, and although

²⁰⁸ See, e.g., *Stand Up for California! v. U.S. Dep’t of the Interior*, 959 F.3d 1154, 1163 (9th Cir. 2020); *Pennaco Energy, Inc. v. U.S. Dep’t of Interior*, 377 F.3d 1147, 1150 (10th Cir. 2004); 40 C.F.R. § 1502.16.

²⁰⁹ 40 C.F.R. §§ [1502.16\(b\)](#), [1508.7](#), [1508.8](#), [1508.25\(c\)](#).

²¹⁰ *Id.* § 1508.8(a).

²¹¹ *Id.* § 1508.8(b).

²¹² *Id.* § 1508.7.

²¹³ *Id.* § 1508.14; see also *Cure Land, LLC v. U.S. Dep’t of Agric.*, 833 F.3d 1223, 1235 n.10 (10th Cir. 2016).

²¹⁴ 85 Fed. Reg. 43,304 (July 16, 2020).

²¹⁵ *Id.* at 43,375 (amended 40 C.F.R. § 1508.1(g) defines “effects” to mean “changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternative and may include effects that are later in time or farther removed in distance from the proposed action”).

agencies have discretion to apply the new regulations to ongoing NEPA processes, the BOR should not apply the new regulations here.²¹⁶ Second, while the new regulations no longer distinguish between “direct effects” and “indirect effects,” the new definition of “effects” includes the prior “indirect effects” definition.²¹⁷ As a result, the BOR will continue to have a duty to analyze the indirect effects of its actions under the new regulations. Third, the BOR began the NEPA process for the Lake Powell Pipeline under the previous regulations and issued a DEIS that identified numerous indirect effects and cumulative impacts. It would therefore be arbitrary and capricious for the agency to subsequently issue a FEIS that ignores or does not adequately assess these environmental consequences. If the BOR were to narrow the scope of the FEIS or brush aside issues midstream in the NEPA process, it would “entirely fail[] to consider an important aspect of the problem” that it had previously identified.²¹⁸ Finally, the amended NEPA regulations are unlawful and numerous parties have filed lawsuits to overturn the amended regulations.²¹⁹ If the BOR were to narrow the scope of the Lake Powell Pipeline FEIS based on the amended regulations, approval of the pipeline may be invalid and set aside if a court overturns the amended regulations. For these reasons, the BOR should continue to apply the current CEQ NEPA regulations throughout this NEPA process, and it should issue a FEIS that fully analyzes all of the environmental consequences of the Lake Powell Pipeline.

IV.A The Provo Office of the Bureau ignored important repayment obligations, thereby falsely concluding that the Lake Powell Pipeline is financially feasible

IV.A.1 There is a high likelihood that the WCWD is unable to repay the State of Utah for the Lake Powell Pipeline debt as is required by Utah law, causing harm to Utahns across the state

To finance the Lake Powell Pipeline, the State of Utah would act as a bank to pay for the Lake Powell Pipeline construction costs by issuing a series of bonds on the bond market.²²⁰ The State of Utah has the best possible bond rating, AAA, and neither the Applicant nor the recipient of Lake Powell Pipeline could afford to pay for the exorbitant costs of the Lake Powell Pipeline without the State of Utah issuing bonds.²²¹ The State of

²¹⁶ *Id.* at 43,339.

²¹⁷ *Id.* at 43,375.

²¹⁸ *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

²¹⁹ See, e.g., Complaint, *Alaska Community Action on Toxics v. Council on Env’tl. Quality* (N.D. Cal. July 29, 2020), available at <https://earthjustice.org/sites/default/files/files/ceq-nepa-rulemaking-complaint.pdf>.

²²⁰ Thompson, Ronald. “RE: Lake Powell Pipeline Financing.” Received by Dennis Strong, August 14, 2008.

²²¹ <https://www.fitchratings.com/research/us-public-finance/fitch-affirms-utah-idr-at-aaa-rates-439mm-gos-aaa-outlook-stable-08-05-2020>

Utah will bond for the construction costs, estimated by the 2019 Legislative Audit to be \$2.2 billion, to cover the construction and pre-construction costs of the LPP²²² and include the financing costs of paying bond investors their interest payments into the Lake Powell Pipeline loan. The State of Utah will then issue this LPP loan to the recipients of the LPP water, the WCWD, at a ‘reasonable’ interest rate determined by the Utah Board of Water Resources, effectively the Applicant of this application.²²³

The proponents of the Lake Powell Pipeline claim they can repay the State of Utah by increasing impact fees, property taxes, and water rates.²²⁴ But credible analyses by prominent Utah economists from leading Utah universities demonstrate the required rate increases would need to be massive to repay the full costs of bond issuances by the State of Utah, which in fact are so large these increases will suppress water demand significantly, obviate the need for Lake Powell Pipeline water and make it likely that repayment to the Utah taxpayers will not occur.²²⁵

The Applicant has failed to understand or failed to be concerned about this likely default, presumably because the Applicant doesn’t understand the foundational economic principle known as the price elasticity of demand, more commonly referred to as a downward sloping demand curve. This principle says that as the price of a good increases, its consumption decreases. This means that as WCWD raises property taxes, water rates, and impact fees to pay off the LPP debt load, they will simultaneously reduce the amount of water and home sales in Washington County, as the Utah Division of Water Resources has been informed of repeatedly in correspondences, official meetings and in countless media stories over the last ten years. This reduction in water sales will reduce WCWD’s revenues and their ability to repay the state taxpayer for the bonded debt.

The PhD economists found that such a scenario was very likely to occur in Washington County, leading them to conclude that it was unlikely that WCWD could generate enough revenues to make the minimum annual payments to the state for the LPP debt.²²⁶ This observation that WCWD lacked the ability to repay the debt for the LPP loan back to the Utah taxpayer was the reason the Applicant and the WCWD concocted the Pay-As-You-Go financing scheme which effectively asks Utah taxpayers for billions of dollars in an interest-free loans.

²²² Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

²²³ Utah Code §73-28-402(4)

²²⁴ Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

²²⁵ Blattenberger et al. (2015). Lake Powell Pipeline Economic Feasibility Analysis for Washington County, UT.

²²⁶ *Id.*

Furthermore, the 2019 Legislative Audit found that WCWD's ability to repay the LPP debt hinged upon unhindered population growth and minimal economic downturn, particularly in the early years of the debt issuance. Specifically, the audit states:

*A recession in the early years of repayment would be especially challenging on WCWD's ability to make payments.*²²⁷

The current COVID-19 pandemic has created the worst economic downturn in United States history since the Great Depression.²²⁸ It is difficult to estimate just how long the recession will last but some peer-reviewed papers are already predicting that the world economy will not normalize for many years.²²⁹ This, in light of the findings of the 2019 Legislative Audit, brings into question WCWD's ability to repay LPP debt and the Applicant's failure to offer the public and the State Engineer a feasible economic plan to utilize this water right claim. It is plausible that population growth in Washington County slows as a result of the coronavirus pandemic, leading to decreased revenues from property taxes, impact fees, and water rates. This could also cause WCWD to default on LPP loan payments to Utah taxpayers.

Furthermore, an overwhelming collection of evidence from leading climate scientists and water management agencies, including the Bureau of Reclamation, shows that climate change is quickly depleting flows in the Colorado River. This means it is likely that the LPP will not be able to take its full share of water from the Colorado River, if it is able to take any at all. In this event, WCWD would not be able to generate revenues from water rate increases associated with Lake Powell Pipeline water and would likely fail to meet the minimum annual payments to the state for the LPP debt.

If WCWD defaulted on their loan to the state, as the economists predict they will, the public interest could be harmed in a number of ways. (1) Utah's AAA bond rating – now one of just 9 states enjoying this rating – could be downgraded to a lesser grade, thereby raising the costs of borrowing for all public services by Utah. This would effectively increase the cost of every project the state needs to bond for and reduce the state's ability to borrow debt. In a special legislative session held in April 2020, the Utah Legislature voted to raise Utah's debt-borrowing ceiling, thereby increasing the chances of a future downgrading event as the pandemic continues to impact Utah's budget.

²²⁷ Legislative Auditor General, *A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline*, Report No. 2019-05 (2019).

²²⁸ Fernandes, N, *Economic effects of coronavirus outbreak (COVID-19) on the world economy*, Available at SSRN 3557504 (2020).

²²⁹ Guerrieri, V., Lorenzoni, G., Straub, L., & Werning, I, *Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?* (No. w26918) National Bureau of Economic Research (2018)

Harming the state's financial health further could reduce Utah's ability to respond to future crises and will likely impede the recovery from COVID-19. It is also possible that Utahns would see any decrease in the state's financial health as a result of WCWD defaulting reflected in increased taxes or additional spending cuts to important public programs. (2) The state may be stuck repaying a large portion of the LPP debt, in essence incurring a new large cost. The financial implications of this are too numerous to list here but it would likely result in large tax increases and spending cuts, which would negatively affect other important areas of Utah's government like the education and healthcare systems.

IV.A.2 The debt financing cost of the Lake Powell Pipeline was excluded from the cost-benefit analysis in the DEIS, thereby creating the false appearance that the Preferred Alternative is financially feasible

The DEIS' analysis of socioeconomic impacts analyzes the purported costs of the Lake Powell Pipeline, and other issues related to project costs, such as ability to pay. This issue is critical since the State of Utah requires that the entire project of the proposed Lake Powell Pipeline be repaid with a reasonable interest rate according to the Utah Lake Powell Pipeline Development Act. By failing to properly address repayment and its effects on the water demand of Washington County, the Provo Office of the BOR has failed to ensure the DEIS and its analysis is in compliance with all local and state laws. This analysis is flawed because the BOR excluded the debt financing costs of the pipeline. Had the Provo Office of the BOR included these costs, it would show that the Lake Powell Pipeline is not financially feasible. This error is particularly problematic because elsewhere in the DEIS, the Provo Office of the BOR excluded various alternatives from a detailed analysis due to their alleged financial infeasibility. Yet a correct analysis would show that the Lake Powell Pipeline itself is also financially infeasible.

On page 12 of the Lake Powell Pipeline DEIS, the Provo Office of the BOR states that the only project alternatives which can be considered are those that, among other requirements, are economically feasible:²³⁰

To determine whether alternatives were reasonable under NEPA and should be carried forward for detailed analysis in this DEIS, each alternative was evaluated against 43 CFR 46.420(b) and was considered reasonable if it [...] was practical or feasible from an economical and technical standpoint.²³¹

²³⁰ *Lake Powell Pipeline Draft Environmental Impact Statement*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 12.

²³¹ *Ibid*, page 12.

In appendix C-23, the DEIS further supports this claim in its definition of economic feasibility:

*A project alternative is considered economically feasible when the direct and indirect benefits generated by the action are greater than the resource costs of the action. Economic feasibility implies that society is better off when an action is taken than not.*²³²

This means that each project alternative must weigh the benefits it will produce against the costs it will produce. If the costs outweigh the benefits, the project alternative cannot be considered viable and must be abandoned by the BOR.²³³ This familiar concept in commodity delivery and regulation is often referred to by state regulative bodies across the country, including for commodity providers like natural gas and electricity companies who are regulated by state public utility committees or commissions.

Yet the Provo Office of the Bureau dismissed an entire array of water sourcing alternatives which are less-expensive and hence more feasible without any documentation as to the Provo Office's reasoning for ignoring these well-documented sources of water.

The Provo Office of the Bureau ignored the direction it claims to have followed in the DEIS to conceal the problematic financial reality of the Preferred Alternative. The Provo Office of the Bureau excluded the costs and impacts of the proposed Lake Powell Pipeline repayment plan from being adequately considered in the DEIS. The BOR Manual on Water and Related Resources Feasibility Studies states the following regarding financial feasibility:

*To determine the financial feasibility of an alternative, the study team will consider each project beneficiary's capability to pay for its share of the costs to construct, operate, and maintain the proposed project in accordance with the applicable cost-share or repayment obligations.*²³⁴

This excerpt from the BOR's own manual indicates that the BOR is required to include repayment obligations in an examination of an alternative's financial feasibility. Yet, the Provo Office of the Bureau refused to do this in preparing the DEIS. This is an apparent effort to favor the Lake Powell Pipeline, even though it is the costliest and most

²³² *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 1.

²³³ See section 2.1.2 on page 12 of the DEIS

²³⁴ Bureau of Reclamation. "Reclamation Manual, Directives and Standards: Water and Related Resources Feasibility Studies." (2012). <https://www.usbr.gov/recman/cmp/cmp09-02.pdf>

financially impacting upon the water users of Washington County of all the possible alternatives which could be considered.

This represents a failure by the BOR to produce an accurate DEIS which complies with the BOR's own policies and procedures. Had the Lake Powell Pipeline repayment plan, as dictated by the Utah Lake Powell Pipeline Development Act, been considered by the Provo Office of the Bureau in preparing the DEIS, the BOR would have found that both LPP project alternatives are financially infeasible.

To finance the Lake Powell Pipeline, the State of Utah will act as a bank to pay for the pipeline construction costs by issuing a series of bonds on the bond market.²³⁵ The State of Utah has the best possible bond rating, AAA, and neither the Utah Board of Water Resources nor the WCWD could afford to pay for the exorbitant costs of the Lake Powell Pipeline without the State of Utah issuing bonds.²³⁶ The State of Utah will bond to cover the construction and pre-construction costs of the LPP and include the financing costs of paying bond investors their interest payments into the Lake Powell Pipeline loan.²³⁷ The State of Utah will then issue this LPP loan to the recipients of the LPP water, the WCWD, at a "reasonable" interest rate determined by the Utah Board of Water Resources, who are effectively the LPP project proponents.²³⁸

This plan has been determined by the Utah Legislature as per the Lake Powell Pipeline Development Act:

*The board shall establish and charge a reasonable interest rate for the unpaid balance of reimbursable preconstruction and construction costs.*²³⁹

The 2019 Legislative Audit found that any repayment scenario that accounted for interest, as is required by the Utah Lake Powell Pipeline Act Code §73-28-402(4), dramatically increase the cost of the LPP project. Their findings are summarized in the table below.

²³⁵ Thompson, Ronald. "RE: Lake Powell Pipeline Financing." Received by Dennis Strong, August 14, 2008.

²³⁶ <https://www.fitchratings.com/research/us-public-finance/fitch-affirms-utah-idr-at-aaa-rates-439mm-gos-aaa-outlook-stable-08-05-2020>

²³⁷ Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

²³⁸ Utah Code §73-28-402(4)

²³⁹ Ibid

Figure 45: 2019 Audit LPP Repayment Obligations

Hypothetical Repayment Plan	Terms of Repayment	Principal Repaid by District	State Interest Revenue	Sum of Repayments to State
1	A. Original bond amount B. State's financing costs C. 3% interest charged district	\$2.4 billion	\$2.2 billion	\$4.6 billion
2	A. Original bond amount C. 3% interest charged district	\$1.8 billion	\$1.6 billion	\$3.4 billion
3	A. Original bond amount B. State's financing costs	\$2.4 billion	\$0	\$2.4 billion

Source: Auditor Generated

Both of the repayment scenarios above that include interest, as is required by the Lake Powell Pipeline Development Act,²⁴⁰ dramatically increase the cost of the LPP project. Scenario 1 requires that the WCWD repay the State of Utah’s financing costs (i.e. interest the State pays to its bond purchasers), which nearly doubles the total cost of the LPP. Scenario 2 does not require that the WCWD repay the State’s bond financing costs, thereby lowering the initial principal, yet the total debt is still nearly double the cost of the LPP. Including repayment costs, as the BOR is obliged to do as per the BOR Manual on Water and Related Resources Feasibility Study,²⁴¹ dramatically raises the costs of the LPP project. In scenario 1, project costs grow to \$4.6 billion while in scenario 2 the costs grow to \$3.4 billion.

Instead of embracing these well-documented costs from the 2019 Legislative Auditor General’s Office, the Provo Office of the Bureau ignored both the interest cost requirements of the Lake Powell Pipeline Development Act and the credible studies of the Auditors Office. We presume the Provo Office staff ignored these state laws and state studies as a favor to Utah water lobbyists working in the Orem Office of the Central Utah Water Conservancy District. The fact that the Provo Office of the Bureau ignored the direction of the BOR in its own Manual on Water and Related Resources Feasibility Study represents an additional oversight that should not be ignored. It is also arbitrary and capricious of the Provo Office to ignore the BOR’s own manual.

²⁴⁰ Utah Code §73-28-402(4)

²⁴¹ Bureau of Reclamation. “Reclamation Manual, Directives and Standards: Water and Related Resources Feasibility Studies.” (2012). <https://www.usbr.gov/recman/cmp/cmp09-02.pdf>

The Provo Office of the Bureau, like all BOR Offices, is required to abide by state laws as it administers its projects and policies, unless state law is specifically in contradiction to governing federal law. Since the Utah Lake Powell Pipeline Development Act has primacy when it comes to the issue of whether interest must be included the repayment obligations for the water users of the Lake Powell Pipeline, the Provo Office of the Bureau has arbitrarily failed to consider a relevant factor related to the costs of the pipeline and capriciously ‘stacked the deck’ by ignoring this provision of Utah law.

IV.A.3 The DEIS’ Ability to Pay/Affordability does not address elasticity, leading to the incorrect conclusion that either LPP action alternative is affordable

The Ability to Pay (ATP) analysis assumed that the rate increases stated in the 2019 Legislative Audit were sufficient to repay the LPP. See the following quote:

Future increases in water rates, fees, and taxes that would be needed to pay for the LPP were estimated using information provided in the State of Utah Performance Audit of the Repayment Feasibility of the LPP (State of Utah 2019).²⁴²

However, the 2019 Audit used an unrealistically low estimate for elasticity. The price elasticity of demand for a certain good can be found by dividing the percent change in demand by the percent change in price. In the Audit, both these values are given, allowing us to calculate the elasticity implicitly used in the audit’s analyses. Specifically, on page 7 the audit states:

Conservation and price elasticity will reduce water consumption by 15 to 25 percent per capita by 2065.²⁴³

And on page 10 the Audit states:

Wholesale water rates are planned to increase \$0.10 annually from the 2016 rate of \$0.84 to \$3.84 per 1,000 gallons.²⁴⁴

Optimistically assuming that the entirety of the demand reduction was the result of price

²⁴² *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 43.

²⁴³ Legislative Auditor General. (2019). *A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline* (Report No. 2019-05).

²⁴⁴ Ibid

elasticity results in a percent change in demand of -25%. The percent change in price from \$0.84 to \$3.84 is 357%. Dividing these numbers into each other yields an elasticity of roughly 0.07 (i.e. $25\% / 357\% = 0.07$).

This is far lower than what other sources have been reporting for the price elasticity of demand for water. Notably, on page 65 of Appendix C-23, the Lake Powell Pipeline DEIS suggests that an elasticity of -0.65 is reasonable.²⁴⁵ On August 19th, 2019 the Balmoral Group, a consulting agency contracted by the Executive Water Finance Board to study what the price elasticity of demand for water is in Washington County, found that municipal water price elasticities typically range from -0.5 to -1.16. They noted that their preliminary analysis indicated that Washington County would have a price elasticity of demand for water of roughly -0.76.²⁴⁶

If an elasticity of -0.65 were used in the audit, then the resulting decrease in demand would be roughly 232%. This would make the entire Lake Powell Pipeline water supply even more obsolete than it is already because of the serious reduction in water demand in Washington County. If -0.76 were used, the resulting decrease in demand would be roughly 271%. Both of these values are much larger than the assumed 25% demand decrease.

In either case, demand would decrease so much that the total amount of revenue generated from water sales would also decrease. Since the WCWD would have to generate a certain amount of revenue to make payments on their LPP loan and avoid a default, they would have to raise water rates again to compensate for the decrease in revenue. This would lead to further demand reductions via elasticity and a restarting of the cycle. This “looping effect” would force the WCWD to raise water rates substantially more than the 2019 Legislative Audit and DEIS assume.

For the last 10 years, a group of PhD economists from several Utah academic institutions have been studying the financial obligations of the proposed Lake Powell Pipeline through a series of detailed economic analyses which have been shared with elected and appointed Utah officials, the public and the media.²⁴⁷ These PhD, tenured university economists are highly-experienced in public lending standards and public and commercial financing practices to pay for large capital projects, like the Lake Powell Pipeline.

Their 96 pages of analyses document numerous problems with the economically-

²⁴⁵ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 65.

²⁴⁶ Balmoral Group. “Elasticity of Demand for Water Supply.” Presentation to the Executive Water Finance Board. August 19th, 2019.

²⁴⁷ Blattenberger et al. (2015). *Lake Powell Pipeline Economic Feasibility Analysis for Washington County, UT*.

infeasible nature of the proposed Lake Powell Pipeline, specifically with the huge increases in water rates, impact fees, and property taxes that the LPP would require.²⁴⁸ The economists even created a model that calculates the necessary rate increases to repay the LPP at varying initial costs. We used this model to calculate what rate increases would need to occur to repay the LPP with the costs provided by the DEIS and the 2019 Audit.²⁴⁹ The results are summarized in Figure 46.

Figure 46: Necessary Rate Increases

Cost Estimate	Rate & Fee Increases	
	Water Rate	Impact Fee
\$2.4 billion (Legislative Audit)	1233%	438%
\$1.5 billion (Southern Low)	521%	287%
\$1.7 billion (Southern High)	598%	309%
\$1.5 billion (Highway Low)	488%	278%
\$1.6 billion (Highway High)	560%	299%

This table demonstrates that, once elasticity is accounted for, water rates need to increase somewhere between 488% and 1,233% and impact fees need to increase somewhere between 278% and 438% to repay the LPP. This is substantially higher than the 357% water rate and 108% impact fee increase assumed by the 2019 Legislative Audit and DEIS.

Had the Provo Office of the Bureau used rate increases that accounted for elasticity (i.e. rate increases like those presented in the table above) in the DEIS, the repayment obligations for the WCWD would have increased substantially. This would have placed a much more significant burden on residents in Washington County and would have made LPP water unaffordable. This would have caused the LPP to fail the ATP analysis, indicating the LPP is not economically feasible.

The Provo Office appears to have intentionally avoiding any real application of market

²⁴⁸ Ibid

²⁴⁹ Costs from the DEIS were obtained from Table 2.2-2 from page 23 of appendix C-23. Costs reflect construction costs plus interest during construction. OM&R costs are built into the economists’ model so they were excluded from the input cost to avoid double counting.

economics to arbitrarily favor its preferred transbasin water diversion of the Lake Powell Pipeline. Even with such arbitrary favoritism, the Provo Office cannot ignore the impacts of market economics, particularly since the Utah Legislature requires that repayment of the Lake Powell Pipeline costs be paid by the water users of the Lake Powell Pipeline.

IV.A.4 The Provo Office of the Bureau’s analysis of elasticity effects on water consumption is incomplete, thereby obscuring the fact that increasing water rates will eliminate the need for the LPP

Elasticity is an economic concept that describes how two variables affect each other.²⁵⁰ It is a ratio and is algebraically expressed as the percent change in one variable divided by the percent change in another variable.²⁵¹ The price elasticity of demand is a specific type of elasticity that explains how the quantity demanded for a particular good changes as the price of that good changes. It is expressed as the following:

$$\varepsilon = \left(\frac{\Delta Q}{Q} \right) / \left(\frac{\Delta P}{P} \right)$$

where ε represents elasticity, Q represents quantity, and P represents price. While elasticity is addressed in Appendix C-23, the calculations are not carried through to examine what effect they may have on demand. The DEIS simply states the following in regards to elasticity’s effect on water demand in the WCWD:

Assuming a long-run price elasticity of demand for domestic water supply of -0.65 and an annual increase in retail water rates of 5.2 percent as described for water costs in the Audit Report over 30 years, water use per user would decrease by 3.38 percent annually. A 1.5 percent increase in price would result in a 0.975 percent annual decrease in use per user. However, if the number of households and commercial users increase greater than the decrease in use, then total demand would increase. The estimated price elasticities less than -1.0 also indicates total water revenues from water charges would continue to increase overall.²⁵²

While there is nothing technically incorrect about this statement, it does not represent a complete analysis by the BOR. This quote concludes the elasticity analysis by hypothetically stating that if households grow at a greater rate than demand decreases,

²⁵⁰ Nicholson, W.; Snyder, C. (2015). *Intermediate microeconomics and its application*.

²⁵¹ Ibid.

²⁵² *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix c-23: Socioeconomics*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 60.

then demand will continue to increase. As will be shown below, this is not the case for the WCWD. Demand decreases more than households grow.

To estimate whether the LPP could be feasibly repaid, the DEIS assumed that the rate increases stated in the 2019 Legislative Audit would be sufficient to cover the cost of the LPP.²⁵³ The rate increases stated in the 2019 audit are the following:

- *Impact fees are planned to increase up to \$1,000 annually from the 2017 fee of \$7,417 through 2026, reaching \$15,448.*
- *Wholesale water rates are planned to increase \$0.10 annually from the 2016 rate of \$0.84 to \$3.84 per 1,000 gallons.*
- *Property taxes are planned to increase from the 2018 rate of 0.0648 percent to 0.1 percent by 2025.²⁵⁴*

These rate increases were calculated by assuming an unrealistically low elasticity. This means that these rate increases are very likely underestimates and that the true rate increases needed to repay the LPP could be up to four times as large. Nevertheless, this analysis uses the most generous possible assumptions to model the effects that these rate increases will have on demand, meaning that the rate increases given by the 2019 Audit are used. The analysis still finds that demand is significantly less than stated by the DEIS in Table 6.2-1.²⁵⁵

Listed above are three rate increases. However, property taxes and impact fees can essentially be thought of as smaller components of the price of a single good (a house). Therefore, the above rate increases effectively describe an increase in the price of two goods: water and housing.

The DEIS states that, based on a literature review, a reasonable long term elasticity for water rates is -0.65.²⁵⁶ The Executive Water Finance Board's consultant preliminarily

²⁵³ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23: Socioeconomics*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 60.

²⁵⁴ Legislative Auditor General. (2019). *A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline* (Report No. 2019-05).

²⁵⁵ This analysis was conducted by Helene Jorgensen, an economist and Kanab resident, and was reproduced in these comments with permission.

²⁵⁶ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23: Socioeconomics*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 60.

found that elasticity of water demand in Washington County was -0.76.²⁵⁷ However, in an effort to conduct this analysis generously, an elasticity of -0.65 was used.

The DEIS does not examine what effect increasing impact fees and property taxes would have on the demand for housing in Washington County and, therefore, did not state what a reasonable elasticity would be. However, a quick literature review reveals that an elasticity of -0.3 is reasonable.²⁵⁸

The analysis can be done to determine these two elasticity ratios effects on demand. The results of the water rate elasticity calculation will be reflected in the amount that gpcd changes (i.e. in the amount of water consumed) in the total annual demand provided by the DEIS.²⁵⁹ Similarly, the results of the impact fee and property tax elasticity will be reflected in the population growth estimate in the same equation above. Therefore, the new demand equation for the WCWD looks like the following:

$$\text{total annual demand} = \frac{\text{population}' \times \text{gpcd}' \times \text{system loss coefficient}}{\text{gpcd to annual demand conversion coefficient}}$$

where population' represents the population growth estimate given by Table 6.2-1 in the DEIS adjusted for the elasticity effect of increased impact fees and property taxes and gpcd' represents the gpcd estimates given by Table 6.2-1 in the DEIS adjusted for the elasticity effects of increased water rates.

The results of this new equation are presented in Figure 47 alongside the values from the original demand estimation by the BOR.²⁶⁰

²⁵⁷ Balmoral Group. "Elasticity of Demand for Water Supply." Presentation to the Executive Water Finance Board. August 19th, 2019.

²⁵⁸ Green, R. K., Malpezzi, S., & Mayo, S. K. (2005). Metropolitan-specific estimates of the price elasticity of supply of housing, and their sources. *American Economic Review*, 95(2), 334-339.

Singell, L. D., & Lillydahl, J. H. (1990). An empirical examination of the effect of impact fees on the housing market. *Land Economics*, 66(1), 82-92.

Evans-Cowley, J., Lockwood, L., Rutherford, R., & Springer, T. (2009). The effect of development impact fees on housing values. *Journal of Housing Research*, 18(2), 173-193.

²⁵⁹ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>.

²⁶⁰ Helene Jorgensen created this table.

Figure 47: WCWD Demand Adjusted for Elasticity

Year	WCWCD Service Area Population – Baseline Projections by USBR	WCWCD Service Area Population – adjusted for impact fee elasticity of -0.3 and updated w/ 2019 Census Data	GPCD per Applied Analysis that includes 20% conservation by USBR	GPCD per Applied Analysis – adjusted for water rate elasticity of -0.65	System loss from Applied Analysis Model by USBR	Demand (acre-feet) with System Loss by USBR	Demand (acre-feet) with System Loss – adjusted for water rate and impact elasticities
2015	151,360	151,360	302	302	0.154	59,038	59,038
2020	182,689	179,884	296	227	0.154	69,791	52,836
2025	214,408	206,883	283	190	0.154	78,483	50,886
2030	246,338	233,787	271	168	0.154	86,370	50,720
2035	280,731	262,290	260	153	0.154	94,289	51,768
2040	314,199	288,984	250	142	0.154	101,326	52,961
2045	348,064	315,132	240	134	0.154	107,999	54,407
2050	383,226	341,542	240	134	0.154	118,909	58,967
2055	420,257	368,684	240	134	0.154	130,399	63,653
2060	458,960	396,332	240	134	0.154	142,408	68,426
2065	500,349	425,304	240	134	0.154	155,250	73,428
2070	545,470	456,393	240	134	0.154	169,251	78,796
2075	594,660	489,755	240	134	0.154	184,513	84,555

Source: U.S. Bureau of Reclamation, Draft Environmental Impact Statement, Appendix B, Table 6.2-1 (page 14), and analysis by Helene Jorgensen.

Figure 47 shows that just simply accounting for elasticity greatly reduces demand. In fact, by 2075 demand is expected to be nearly 100,000 acre-feet less than the DEIS predicts.

This analysis makes it evident that the DEIS dramatically overestimated water demand in WCWD. This overestimation constitutes a serious flaw in the LPP DEIS and a failure by the BOR to accurately review the proposed LPP project. It also invalidates the need for the LPP as stated by the DEIS.

IV.A.5 The WCWD claims it should receive a \$1 billion subsidy from Utah taxpayers, indicating it is unable to repay the full cost of the LPP

Although Utah law requires that the WCWD repay the full cost of the LPP with interest, as per the Lake Powell Pipeline Development Act, the Provo Office of the Bureau failed

to evaluate compliance with Utah law in the DEIS. The 2019 Legislative Audit found that the state’s financing costs alone could reach \$1.2 billion, effectively creating a subsidy from Utah taxpayers to the WCWD of this amount.²⁶¹ Similarly, the Executive Water Finance Board found the following:

Although the Lake Powell Pipeline Act calls for a “reasonable interest rate,” a recent financing summary submitted by the Washington County Water Conservancy District would create a large state taxpayer subsidy (range of \$1 billion).²⁶²

Although the WCWD has no legal right to this subsidy, its claim that it should receive it demonstrates that the WCWD is unable to handle the full burden of the LPP loan. Instead of providing an objective analysis which complied with the BOR Manual on Water and Related Resources Feasibility Studies and the Lake Powell Pipeline Development Act, the Provo Office inexplicably ignored \$1 billion in direct subsidies to stack the DEIS in favor of approving generations of costly debt for Washington County residents without having the ethics to disclose the existence of this debt to these residents.

IV.A.6 Since the Lake Powell Pipeline costs cannot be repaid with interest, as is required by Utah Law, Utah water lobbyists have proposed a 90-year loan repayment plan which the Provo Office of the Bureau has failed to consider or evaluate

The WCWD claims that they can repay the LPP via a model they have called the “pay-as-you-go” model.²⁶³ According to the WCWD, they would only pay the costs and interest associated with one small block of LPP water at a time.²⁶⁴ The 2019 Legislative Audit diagrammed what such a repayment scenario may look like. It is reproduced below.²⁶⁵

²⁶¹ Ibid.

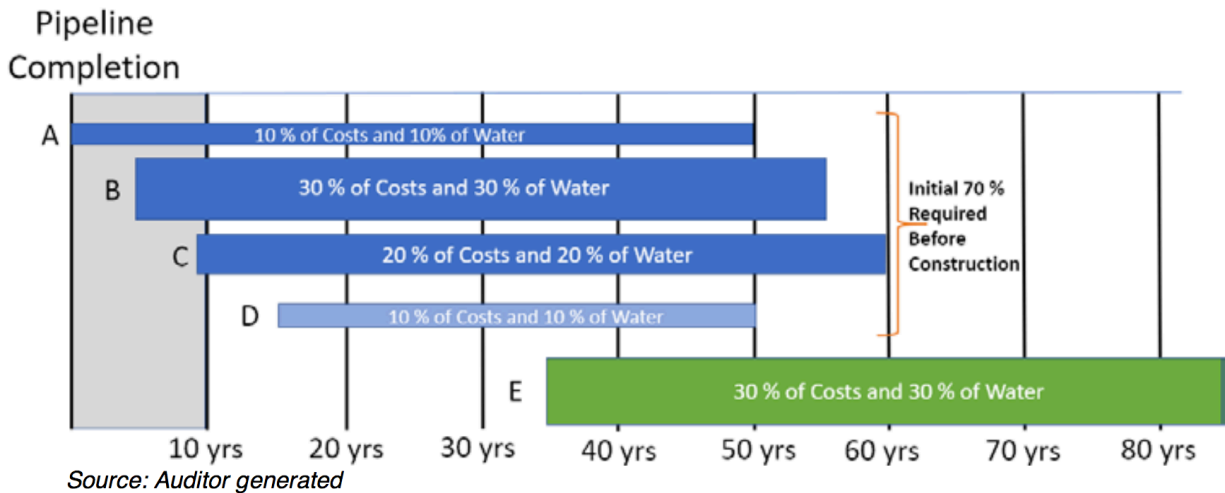
²⁶² Presentation by the Executive Water Finance Board. September 17th, 2018. <https://gomb.utah.gov/wp-content/uploads/2019/04/Lake-Powell-Pipeline-Financial-Issues-Phil-Dean-GOMB.pdf>

²⁶³ Agüero, Jeremy. (2018, June). The Economic and Fiscal Implications of Water Policy in Washington County, Utah. Slides presented at Executive Water Finance Board meeting, Salt Lake City, UT. Electronic copy of presentation: <https://gomb.utah.gov/wp-content/uploads/2019/04/WCWCD-Economic-and-Fiscal-Implications-Jeremy-Aguero.pdf>

²⁶⁴ Ibid.

²⁶⁵ Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

Figure 48: Pay-As-You-Go as Shown by the 2019 Audit



This scheme would start by paying a small fraction of the loan’s principal and leave the rest of the loan to collect interest without any repayment for decades. In essence, the scheme is akin to only paying the minimum payment on a credit card, and ignoring the compounding nature of the unpaid credit card debt.

Therefore, the only way this repayment scheme could work is if interest was not capitalized, which is exactly what the WCWD claims should occur.²⁶⁶ With capitalizing interest and minimal repayments, the debt from this loan will balloon over time. It could reach a point where the WCWD’s annual debt obligation is greater than they are capable of repaying, forcing the WCWD to default. This, however, is unlikely as the 2019 Audit indicates that it is standard practice for interest to be capitalized on long term repayment projects such as this.²⁶⁷

However, even if one assumed that interest would not be capitalized and that the WCWD was allowed to repay the LPP debt via the pay-as-you-go model, there still is a substantial cost the BOR should have considered in the DEIS: the opportunity cost to the State of Utah.

In the diagram above, the WCWD would not fully repay the State of Utah until 90 years after construction of the LPP is completed. If interest is not being capitalized, then the State’s funds are effectively devaluing over nearly a century with no compensation. This will not only prohibit the State from using these funds for other important areas of governance (i.e. education), but will cause the state to lose a substantial amount of real

²⁶⁶ Thompson, Ronald. “RE: Lake Powell Pipeline Financing.” Received by Dennis Strong, August 14, 2008.

²⁶⁷ Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

value to inflation. This cost should have been analyzed by the BOR in the DEIS.

IV.A.7 The Provo Office of the Bureau cannot claim that the WCWD can afford the Lake Powell Pipeline because the WCWD has yet to propose a valid repayment plan

On August 11, 2017 FERC requested: (1) an estimate of the cost that would be allocated to each District and how that cost would be allocated among existing and new water users, including likely impacts on user costs; and (2) an estimate of the financial feasibility of the project – including potential fiscal impacts on the State of Utah for funding the project. In response to FERC’s request, the Division of Water Resources claimed they had not analyzed LPP’s financial feasibility and will not provide financing details until as late as 90 days before construction of the LPP begins:

We anticipate that financing details will be worked out well in advance of the 90 days prior to construction.

The Division of Water Resources has spent more than \$37 million of Utah taxpayer’s money studying the project over the last ~15 years, and yet they have no data to support their claim that the project is financially feasible and that it will not negatively impact Utah taxpayers. Utah Code §73-3-8 requires that the plan to utilize a water right be economically and physically feasible. Procrastination of a publicly-defensible plan until 90 days before construction is not in the public interest, nor does it represent sound financial management. The Applicant has failed to prepare a repayment plan which utilizes basic financial practices common in the municipal water supply industry. As shown below, it is likely the Applicant will not be successful in devising a feasible economic plan which avoids a default of the Lake Powell Pipeline loan.

The Applicant has failed to account for the reduction in water demand and the subsequent reduction in available revenues to finance the Lake Powell Pipeline. This failure is likely because the Division of Water Resources has no experience planning and building large municipal water projects on a scale as large as the Lake Powell Pipeline project. This massive water project is beyond the scope and capacity of this agency and neither it nor the Washington County Water District has any demonstrable experience of financing multi-billion water projects over their operating histories. Although the Division of Water Resources has experience awarding relatively small grants to irrigation users for small canal and storage systems, the construction costs, engineering challenges and financial obstacles of the Lake Powell Pipeline represents the biggest-ever challenge in the history of this state agency, coming during the worst financial downturn since the Great Depression.

Just the \$1 billion 2008-era estimated cost of the Lake Powell Pipeline dwarfs all of the funds ever awarded by the Division and its Board when added together over its entire 60-year history, in just one proposed project. The State Engineer must examine a detailed economically-feasible plan to build and finance the Lake Powell Pipeline, as per Utah Code §73-3-8, which accounts for reduced revenue streams as a function of the current Coronavirus pandemic and the above failings in understanding the basics of water demand economics.

IV.A.8 The cost estimates provided for both of the action alternatives are poorly supported and are inadequate

The LPP DEIS clocks in at roughly 2,000 pages if all its appendices are included. Of this, only a little more than one page (roughly 0.05% of the DEIS) is spent detailing the construction and operation, maintenance, and replacement (OM&R) cost of the LPP alternatives. This is startlingly little room devoted to what is a tremendously consequential component of the LPP proposal. The DEIS’s attempts to downplay the costs of a \$2.4 billion or larger water project “defeat[s] NEPA’s goals of informed decision making and informed public comment.”²⁶⁸

The United States Government Accountability Office released a guide for the best cost estimating practices.²⁶⁹ They summarize their results in the following table.

²⁶⁸ *WildEarth Guardians v. U.S. Bureau of Land Mgmt.*, 870 F.3d 1222, 1236 (10th Cir. 2017) (quoting *Utahns for Better Transp. v. U.S. Dep’t of Transp.*, 305 F.3d 1152, 1163 (10th Cir. 2002)).

²⁶⁹ Leonard, B. (Ed.). (2009). *GAO Cost estimating and assessment guide: Best practices for developing and managing capital program costs*. DIANE Publishing.

Figure 49: GAO's Standards for Cost Estimates

Table 1: GAO's 1972 Version of the Basic Characteristics of Credible Cost Estimates

Characteristic	Description
Clear identification of task	Estimator must be provided with the system description, ground rules and assumptions, and technical and performance characteristics Estimate's constraints and conditions must be clearly identified to ensure the preparation of a well-documented estimate
Broad participation in preparing estimates	All stakeholders should be involved in deciding mission need and requirements and in defining system parameters and other characteristics Data should be independently verified for accuracy, completeness, and reliability
Availability of valid data	Numerous sources of suitable, relevant, and available data should be used Relevant, historical data should be used from similar systems to project costs of new systems; these data should be directly related to the system's performance characteristics
Standardized structure for the estimate	A standard work breakdown structure, as detailed as possible, should be used, refining it as the cost estimate matures and the system becomes more defined The work breakdown structure ensures that no portions of the estimate are omitted and makes it easier to make comparisons to similar systems and programs
Provision for program uncertainties	Uncertainties should be identified and allowance developed to cover the cost effect Known costs should be included and unknown costs should be allowed for
Recognition of inflation	The estimator should ensure that economic changes, such as inflation, are properly and realistically reflected in the life-cycle cost estimate
Recognition of excluded costs	All costs associated with a system should be included; any excluded costs should be disclosed and given a rationale
Independent review of estimates	Conducting an independent review of an estimate is crucial to establishing confidence in the estimate; the independent reviewer should verify, modify, and correct an estimate to ensure realism, completeness, and consistency

It is evident that many of these best practices are missing from the Provo Office's LPP cost estimate in the DEIS. The Provo Office provides no discussion of how the costs were derived or what methodology or assumptions may have been used to create the costs. In fact, the following is the extent of the discussion in the DEIS regarding the construction costs of the LPP alternatives:

*Total construction costs for the Southern Alternative estimated by Stantec, excluding the Kane County System, are estimated to be \$1,480.5 million and total construction costs for the Highway Alternative, again excluding the Kane County System, are estimated to be \$1,433.0 million.*²⁷⁰

²⁷⁰ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 22.

And the following is the extent of the discussion regarding OM&R costs:

OM&R estimates provided by Stantec for the Southern and Highway Alternatives are estimated to be \$5.120 million annually in 2019 dollars and pumping energy costs are estimated to be \$4.096 million annually, for total annual costs of \$9.216 million.²⁷¹

The only sources referenced to support these estimates are two emails from Stantec, neither of which was released with the DEIS.²⁷² The emails had to be obtained either by a GRAMA request to the Utah Division of Water Resources. Once we obtained the Stantec estimates, we were displeased to find a similar lack of support for the cost estimates. The totality of the discussion regarding OM&R estimates from the Stantec email source is the following:

Here are the annual O&M values for LPP. These values are based on the values filed with FERC (Table 5-1, 2016 Study Report 10, October 2016 Update). I indexed the non-power costs using Reclamation’s CCI. I indexed the pumping power costs using DOE’s (www.eia.gov) tables of industrial consumer electrical prices for Utah. The original FERC values were based on a parametric study, so there aren’t specific line items to take out for the forebay/afterbay. But those O&M costs would be pretty minor (they’re just “smallish” earthen embankments) compared the O&M for the pipeline and pump/hydrostations, so we feel the original costs (indexed to 2019) are good to move forward with.²⁷³

Figure 50: OM&R Stantec Estimates

Updated Q4 2019 OM&R	
	Annual (Q4 2019 dollars)
OM&R (excludes pumping electrical costs)	\$5,120,065
Power Operations (pumping electrical costs)	\$4,095,747

Similarly, the discussion of capital costs is minimal:

Attached is UDWR’s revised cost estimate for the LPP (in Jan 2020 dollars). As anticipated, costs are higher due to the escalation from 2015 to 2020. A cost is provided for both alternatives (see the Summary sheet for total capital costs).

²⁷¹ Ibid

²⁷² Ibid, page 65

²⁷³ Stantec. 2020a. “LPP O&M costs.” Email communication from Joshua Cowden March 10, 2020.

Regarding the spend profile, we are projecting a 6-year construction schedule with 30% of the cost spread over the first 3 years and the remaining 70% spread over the last 3 years. Let us know if you have any questions.²⁷⁴

The following figures show the attachment referenced in the above email text.

²⁷⁴ Stantec. 2020b. "Revised LPP cost estimate." Email communication from Joshua Cowden March 3, 2020.

Figure 51: Stantec Cost Estimate Spreadsheet Page 1

DRAFT COST OPINION MASTER SUMMARY by ALIGNMENT									
ALTERNATIVE		CONSTRUCTION OR CONTRACT COST	INDIRECT OR NONCONTRACT COSTS	TOTAL CAPITAL COST	AACE Low Range		AACE High Range		
Southern	Jan 2020 dollars	\$ 1,317,035,455	\$ 197,900,000	\$ 1,514,900,000	\$ 1,211,900,000	\$ 1,969,400,000			
Highway	Jan 2020 dollars	\$ 1,252,168,455	\$ 187,500,000	\$ 1,439,700,000	\$ 1,151,800,000	\$ 1,871,600,000			
		Table 1							
		INDIRECT COSTS		PERCENT OF CONSTRUCTION					
		Land Acquisition		0.0%					
		PR/Outreach		0.5%					
		Planning Studies		0.0%					
		Owner Contingency for Change		1.0%					
		Program Management		2.0%					
		Design Engineering*		6.0%					
		Construction Management*		6.0%					
		Department & Agency Fees		0.5%					
		Owner Implementation Costs		0.0%					
		Permitting		0.0%					
		Subtotal		16.0%					
		* Electrical System costs excluded in calculation							
Notes:		1) This OPCC is classified as a Class 4 cost estimate per AACE guidelines.							
		2) Pricing basis = Q1 2020, escalation to MPC is not included							
		3) Pricing assumes competitive market conditions at time of tender (+3 bidders/trade).							
		4) Pricing assumes that standard industry commercial terms will apply to all procurements.							
		5) A contingency of 10% has been added to the estimated Construction Cost for Scope and Estimate							
		6) Table 1 summarizes owner indirect or implementation costs.							
Assumptions/Qualifications:		1) Non-conventional environmental mitigation measures excluded.							
		2) Project procurement strategy unknown and not captured in project costs.							
		3) Quantities were provided by the project team and have not been verified.							
		4) NTP in 2024 and six-year construction. Mid-point of construction would be 2026/2027. Project commissioning and startup in 2029. Thanks.							
Estimating Disclaimer - Engineer's Opinion of Probable Construction Cost		<p>Any opinions of probable construction costs ("OPCC") prepared by MWH, including evaluations of Client's project budget, represent MWH's best judgment as a design professional familiar with the construction industry. Unless and to the extent otherwise indicated by MWH, such opinions or evaluations are based upon current market rates for labor, materials and equipment. The Client acknowledges that MWH has no control over the costs of labor, materials or equipment, construction contractor's methods of determining bid prices, competitive bidding environments, unidentified field conditions, market conditions, inflation or any other factors that may affect the OPCC, the project budget or negotiating conditions at the time of execution of the construction contract. Furthermore, this OPCC is based on stable market conditions that exhibit predictable supply/demand relationships and does not attempt to capture the impacts of hyper-inflationary or deflationary market cycles. Client further acknowledges that the OPCC is a "snapshot in time" and that the reliability of the OPCC will degrade over time. Accordingly, MWH cannot and does not warrant or represent that construction bids or negotiated construction prices will not vary from Client's project budget or MWH's good faith Class 4 & 5 OPCC.</p> <p>AACE International CLASS 4 Cost Estimate Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically, engineering is 0% to 20% complete. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Virtually all Class 5 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from -15% to -30% on the low side and +20% to 50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances. As little as 20 hours or less to perhaps more than 300 hours may be spent preparing the estimate depending on the project and estimating methodology (AACE International Recommended Practices and Standards).</p>							

Figure 52: Stantec Cost Estimate Spreadsheet Page 2

SOUTHERN ALTERNATIVE									
Bid Package	Station from	Station To	Pipeline (ft.)	Description	AACE Class	Subtotal Costs (Jan2020)	Contingency 10%	Construction or Contract Costs (Jan 2020)	
				INTAKE SYTEM		\$ 81,400,000	\$ 8,140,000	\$ 89,540,000	
A	0+00	0+00	0	Intake Mass Excavation & Underground	4	\$ 48,000,000	\$ 4,800,000	\$ 52,800,000	
B	0+00	0+00	0	Intake Pump Station	4	\$ 33,400,000	\$ 3,340,000	\$ 36,740,000	
				WATER CONVEYANCE SYSTEM		\$ 991,650,000	\$ 99,165,000	\$ 1,090,815,000	
C				LPP Booster Pump Stations 1, 2, 3 & 4	4	\$ 89,000,000	\$ 8,900,000	\$ 97,900,000	
				BPS - No. 1	4	\$ 20,530,000	\$ 2,053,000	\$ 22,583,000	
				BPS - No. 2	4	\$ 21,180,000	\$ 2,118,000	\$ 23,298,000	
				BPS - No. 3	4	\$ 23,100,000	\$ 2,310,000	\$ 25,410,000	
				BPS - No. 4	4	\$ 24,190,000	\$ 2,419,000	\$ 26,609,000	
D	0+00	1319+50	132,053	SEGMENT 1 INTAKE PUMP STATION TO BPS-3:	4	\$ 106,100,000	\$ 10,610,000	\$ 116,710,000	
E	1319+50	1928+00	60,928	SEGMENT 2 BPS-3 TO BPS-4	4	\$ 57,200,000	\$ 5,720,000	\$ 62,920,000	
F	1928+00	2761+00	83,329	SEGMENT 3 BPS-4 TO HS-1	4	\$ 81,500,000	\$ 8,150,000	\$ 89,650,000	
FRT				REGULATING TANK	4	\$ 2,000,000	\$ 200,000	\$ 2,200,000	
G	2761+00	5569+00	281,046	SEGMENT 4 HS-1 TO HS-2	4	\$ 318,400,000	\$ 31,840,000	\$ 350,240,000	
H	5569+00	7060+00	149,179	SEGMENT 5 HS-2 TO HS-4	4	\$ 142,400,000	\$ 14,240,000	\$ 156,640,000	
I	7060+00	7119+50	6,466	SEGMENT 6 HS-4 to HS-5	4	\$ 10,700,000	\$ 1,070,000	\$ 11,770,000	
JSH	7119+50	7417+00	29,812	SEGMENT 7 HS-5 to SH Hydro	4	\$ 31,400,000	\$ 3,140,000	\$ 34,540,000	
J				HYDRO STATIONS	4	\$ 96,850,000	\$ 9,685,000	\$ 106,535,000	
HS1				Hydro Station No. 1	4	\$ 13,960,000	\$ 1,396,000	\$ 15,356,000	
HS2S				Hydro Station No. 2	4	\$ 12,660,000	\$ 1,266,000	\$ 13,926,000	
JHS3				Hydro Station No. 3	4	\$ 13,310,000	\$ 1,331,000	\$ 14,641,000	
JHS4				Hydro Station No. 4	4	\$ 21,750,000	\$ 2,175,000	\$ 23,925,000	
JHS5				Hydro Station No. 5	4	\$ 19,370,000	\$ 1,937,000	\$ 21,307,000	
JHS SH				Sand Hollow	4	\$ 15,800,000	\$ 1,580,000	\$ 17,380,000	
L				Hurricane Cliffs Tunnels, Shafts & Penstock	4	\$ 56,100,000	\$ 5,610,000	\$ 61,710,000	
				KANE COUNTY PIPELINE SYSTEM 24in		\$ 27,200,000	\$ 2,720,000	\$ 29,920,000	
R	0+00		50,903	Kane County Pipeline 24in	4	\$ 27,200,000	\$ 2,720,000	\$ 29,920,000	
				ELECTRICAL SYSTEMS		\$ 97,054,959	\$ 9,705,496	\$ 106,760,455	
T				Page Electric Power Transmission System Upgrades	4	\$ 10,890,614	\$ 1,089,061	\$ 11,979,675	
U				Garkane Power Transmission System Upgrades	4	\$ 73,477,341	\$ 7,347,734	\$ 80,825,076	
V				Pacific Corp Transmission System Upgrades	4	\$ 5,950,542	\$ 595,054	\$ 6,545,596	
WPK				Rocky Mountain Power System Upgrades	4	\$ 6,736,462	\$ 673,646	\$ 7,410,108	
				TOTAL SOUTHERN ALTERNATIVE IN-LINE HYDRO		\$ 1,197,304,959	\$ 119,730,496	\$ 1,317,035,455	

Figure 53: Stantec Cost Estimate Spreadsheet Page 3

HIGHWAY ALTERNATIVE								
Bid Package	Station from	Station To	Pipeline (ft.)	Description	AACE Class	Subtotal Costs (Jan 2020)	Contingency 10%	Construction or Contract Costs (Jan 2020)
				INTAKE SYTEM		\$ 81,400,000	\$ 8,140,000	\$ 89,540,000
A	0+00	0+00	0	Intake Mass Excavation & Underground	4	\$ 48,000,000	\$ 4,800,000	\$ 52,800,000
B	0+00	0+00	0	Intake Pump Station	4	\$ 33,400,000	\$ 3,340,000	\$ 36,740,000
				WATER CONVEYANCE SYSTEM		\$ 954,580,000	\$ 95,458,000	\$ 1,050,038,000
C				LPP Booster Pump Stations 1, 2, 3 & 4	4	\$ 89,000,000	\$ 8,900,000	\$ 97,900,000
				BPS - No. 1	4	\$ 20,530,000	\$ 2,053,000	\$ 22,583,000
				BPS - No. 2	4	\$ 21,180,000	\$ 2,118,000	\$ 23,298,000
				BPS - No. 3	4	\$ 23,100,000	\$ 2,310,000	\$ 25,410,000
				BPS - No. 4	4	\$ 24,190,000	\$ 2,419,000	\$ 26,609,000
D	0+00	1319+50	132,053	SEGMENT 1 INTAKE PUMP STATION TO BPS-3:	4	\$ 106,100,000	\$ 10,610,000	\$ 116,710,000
E	1319+50	1928+00	60,928	SEGMENT 2 BPS-3 TO BPS-4	4	\$ 57,200,000	\$ 5,720,000	\$ 62,920,000
F	1928+00	2761+00	83,329	SEGMENT 3 BPS-4 TO HS-1	4	\$ 81,500,000	\$ 8,150,000	\$ 89,650,000
FRT				REGULATING TANK	4	\$ 2,000,000	\$ 200,000	\$ 2,200,000
G	2761+00	5218+62	245,762	SEGMENT 4 HS-1 TO HS-2 HWY	4	\$ 280,900,000	\$ 28,090,000	\$ 308,990,000
H	5218+62	7060+00	149,179	SEGMENT 5 HS-2 HWY TO HS-4	4	\$ 142,400,000	\$ 14,240,000	\$ 156,640,000
I	7060+00	7119+50	6,466	SEGMENT 6 HS-4 to HS-5	4	\$ 10,700,000	\$ 1,070,000	\$ 11,770,000
JSH	7119+50	7417+00	29,812	SEGMENT 7 HS-5 to SH Hydro	4	\$ 31,400,000	\$ 3,140,000	\$ 34,540,000
J				HYDRO STATIONS	4	\$ 97,280,000	\$ 9,728,000	\$ 107,008,000
HS1				Hydro Station No. 1	4	\$ 13,960,000	\$ 1,396,000	\$ 15,356,000
HS2 Hwy				Hydro Station No. 2	4	\$ 13,090,000	\$ 1,309,000	\$ 14,399,000
JHS3				Hydro Station No. 3	4	\$ 13,310,000	\$ 1,331,000	\$ 14,641,000
JHS4				Hydro Station No. 4	4	\$ 21,750,000	\$ 2,175,000	\$ 23,925,000
JHS5				Hydro Station No. 5	4	\$ 19,370,000	\$ 1,937,000	\$ 21,307,000
JHS SH				Sand Hollow	4	\$ 15,800,000	\$ 1,580,000	\$ 17,380,000
L				Hurricane Cliffs Tunnels, Shafts & Penstock	4	\$ 56,100,000	\$ 5,610,000	\$ 61,710,000
				KANE COUNTY PIPELINE SYSTEM 24in		\$ 5,300,000	\$ 530,000	\$ 5,830,000
R	0+00		50,903	Kane County Pipeline 24in	4	\$ 5,300,000	\$ 530,000	\$ 5,830,000
				ELECTRICAL SYSTEMS		\$ 97,054,959	\$ 9,705,496	\$ 106,760,455
T				Page Electric Power Transmission System Upgrades	4	\$ 10,890,614	\$ 1,089,061	\$ 11,979,675
U				Garkane Power Transmission System Upgrades	4	\$ 73,477,341	\$ 7,347,734	\$ 80,825,076
V				Pacific Corp Transmission System Upgrades	4	\$ 5,950,542	\$ 595,054	\$ 6,545,596
WPK				Rocky Mountain Power System Upgrades	4	\$ 6,736,462	\$ 673,646	\$ 7,410,108
				TOTAL SOUTHERN ALTERNATIVE IN-LINE HYDRO		\$ 1,138,334,959	\$ 113,833,496	\$ 1,252,168,455

The quotes and figures shown above constitute essentially every document detailing the cost estimate for the LPP provided in or referenced by the DEIS. It is evident that these documents, which themselves are brief, fail to fulfill a number of the best practices listed by the US Government Accountability Office. Therefore, this cost estimate should be considered inadequate.

IV.A.9 The fee increases proposed by the Lake Powell Pipeline will cause significant economic hardship to low-income communities, a fact recognized but disregarded by the DEIS

Figure 46 demonstrates that massive rate increases are necessary in order to repay the LPP debt. The required water rate increases in Washington County to pay for the LPP are detrimental to the public welfare because these rate increases disproportionately impact low income residents. For many Washington County residents, the 500+ percent increase in water rates would be a breaking point, particularly during this pandemic economy.

Many working and retired families are struggling to survive financially given the historic Coronavirus pandemic and the extremely high unemployment levels which may continue many years into the future. A 500+ percent increase in water rates could mean that a family is unable to pay their water bills, which is a basic human right. Low income communities should be worrying about their physical well-being and economic recovery, not shouldering the excessive burden of an unnecessary Lake Powell Pipeline.

Continuing to advance LPP and its dramatic increase in water rates and impact fees during our current economic turmoil is callous and cruel. Low income communities have been severely impacted by the economic collapse due to the Covid-19 pandemic. The State of Utah has already seen 176,706 residents seek government relief for layoffs, including over 7,400 people in Washington County.

For the week of April 26th to May 2nd, unemployment claims in Utah were 701% higher than they were in 2019. Tourism-driven agencies and food service workers have been especially impacted. Now more than ever, low income residents are facing a terrifying uncertainty. Now is not the time to ask low income residents to come up with a 500+ percent increase in water rates for a water project that they don't need.

The 120% impact fee increase also specifically targets low income communities. This large of an increase would ensure that Washington Counties impact fees would be the second highest in the state, just behind Summit County, adding an additional \$15,000 to building a new home. The 2019 Legislative Audit examining the Lake Powell Pipeline suggests that this number could rise to as much as \$30,000 for new development.

This massive increase in impact fees is fundamentally exclusive to low income families and creates yet another barrier preventing low income residents from owning their own homes in Washington County. This increase in impact fees will price out low income families and caters the future growth in Washington County towards wealthier residents.

These economic hardships are recognized by the DEIS. Specifically, the DEIS states:

Under either of the proposed action alternatives, there would be disproportionate adverse effects on the low income and American Indian EJ populations. The effects on low-income populations due to repayment would be adverse for both action alternatives.²⁷⁵

And:

In addition, two communities in the study area (La Verkin and St. George) were considered to be in the economic hardship category as indicated by poverty percentage and some households in these communities could be more affected by rate increases in the region than other communities.²⁷⁶

Yet, the Provo Office of the Bureau fails to identify or propose any mitigation measures to reduce or prevent these negative effects. These are the only negative effects identified in the DEIS that have no mitigation measures whatsoever proposed for them.

IV.B The socioeconomic impacts of the Lake Powell Pipeline upon other uses of the Colorado River are not adequately considered

IV.B.1 The cost of the LPP curtailing the water use of other Colorado River users, including inside Utah, was excluded from the cost-benefit analysis

Since the Provo Office of the Bureau failed to adequately consider the inherent unreliability of the Colorado River to sustain the Lake Powell Pipeline diversion, the DEIS ignored an array of impacts. There are economic consequences associated with the LPP jeopardizing water from other established Colorado River water uses in Utah (like the Central Utah Project) in the likely future event of Utah overdrawing their water supply.

²⁷⁵ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-24*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 6.

²⁷⁶ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 44.

In the years that there is not enough water available in the Colorado River Basin to meet the requirements of the Upper Basin States to deliver 7.5 million acre-feet to the Lower Basin States, which the BOR 2012 study estimates will occur every 4 to 5 years,²⁷⁷ CUP water will be threatened. Under Article IV of the Upper Colorado River Basin Compact:

In the event of curtailment of use of water by the States of the Upper Division at any time shall become necessary in order that the flow at Lee Ferry shall not be depleted below that required by Article III of the Colorado River Compact, the extent of curtailment by each State of the consumptive use of water apportioned to it by Article III of this Compact shall be in such quantities and at such times as shall be determined by the Commission upon the application of the following principles: [...] If any State or States of the Upper Division [...] shall have consumptively used more water than it was or they were [...] entitled to use under the apportionment made by Article III of this Compact, such State or States shall be required to supply at Lee Ferry a quantity of water equal to its, or the aggregate of their, overdraft of the proportionate part of such overdraft, as may be necessary to assure compliance with Article III of the Colorado River Compact, before demand is made on any other State of the Upper Division [...].

The Colorado River Compact makes clear that should Utah overdraw their Colorado River supply they will have to supply an amount of water equal to the amount they overdrew to account for the difference. This means that other Colorado River water users in Utah, like the Central Utah Project, will have to sacrifice some of their water supply.

This will doubtlessly have a number of economic consequences and will cause harm to a number of Utahns. Yet, these economic consequences were not considered in the DEIS and were not factored into the “cost-benefit” analysis conducted in Appendix C-23. Had the DEIS examined the costs of the Lake Powell Pipeline to other water users, it is plausible that either action alternative would have been found to be financially infeasible, again violating the BOR’s definition of what should be considered a reasonable alternative. It is also against the public’s interest to construct the LPP given that there is a reasonable chance that it will force other water users in Utah to forgo some of their water supply. All of these consequences could apply to water users outside of Utah as well if a Lees Ferry Deficit occurred.

The DEIS goes to great lengths to establish what benefits having a reliable water supply may confer to Washington County but excludes an analysis of what costs may confer to

²⁷⁷ *Colorado River Basin Water Supply and Demand Study, Technical Report G*, Bureau of Reclamation (2012) https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/Technical%20Report%20G%20-%20System%20Reliability%20Analysis%20and%20Evaluation%20of%20Options%20and%20Stategies/TR-G_System_Reliability_Analysis_FINAL.pdf

other water users should the LPP make their water supply insecure. This selective analysis is biased and arbitrary. As noted above, courts have recognized that it is arbitrary for agencies to “prepare[] half of a cost-benefit analysis,”²⁷⁸ and to “trumpet” an action’s benefits while ignoring the costs.²⁷⁹ The DEIS should have studied these costs.

IV.B.2 Water supply reliability benefits are wrongfully attributed to the LPP action alternatives, making the action alternatives seem more financially viable than they really are

The water supply reliability section of Appendix C-23 discusses the benefits associated with having a water supply secure enough to avoid water shortages. Specifically, the DEIS states:

Additional supplies provided by the LPP will reduce potential gaps in supply and demand in the future as well as decreasing the potential for shortage events at any particular time. Water supply reliability is not necessarily addressed through a comparison of average annual or monthly demands and supply because average water supply does not adequately reflect specific periods when demand is not fully met. In addition, managing water supplies to meet average demand does not mean that periods of shortage will not occur.²⁸⁰

The DEIS continues on to quantify how much value having a secure water supply may produce for the WCWD. They find that over a 100 year period the WCWD could gain somewhere between \$1.8 and \$2.1 billion in value.²⁸¹ As far as the cost-benefit analysis goes, this constitutes one of the largest benefits discussed in Appendix C-23.

However, this benefit is incorrectly ascribed to the LPP action alternatives. If it were true that the WCWD had an insecure water supply and if it were true that the LPP would make it a secure water supply, then the water reliability benefit should be ascribed to the LPP.

However, this is not the case. The WCWD has ample water without the LPP. Furthermore, the WCWD reported to Fitch Ratings the following:

The district is operating a groundwater recharge program that currently provides access to 100,000 af of stored water and will ultimately provide up to

²⁷⁸ *High Country Conservation Ass’n v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014).

²⁷⁹ *Sierra Club v. Sigler*, 695 F.2d 957, 979 (5th Cir. 1983).

²⁸⁰ *Ibid*, page 16

²⁸¹ *Ibid*, page 21

300,000 af.²⁸²

The WCWD has said that the purpose of this recharge program is to create emergency storage for times of water shortage and/or drought. 100,000 acre-feet is a substantial amount, nearly four times what the WCWD currently supplies,²⁸³ and is sufficient to serve as an emergency reserve for water shortages. Therefore, the WCWD's water supply is already reliable and secure. Building the LPP will only bring excess water. This means that the water supply reliability benefits should not have been ascribed to the LPP. If they are removed, the cost-benefit scale tips heavily in favor of unaffordable.

Furthermore, the BOR incorrectly argues in the DEIS that valuation of water reliability due to conservation cannot be determined:

*Other methods, such as conservation, could be implemented to address future supply and demand gaps, but these methods would not generate reliability benefits as measured by willingness to pay.*²⁸⁴

In fact, the 'contingent valuation' of water shortages, is independent of the method or policy implemented to achieve higher water reliable. A shortage is, per definition, the difference between demand and supply at a fixed price. It does not matter whether the shortage is due to excess demand or insufficient supply of water. The studies cited in the DEIS Appendix C-23 surveyed water users about their willingness to pay (WTP) to avoid a future water shortage X percent shortage every Y years (typically 1 in 10 or 1 in 20 years); and/or willingness to accept payment (WTA) for a hypothetical XX percent decrease in future reliability. In the case of WTP, the method for which probability and duration of shortage were reduced is immaterial to how reliability was increased. And WTA looks at the event of a water shortage and therefore is, per definition, independent of prevention of the shortage.

Therefore, the benefits of a given reduction in the probability and/or duration of a water shortage would be exactly the same whether it is due to an increase in water supply from a secondary source or a decrease in water demand from water conservation, landscaping (xeriscape) rebates, etc.

Additionally, in their 2000 study, Griffin and Mjelde wrote the following:

Designing an efficient strategy requires an assessment of consumer preferences

²⁸² Fitch Ratings. 2017. "Correction: Fitch Upgrades Washington County Water Conservancy, UT's Water Revs; Affirms GOs".

²⁸³ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix B*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 9.

²⁸⁴ DEIS, Appendix C-23, page 241

*pertaining to the reliability of water supply.*²⁸⁵

The authors argue that maximum water reliability is not necessarily desirable from an economic perspective due to associated costs:

*Consequently, the reliability of water systems may be too high, water supplies dedicated to municipal use may be too great, and infrastructure costs may be too large.*²⁸⁶

This suggests that the Lake Powell Pipeline may not be optimal from an economic perspective.

In addition, even if the DEIS’s discussion of water reliability was accurate—which it is not—it is nonetheless arbitrary and capricious. Reclamation ignores that fact that any water reliability benefits that accrue to WCWD due to the Lake Powell Pipeline necessarily come at the expense of causing less water reliability for other water users in Utah or the Colorado River Upper Basin. If the Lake Powell Pipeline diverts over 86,000 acre-feet of water per year from the Colorado River, that water will not be available to other water users. Consequently, if the DEIS claims the Lake Powell Pipeline will result in water reliability benefits to WCWD, it must consider the flip side of the coin and analyze how the pipeline will reduce water reliability for other water users. Courts have recognized that it is arbitrary for agencies to “prepare[] half of a cost-benefit analysis,”²⁸⁷ and to “trumpet” an action’s benefits while ignoring the costs.²⁸⁸ Yet the DEIS commits this error regarding the alleged water reliability benefits of the Lake Powell Pipeline.

IV.B.3 The cost of the lost hydropower from the Glen Canyon Dam as a function of the Lake Powell Pipeline was excluded from the cost-benefit analysis

Since the LPP will pull 86,000 acre-feet of water out of Lake Powell each year, there will be 86,000 acre-feet less water available to flow through the Glen Canyon Dam and generate hydropower. Without the LPP, the 86,000 acre-feet of water would flow through

²⁸⁵ “Valuing Water Supply Reliability”, *American Journal of Agricultural Economics*, 82 (May 2000): Abstract, page 514

²⁸⁶ *Ibid.*

²⁸⁷ *High Country Conservation Ass’n v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1191 (D. Colo. 2014).

²⁸⁸ *Sierra Club v. Sigler*, 695 F.2d 957, 979 (5th Cir. 1983).

the Glen Canyon Dam, the largest single electricity producer in the Colorado River Storage Project,²⁸⁹ where it could be optimally turned into electricity.

Instead, the LPP proposes to expend electricity pumping the 86,000 acre-feet uphill and plans to only have a small portion of this recouped by a series of small hydrostations, which are only vaguely defined in the DEIS.²⁹⁰ This will turn what would have been an energy surplus (via the water flowing through Glen Canyon Dam) into an energy deficit.

Glen Canyon Dam generates an average of 4,717 gigawatt hours (GWh) per year, enough for about 400,000 homes. This power is sold to tribes and utilities across the West, serving about 5 million people through the Western Area Power Administration. This loss of cheap energy will negatively impact consumers across the American West.

By diverting nearly 90,000 AF of water out of Lake Powell every year, the LPP would accelerate the decline of hydropower generation at Glen Canyon Dam. This loss of energy at the Glen Canyon Dam has some amount of economic value that was not considered by the DEIS. The loss of this economic value should have been included in the cost-benefit analysis in the DEIS.

IV.C The economic effects of the COVID-19 pandemic have been excluded from consideration in the DEIS

IV.C.1 The economic impacts of COVID-19 are not considered in the DEIS and no attempt is made by the Provo Office to examine what effect this may have on either of the action alternatives

The DEIS was officially released on June 8th, 2020, several months after the COVID-19 pandemic began. By the end of May, the United States had surpassed 100,000 coronavirus deaths.²⁹¹ Economists were warning of severe economic downturns as early as the beginning of April.²⁹² Yet, despite this, the DEIS does not mention the COVID-19 pandemic at all. Epidemiologists expect the coronavirus pandemic and its impacts upon the economy to last for several years, yet the Provo Office of the Bureau failed to even consider the pandemic economy in the DEIS.

²⁸⁹ Power Consulting & Aesir Consulting. “The Impact of the Loss of Electric Generation at Glen Canyon Dam” (2015).

²⁹⁰ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix E*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 12.

²⁹¹ CDC. “Coronavirus Disease 2019 Case Surveillance.” (2020). <https://www.cdc.gov/mmwr/volumes/69/wr/mm6924e2.htm>

²⁹² Pickert, Qiu, & McIntyre. “U.S. Recession Model at 100% Confirms Downturn is Already Here.” (April 8th, 2020). <https://www.bloomberg.com/graphics/us-economic-recession-tracker/>

While BOR may not be able to precisely predict what the future will look like as a result of the COVID-19 pandemic, it is unreasonable for BOR to completely ignore the pandemic and the resulting economic recession. BOR's decision to ignore the pandemic and the recession is particularly problematic in the socioeconomic impact analysis, where much of the discussion centers on projected population growth and projected economic growth. There is no doubt that the pandemic and the economic recession will impact population growth and economic growth, and as a result the entire discussion of these issues in the DEIS is now outdated and incorrect. The pandemic has become an epic economic impact unrivaled in its stature since the Great Depression 90 years ago. The Provo Office of the Bureau was obligated under NEPA to consider its impacts upon the affected environment and on suppressing water demand in the future.

This is especially true for the WCWD's revenue generating abilities. Numerous important planning documents qualify that WCWD's revenue generating ability depends almost entirely on rapid growth. See, for example, this excerpt from the 2019 Legislative Audit:

Slow Population Growth Would Reduce Overall Demand for Water, Reducing Potential Water Revenue. *The model assumes population will continue to grow over the next 50 years as projected by the Kem C. Gardner Policy Institute. If population were to grow slower than projected by the institute's lowest growth estimates, water demand would be less than projected and would ultimately reduce the revenue received from water sales...A recession in the early years of repayment would be especially challenging on WCWCD's ability to make payments.*²⁹³

And this quote from the DEIS:

*It needs to be understood that future ATP to cover costs is dependent on continued growth in the region and that the cost of service assumptions for the future actually occur.*²⁹⁴

The DEIS even finds that if growth is 0.5% per year less than the 2017 Kem C. Gardner estimates, the LPP will not be affordable.²⁹⁵ Given all these statements, it is clear that the analyses in these documents rely on growth continuing as projected by the 2017 Kem C. Gardner study. If growth is even slightly less than projected, the LPP will likely be unaffordable and infeasible.

²⁹³ Legislative Auditor General. (2019). A Performance Audit of the Repayment Feasibility of the Lake Powell Pipeline (Report No. 2019-05).

²⁹⁴ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 44.

²⁹⁵ Ibid.

Given the precarious standing of the LPP, it is especially concerning that the COVID-19 pandemic and accompanying recession was not mentioned in the DEIS. The pandemic and economic downturn is already depressing growth in Washington County,²⁹⁶ thereby making the LPP unaffordable.

IV.C.2 The cost of an increased risk of COVID-19 infection from an influx of non-local workers to the Kaibab Indian Reservation and to other local communities was excluded from the cost-benefit analysis

The DEIS acknowledges that at least some of the workers contracted to construct and maintain the LPP will be from outside the local area:

However, not all construction activities and materials will be provided by companies located in the region. Employees and materials brought in from outside the region represent economic leakages outside the region.²⁹⁷

Furthermore, the DEIS states that over 14,000 workers would be needed to construct either action alternative.²⁹⁸ Given that the BOR expects to issue a ROD in January of 2021 and that the COVID-19 pandemic is far from over,²⁹⁹ it is possible that this non-local workforce of over 14,000 people may begin working in rural communities in Southern Utah and Northern Arizona during the COVID-19 pandemic. This will likely cause an increase in infections in these communities and strain rural healthcare systems, which are already at risk.³⁰⁰ This is not only a risk that should be addressed and mitigated to the maximum extent possible but is also a likely source of costs that should be addressed and included in the cost-benefit analysis.

IV.D The DEIS demonstrates that the agencies have not complied with the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires agencies to analyze the impacts to historic resources and consult with the Advisory Council on

²⁹⁶ Davidson, Lee. "COVID-19 may finally tap the brakes on Utah's blazing fast population growth." (05/13/20). <https://www.sltrib.com/news/politics/2020/05/13/covid-may-finally-tap/>

²⁹⁷ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-23*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 47.

²⁹⁸ Ibid, page 49.

²⁹⁹ Anderson, R. M., Heesterbeek, H., Klinkenberg, D., & Hollingsworth, T. D. (2020). How will country-based mitigation measures influence the course of the COVID-19 epidemic?. *The Lancet*, 395(10228), 931-934.

³⁰⁰ Ranscombe, P. (2020). Rural areas at risk during COVID-19 pandemic. *The Lancet Infectious Diseases*, 20(5), 545.

Historic Preservation and the relevant State Historic Preservation Office (SHPO) prior to an agency action.³⁰¹ Similar to NEPA, the NHPA requires agencies to "stop, look, and listen" to the impacts on historic properties before taking action.³⁰² As an initial step in analyzing the impacts to historic resources from a proposed action, an agency must make a "reasonable and good faith effort" to identify historic properties in the project area.³⁰³ After identifying the historic resources present in the project area, the agency must take several additional steps, including consulting with the SHPO to determine how the project's impacts can be avoided or mitigated.³⁰⁴

The Utah Rivers Council is very concerned about the archaeological resources that will be impacted by the construction of the Lake Powell Pipeline. Due to the irreplaceable nature of archaeological and cultural resources we find several aspects of the Draft DEIS for the Lake Powell Pipeline to be particularly concerning.

Our concerns cover five major categories, which are as follows: 1) Issues with the survey conducted in the Lake Powell Pipeline Area of Potential Effect (APE), 2) issues with the geoarchaeology conducted within the APE and the subsequent discussion of subsurface remains, 3) issues surrounding the recommended eligibility for the National Register of Historic Places (NRHP), 4) issues surrounding the area of potential effect and the sites within and nearby the APE, and 5) issues with the current status of private and public documents.

IV.D.1 The agencies' attempts to identify historic properties are inadequate and flawed

The first step in the NHPA section 106 process is the requirement that the BOR make a "reasonable and good faith effort" to identify historic properties in the Lake Powell Pipeline project area.³⁰⁵ The DEIS demonstrates that the Provo Office's identification process is flawed and violates the NHPA.

IV.D.1.a Issues with the survey conducted in the LPP APE are not addressed within the DEIS

One of the more disconcerting aspects of the DEIS in regard to archaeological and other cultural resources is that there are sites within the project area that surveyors were

³⁰¹ 54 U.S.C. § 306108.

³⁰² *Te-Moak Tribe of W. Shoshone of Nev. v. U.S. Dep't of Interior*, 608 F.3d 592, 607 (9th Cir. 2010).

³⁰³ 36 C.F.R. § 800.4(b)(1).

³⁰⁴ *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 805 (9th Cir. 1999).

³⁰⁵ 36 C.F.R. § 800.4(b)(1).

unable to locate, per the DEIS. These sites have been found and recorded before, but now, the archaeologists who were doing the field survey for the Lake Powell Pipeline area of potential effect were unable to locate the sites again. Survey, in this case, refers to the actual steps that an archaeologist, or crew of archaeologists, takes to find archaeological sites in the field. It is important to locate all sites within the APE, especially given that many of the sites surrounding the pipeline path will face imminent destruction if the pipeline is constructed. If the parties involved know that there are some sites that exist, but they cannot find them, that is a major issue. Moreover, both the Utah and Arizona SHPOs have requested that there be additional field survey to locate all of these “missing” sites.³⁰⁶ Taking specific actions to locate these missing sites is a necessary step in finishing the field survey.

There could be a variety of reasons why these sites could not be located in the field. This could be because their location was originally noted in a different North American Datum (NAD) than the one that is most commonly used today. NAD 27 used to be used, now NAD 83 is used, and perhaps this difference was not caught during earlier research. The sites could have possibly been looted to the point that they no longer exist as identifiable sites. Naturally occurring erosion could have damaged the sites extensively enough that they are no longer able to be found, and perhaps don't exist in the same area that they did when they were originally recorded. Or they could have even been mitigated for other projects, which should have also been discovered in a pre-field research, but in the event that it was missed, that could contribute to their missing status. Essentially, there are a lot of reasons that they might have not been located, and perhaps a few sites could even be impossible to locate. That said, all of the reasons that are listed are unlikely to have occurred, and are likely able to be accounted for with either pre-survey research, or evidence should be observable in the field. Therefore, due to all of this, the archaeological Class III survey is inadequate and needs to be redone to locate these missing sites.

Additionally, the DEIS should explain what efforts have been taken to locate the missing sites, and explain the reasons they think these sites are missing. These reasons should be informed by actual observations made in the field by archaeologists connected to the project, not just plausible guesses, which is all that can be made by our organization without more information. As previously stated, many of the possible reasons why these sites can no longer be located are such that information about the site could be found in some capacity, and help determine why these sites were not located during the field survey. As currently written, the DEIS does nothing to explain why sites are missing or why they cannot be found.

³⁰⁶ Utah Division of Water Resources. *Application for Original License – Preliminary Licensing Proposal The Lake Powell Pipeline Project, FERC Project No. P-12966*, December 2015, Chapter 5, page 826.

Additionally, it took 18 field sessions, across four years to complete the class III survey,³⁰⁷ which is not necessarily in itself concerning, but many of the reasons listed above can impact archaeological sites to some extent while that time passed. It is standard practice in Utah that inventories over 10 years old will require resurvey if they are intended to be used in a project,³⁰⁸ however, UTSHPO does not require resurvey of any sites unless they are in an APE (in which case all previously recorded sites must be revisited). New documentation for sites is required in the event that 1) the previous site recording is over 10 years old, 2) there have been notable changes to site content, 3) the site could not be located/was destroyed, 4) the site is an unrecorded segment of a linear site, or 5) there was a change to National Register of Historic Places (NRHP) status.³⁰⁹

It is notable that the sites involved were surveyed more recently than 10 years ago, but special consideration should be given to sites that are more publicly accessible and are therefore more at risk of human caused impacts. This is especially important given that there have been sites in the area of potential effect that have been unable to be re-identified. Given this, and depending on the reason the sites cannot be located, even a survey that is more recent than 10 years may not be accurate for when the construction of the pipeline actually begins, even though the sites have already been surveyed specifically for this project.

Additionally, the entire pipeline corridor had not been entirely surveyed at the time the document preceding the DEIS, the Preliminary Licensing Proposal (PLP), was published. In the BLM Comments on the PLP, the BLM states that there is 30 miles of land that is in the pathway of the pipeline that has not been surveyed because it is on private land.³¹⁰ The PLP entirely neglects this fact, not even mentioning it once. The reasoning behind neglecting to mention that not all of the land had been surveyed should be explained in greater detail. Questions that need to be answered are: who owns this land? Did they not grant permission for survey? What about for the pipeline itself? Surely there is a reason and a legal process that can be followed in the event that a project needs to go through private land, and everyone would be better served if the unsurveyed land was mentioned in the PLP, including an explanation of the plans and legal requirements surrounding it. It should be noted that this information was gathered from the Preliminary Licensing Proposal and related documents, but it is not mentioned within the DEIS, leading the readers to believe that the status of this stretch of land has not changed.

³⁰⁷ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 947.

³⁰⁸ Utah State Historic and Preservation Office & Antiquities Section. *Archaeological Compliance Guidance*, March 2016, page 18.

³⁰⁹ Utah State Historic and Preservation Office & Antiquities Section. *Archaeological Compliance Guidance*, 18.

³¹⁰ Bureau of Land Management Comments. *Lake Powell Pipeline Project Draft Study Report 9 (Recreation) Review (November 2015 Version)*, February 2016, page 347.

IV.D.1.b Class III survey transects were not sufficient

The survey that was done in the area of potential effect was, according to the DEIS, “parallel transects spaced no more than 50 feet apart.”³¹¹ Transects refer to, in this case, the amount of space between archaeologists when they systematically search for any signs of an archaeological site while conducting survey. While this meets both UTSHPO and BLM standards, in the event of the archaeological sites within the APE being partially or totally destroyed, 50 feet may not have been sufficient. Archaeological studies have been conducted (see Orton, 2000) that state that surveying at 50 feet apart becomes de facto systematic *sampling*.³¹² Therefore, while 50 feet may generally meet the requirements for survey, it isn’t good enough when these sites will be destroyed. UTSHPO states that using an altered spacing for transects can be appropriate in some circumstances. This is one of them, to be clear. 50 feet spacing is not acceptable because artifacts may have been missed.

Additionally, ground visibility poses another issue. While it was surely noted on the archaeological site forms that were filled out by the archaeologists conducting the class III intensive survey, it was not noted within the Draft Environmental Impact Statement. This raises numerous concerns. The Utah Department of Transportation (UDOT) states in their “Guidelines for Identifying, Recording, and Evaluating Archaeological and Paleontological Resources” that whenever they conduct field survey their archaeologists must use test pits if the surface visibility is below 80%.³¹³ This is because if archaeologists are unable to see the ground, there is no way for them to identify sites. If the ground visibility was not high enough in the APE, and the archaeologists still did not use test pits, again, they would have missed sites, which is unacceptable.

While UDOT was not the agency that conducted this field survey, the Lake Powell Pipeline APE that was surveyed did cross UDOT land.³¹⁴ Furthermore, because many of these sites in the APE may get partially or entirely destroyed, it is especially important that as many artifacts as possible are located. If other agencies do not have the same or a similar practice, perhaps one should be considered. Regardless, if test pits were done to search for sites, the criteria used to choose them should be outlined in DEIS in order to ensure their effectiveness. It should be noted, however, that Utah typically has high ground visibility and there is no official state mandate requiring shovel probes, leaving individual agencies to decide if and when they want to use shovel probes to search for

³¹¹ Bureau of Reclamation. *Lake Powell Pipeline Project Draft Environmental Impact Statement*, Coconino and Mohave Counties, Arizona, Kane and Washington Counties, Utah June 2020, Appendix C-20, page 5.

³¹² Clive Orton, *Cambridge Manuals in Archaeology: Sampling in Archaeology*, Cambridge University Press, 2000, 90.

³¹³ Utah Department of Transportation. *UDOT Guidelines for Identifying, Recording, and Evaluating Archaeological and Paleontological Resources*, April 2010, page 5.

³¹⁴ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 947.

sites.³¹⁵ That said, not specifically outlining the shovel probe strategy, or lack thereof, in the DEIS leaves a lot of questions for the reader when it could have easily been covered within the text.

IV.D.1.c Site definitions and how this impacts eligibility by state is problematic

The Lake Powell Pipeline crosses state boundaries, and due to this, a few things must be considered in the relationship between the law and the archaeology present in the planned pathway for the pipeline. First and foremost, the definition of what qualifies as an archaeological site differs between states. Arizona defines a site, according to the Arizona State Museum (ASM) Archaeological Records Office,³¹⁶ as an area that contains:

- 1) Physical remains older than 50 years
- 2) 30+ artifacts of a single class within a 15 meter diameter
- 3) 20+ artifacts of at least 2 classes within a 15 meter diameter
- 4) One or more archaeological features in temporal association with any number of artifacts
- 5) Two or more features without associated artifacts

Utah defines a site, as stated by the UTSHPO Archaeological Compliance Guidelines³¹⁷ as an area that consists of:

- 1) Physical remains older than 50 years
- 2) 10+ artifacts from a single class within a 10 meter diameter
- 3) 15+ artifacts of 2+ classes in a 10 meter diameter
- 4) One or more archaeological features in association with any number of artifacts
- 5) Two or more temporally associated archaeological features without artifacts

However, while Utah often uses BLM standards for their definition of a site as it is outlined in the BLM Manual 8110 “Cultural Resources Manual,” it is not actually mandated in the state that archaeologists must follow this definition to the exact word, archaeologists have the freedom to determine sites as they see fit. That said, these standards are generally followed by archaeologists working in the state as it is the standard that is accepted by land management agencies around the state.³¹⁸

³¹⁵ Utah State Historic Preservation Office & Antiquities Section. *Archaeological Compliance Guidance*, 14.

³¹⁶ Arizona State Museum, The University of Arizona. *Revised Site Definition Policy*, August 1995, page 1-2.

³¹⁷ Utah State Historic and Preservation Office & Antiquities Section. *Archaeological Compliance Guidance*, 15.

³¹⁸ Utah State Historic and Preservation Office & Antiquities Section. *Archaeological Compliance Guidance*, 15.

Based on these definitions of an archaeological site, Arizona and Utah have fairly similar definitions of what qualifies as a site, but they aren't exactly the same. Even these slight differences will have impacts on the protections the sites are eligible for depending on which state they are located in, and should be accounted for within the DEIS.

Furthermore, a Tribal Historic Preservation Officer (THPO) can be chosen to manage any cases that cross Tribal lands, but they also can work in conjunction with the State Historic Preservation Office (SHPO) to deal with the aspects of cases that do not directly impact Tribal lands. Though the Lake Powell Pipeline may not end up crossing Tribal lands, in the event that it does, a lead THPO investigator could preside over the entire pipeline, as it pertains to archaeological and cultural resources. If a lead SHPO/THPO investigator were to be chosen, would one definition of a site supersede the other definitions?

Additionally, if each state has their own SHPO investigator, retains their own definitions of what a site consists of, and no lead investigator was chosen, then presumably different crews did the survey in each state. If each state had entirely different crews, and likely environmental firms involved in the survey, then, while presumably each crew would do everything exactly as they were supposed to, in the event that they did not, different coverage or results could be found between the two states. This is an issue because they are working for the same project.

Thus far it appears that there has not been a single SHPO/THPO investigator chosen, therefore, differences in site definition, and the impacts that this will have on the Lake Powell Pipeline must be acknowledged and fixed. Currently, the differences between Utah and Arizona site definitions are requirements two and three. To review: Arizona requires 30+ artifacts of a single class within a 15 meter diameter OR 20+ artifacts of at least 2 classes of artifacts within a 15 meter diameter, and Utah requires 10+ artifacts from a single class within 10 meters diameter OR 15+ artifacts of 2+ classes in a 10 meter diameter. Therefore, because Arizona requires a higher number of artifacts, both in reference to single class or multiple class sites, than Utah does, one would expect that Arizona would have a higher proportion of isolated occurrences within their project boundaries. This is particularly important due to the relationship between isolated occurrences and the National Register of Historic Places designations that will be discussed later on in these comments.

Additionally, the diameter that sites can be contained in also may have impacts on what counts as a single, or multiple archaeological sites. In Arizona, artifacts have to be within a 15 meter diameter in order to be considered part of the same site, in Utah, artifacts have to be within a 10 meter diameter of each other. This could mean that the sites in Arizona could be larger, at least on average, than the sites in Utah are, and that there

could be fewer sites per same amount of land than in Utah. Larger sites could be harder to avoid, and if they couldn't be avoided, and were eligible for the National Register of Historic Places, plans for mitigation would have to be considered.

IV.D.1.d High number of new sites potentially indicates poor survey technique in the past

One interesting aspect of the information that was revealed within the DEIS is the number of new sites documented. In Arizona, archaeologists identified a high number of new sites. In Arizona, 44/102 sites were new, 43.14% of the total sites surveyed.³¹⁹ While this is not necessarily an issue, it does show that there are a lot of sites in the area. Since so many of them had never been recorded before, a logical question to ask is why the sites that had been recorded were recorded. Surely, if survey had been done of the areas in question before, more sites would have been recorded already, and if so, why were so many sites new? Meaning, if these areas were surveyed before, why were so many sites missed?

If some of the areas in the APE had previously been surveyed, and new sites were found upon resurveying the area, then it is a reasonable conclusion to draw that there may be more unrecorded sites within the APE. If sites were missed in the first place, they could have been missed again, perhaps due to the aforementioned 50 foot survey transects. If this is the case, previous survey may have been inefficient, and therefore the survey of the APE should be conducted again to ensure that nothing was missed.

IV.D.1.e The geoarchaeologist's methods are unclear and problematic

The document preceding the DEIS, the Preliminary Licensing Proposal, heavily relies on a vague geoarchaeological study in order to support the Class III survey. This study does not seem to be heavily referenced within the DEIS, but if information that it provided is still being used in LPP development efforts, then it warrants heavy analysis.

There is no background given about the geoarchaeologist testing for subsurface remains in the areas surrounding the potential pipeline path. Due to this lack of background, there is no clarification of what this geoarchaeologist was actually doing. Despite the fact that results from the geoarchaeologist's finds continue to be mentioned for nearly fifteen more pages after the first mention, it is never clearly discussed what methods were used by the geoarchaeologist. This leads to a host of problems. Firstly, it is unclear just how exactly the geoarchaeologist was testing for subsurface remains. Is there a standard technique to complete this process? Was the geoarchaeologist following said process?

³¹⁹ Bureau of Reclamation. *Draft Environmental Impact Statement*, 13.

Stating that the different sites “showed” potential does not clear up what the method was actually used for testing.³²⁰ All we clearly know is that the geoarchaeologist was in some way searching for artifacts or features that were below the surface, and therefore would not be visible to any archaeologist simply completing a surface survey.

For clarification, earlier in this comment we mentioned test pits in relation to locating archaeological remains, but in this section it is mentioned that sites were “probed by the geoarchaeologist.”³²¹ While this could possibly mean that the geoarchaeologist conducted test pits, these test pits would have served a different purpose than the other test pits mentioned, and we cannot actually be sure because the PLP does not specify in either case. It is also possible that the geoarchaeologist used a method of testing that is referred to as “soil core testing,” but that wasn’t specifically mentioned in the PLP either. Because there are many possibilities of what the method was, it would be immensely helpful for the reader if what the actual process of whatever the geoarchaeologist did was outlined within the PLP. As it is currently written, the PLP’s statements surrounding the geoarchaeologist are unclear and cause more confusion than they provide knowledge for the reader.

IV.D.1.f Site testing methods are not outlined

The second major problem is how the geoarchaeologist chose sites to test in each area; the methods are not stated in the Preliminary Licensing Proposal. For example, in the Utah prehistoric areas, Area 1 had 13 sites tested out of 100 sites in the area, a total of 13% of all sites.³²² Similarly, in Utah Area 2, 15 sites were tested out of 111, or 13.5%.³²³ From there, however, in Utah Areas 3 and 4, a higher percentage of sites were tested, 21.3% for Area 3, and 32% for Area 4.³²⁴ These discrepancies are not accounted for by the research outline as there was no outline in the proposal. Therefore, there is no way to determine how these sites were chosen to be tested for subsurface remains. We can only guess, and there appears to be no guess that works consistently for all areas.

One such guess that can be made is that in Area 4, there are eight sites that feature temporally diagnostic artifacts, and eight sites that were tested for subsurface remains. It is not stated in the PLP if these are the same eight sites, however, it does not really matter given that this assumption works only for Area 4. The other areas have a different number of sites that featured temporally diagnostic artifacts and sites that were tested for subsurface remains. This shows the types of guesses that we have to make in order to

³²⁰ Utah Division of Water Resources. *Preliminary Licensing*, 947-961.

³²¹ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949.

³²² Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949.

³²³ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949.

³²⁴ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949-950.

make sense of this section. There is no reasonable conclusion that we can make without having the background knowledge of how these sites were chosen.

If these sites were chosen for testing randomly, why wasn't a standard percentage of sites chosen? Or, if the sites were chosen for a specific reason, why was that not outlined in the PLP?³²⁵ In Arizona, the percentage of sites tested are much more consistent, all ranging between 9% and 15%, but the areas contain fewer sites and the highest number of sites tested in any area was 4,³²⁶ which has its own issues. The section on Arizona offers no further insight into how the sites were chosen for testing.

These inconsistencies raise numerous concerns. Were these samples meant to be representative samples? Were they supposed to meet a certain level of statistical significance? While it can be hoped that they were, we were not given this information. As the PLP says nothing on the matter, only guesses can be made, which is not the way that accessible information should be written.

IV.D.1.g Inconsistencies in number of sites are confusing

There are inconsistencies within the numbers presented in the Preliminary Licensing Proposal that serve to add more confusion. The inconsistencies in the number of sites listed occur three separate times in this section of the PLP. To begin with, the number of sites listed as being in the Utah APE is incorrect. On page 5 – 947 it is stated that there are 269 prehistoric sites in the Utah APE and refers to table 5 – 165 for more details, however on table 5 – 165 there is a total of 282 prehistoric sites listed. Additionally, when the number of sites listed as being in each individual area are added together a total of 283 sites are reached.³²⁷

Three distinct numbers being listed for the same thing, however, is not the only inconsistency in this section. The number of sites listed as being in Utah Area 2 is stated as being 108 prehistoric sites and 3 multicomponent sites, for a total of 111 sites. However, when the site type breakdown is added back together, a total of 124 sites is reached. This means that, assuming that the number of tested sites is correct, that instead of 13.5% of sites being tested in this area (15/111), only 12.1% of the sites were tested. Now, 12.1% becomes the lowest percentage of tested sites in a single area in Utah.³²⁸ If there actually are 124 sites in this area then the added total of the entire Utah

³²⁵ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 948-950.

³²⁶ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 960-961.

³²⁷ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 947-950.

³²⁸ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949.

APE becomes 296 sites. How does the Division of Water Resources reconcile their original statement that there are only 269 prehistoric or multicomponent sites in the Utah APE?

However, there's another inconsistency that brings the percentage of sites tested in another area down even further. In Arizona Area 3, the Preliminary Licensing Proposal states that there are 33 sites in Area 3, 3 of which were tested, or 9.1%. That said, when added together the total number of sites is 42. Once again assuming that the number of sites that were tested in Area 3 are correct, that lowers the percentage of sites tested to 7.1%. This means Area 3 has the lowest percentage of sites that were tested of any area, and nearly half of the percentage of sites that was tested in Arizona Area 1. Altogether, this eliminates the consistency of the percentage of tested sites in the Arizona areas that we referred to before.³²⁹

Furthermore, as the number of sites tested in Arizona is so much lower than those tested in Utah, this raises the question of whether the same geoarchaeologist tested the ground in both states? Once again, this is a case where having the research methods outlined in the Preliminary Licensing Proposal would solve this issue. A good research outline would detail the reason why so many less sites were tested in Arizona, and readers wouldn't have to wonder if it was so different because an entirely different geoarchaeologist did the testing.

All of these inconsistencies add to the lack of clarity that is present throughout this entire section of the Preliminary Licensing Proposal that discusses the geoarchaeologist and their role in the archaeological process. Moreover, there are issues with the methods that the geoarchaeologist used, which are entirely unknown, and are not easily discernable. The confusion surrounding the geoarchaeologist and their methods, as well as their results and conclusions doesn't end here.

Furthermore, not knowing something as basic as how many sites are in the APE is a major problem. How can anyone who is not even sure how many sites there are that need to be protected go about protecting those sites? To go back to an earlier mentioned issue, are the missing sites even actually missing? Or were they forgotten about and miscounted because the number of sites in the APE is different nearly every time it's listed?

IV.D.1.h Study lacks evidence to back up claims surrounding subsurface remains

The PLP states that Utah Prehistoric Area 2 is the area that is the most likely to have subsurface remains. This, however, is not based on the presented numbers, nor does it

³²⁹ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 961.

correlate with them. The PLP does state that this assumption is based off of the high number of remains on the surface in that area, which would seem to be a decent association to the actual amount of subsurface remains located in Area 2. Despite this, the correlation is not very high when one actually looks at the potential for subsurface remains in each area. To review, the numbers below are the numbers that are listed in the Preliminary Licensing Proposal for the amount of sites that were tested in each area, and what their likelihood of having subsurface remains was based on the subsurface testing conducted by the geoarchaeologist.

- (1) Utah Prehistoric Area 1: 13/100 tested³³⁰ 13% tested
 - (a) 3 – low potential for subsurface remains
 - (b) 2 – moderate potential for subsurface remains
 - (c) 8 – high potential for subsurface remains
 - (d) 76.9% moderate or high potential for subsurface remains

- (2) Utah Prehistoric Area 2: 15/111 tested³³¹ 13.5% OR 15/124 tested – 12.1% tested
 - (a) 8 – low potential for subsurface remains
 - (b) 3 – moderate potential for subsurface remains
 - (c) 4 – high potential for subsurface remains
 - (d) 46.7% moderate or high potential for subsurface remains

- (3) Utah Prehistoric Area 3: 10/47 tested³³² 21.3% tested
 - (a) 6 – low potential for subsurface remains
 - (b) 1 – moderate potential for subsurface remains
 - (c) 3 – high potential for subsurface remains
 - (d) 40% moderate or high potential for subsurface remains

- (4) Utah Prehistoric Area 4: 8/25 tested³³³ 32% tested
 - (a) 2 – low potential for subsurface remains
 - (b) 1 – low to moderate potential for subsurface remains
 - (c) 1 – moderate potential for subsurface remains
 - (d) 4 – high potential for subsurface remains
 - (e) 62.5 % moderate or high potential for subsurface remains
 - (f) 75% low to moderate or moderate or high potential for subsurface remains

- (1) Arizona Prehistoric Area 1: 3/21 tested³³⁴ 14.3% tested

³³⁰ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949.

³³¹ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949.

³³² Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949.

³³³ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 950.

³³⁴ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 960.

- (a) 0 – low potential for subsurface remains
 - (b) 1 – moderate potential for subsurface remains
 - (c) 2 – high potential for subsurface remains
 - (d) 100% moderate or high potential for subsurface remains
- (2) Arizona Prehistoric Area 2: 4/40 tested³³⁵ 10% tested
- (a) 1 – low potential for subsurface remains
 - (b) 0 – moderate potential for subsurface remains
 - (c) 3 – high potential for subsurface remains
 - (d) 75% moderate or high potential for subsurface remains
- (3) Arizona Prehistoric Area 3: 3/33 tested³³⁶ 9.1% OR 3/42 tested – 7.2% tested
- (a) 0 – low potential for subsurface remains
 - (b) 1 – low to moderate potential for subsurface remains
 - (c) 1 – moderate potential for subsurface remains
 - (d) 1 – high potential for subsurface remains
 - (e) 66% moderate or high potential for subsurface remains
 - (f) 100% low to moderate or moderate or high potential for subsurface remains

Therefore, based on the actual evidence that was found upon completing the testing for subsurface remains, Utah Prehistoric Area 2 is not actually the most likely to have subsurface remains. While it is also not the least likely to have subsurface remains, Areas 1 and 4 in Utah and all three areas in Arizona have a higher potential to have subsurface remains. Although it does seem like surficial remains might, or even should, correlate with subsurface remains, that does not seem to be the case here based on the testing that the geoarchaeologist completed.

Interestingly, it is noted in the Preliminary Licensing Proposal that Utah Prehistoric Area 4 is more restricted than Utah Prehistoric Area 2, due to “rugged terrain, lack of arable land, and smaller, less dense sites.”³³⁷ Due to this, it is understandable why the geoarchaeologist would be surprised that Area 4 tested higher for subsurface remains than Area 2. However, in this case, the results differed from the hypotheses, but that was not acknowledged. Instead, the original incorrect hypothesis is still being touted as the result in the PLP. Area 2 did not have the highest likelihood for having subsurface remains, yet the PLP incorrectly states that it does.

³³⁵ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 960-961.

³³⁶ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 961.

³³⁷ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 950.

IV.D.1.i Evidence of agriculture is not mentioned except for in conjunction with Utah Area 3

Another issue that has arisen due to the lack of outlined research method(s) is the comment that no evidence of agriculture was identified in Utah Prehistoric Area 3. With the exception of this single sentence, the section on the geoarchaeologist's results never mentions agriculture, meaning that the Preliminary Licensing Proposal never mentions if evidence of agriculture was found in the other areas. That fact leads to different questions, such as: was the geoarchaeologist specifically looking for evidence of agriculture in the areas that they tested? If so, for what purpose was the geoarchaeologist looking? Would evidence of agriculture impact the number or location of sites that were tested?

Furthermore, what was the geoarchaeologist considering to be evidence of agriculture? Some possibilities on what the geoarchaeologist may have been considering are corncobs, granaries, or even evidence found in the soil that could only be seen once it was tested in a laboratory. Anyone who reads the Preliminary Licensing Proposal won't know what types of evidence was found, or what was being considered evidence, just that it wasn't found in Utah Prehistoric Area 3.³³⁸

The history of agriculture in this region of the country is a topic that is of major interest for archaeologists. It can show what the people of the past were subsisting on, and how that would have impacted their health, settlement patterns, and more. To simply mention that there was no evidence of agriculture in a single area does not provide enough information to the readers to inform them of any of this. Readers would be better served if a more in depth explanation was given to the PLP's discussion of agricultural evidence.

IV.D.1.j Size of the pipeline corridor in the APE is too small

The Draft Environmental Impact Statement states that the archaeological survey for the project was confined to the 250 feet width that made up the corridor.³³⁹ It also states that while avoiding all archaeological sites is what would be preferred, it may not be possible to avoid impacting sites within the corridor and *adjacent* sites.³⁴⁰ This leads to several questions surrounding the pipeline corridor. Why is the pipeline corridor confined to 250 feet? The reasoning given in the Preliminary Licensing Permit was that it was limited

³³⁸ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 949.

³³⁹ Bureau of Reclamation. *Draft Environmental Impact Statement*, 4.

³⁴⁰ Bureau of Reclamation. *Draft Environmental Impact Statement*, 22.

to correlate to a hydroelectric generating facility.³⁴¹ However, given that the pipeline isn't going to be focused on being part of the hydroelectric generating facility as it was when the PLP was written,³⁴² can the pipeline corridor not now be widened? Widening it would mean that more survey would have to be done in order to complete the class III intensive survey, but it would better reflect the number of, and protect the archaeological resources in the area.

IV.D.1.k Areas outside of the APE are being affected when they should not be

Additionally, one of the most concerning aspects of this section of the DEIS is the notion that sites outside of the pipeline corridor could also be affected. To quote directly from the Draft Environmental Impact Statement:

*Because the Project APE for the pipeline is only 250 feet wide, there may not be room within the Project APE to avoid cultural resources within or adjacent to the Project APE. Large sites that span the Project APE or lie across the Project APE would be affected by construction.*³⁴³

It does not make sense to mention possible damage to sites outside of the corridor without discussing why that potential damage could occur. Access roads and damage that could be caused by their construction are included as part of the APE, which is necessary, however the DEIS lacks in discussion of how access roads could negatively impact sites that are near to them. If the access roads for the project are publicly accessible, either during the actual construction of the project, or after its completion, nearby archaeological sites are at risk of being destroyed by members of the public, even only accidentally. Even if the access roads are never publicly accessible, someone working on the pipeline project, who may or may not even know the location of any archaeological sites, could accidentally or purposefully cause damage to an archaeological site, through action unrelated to construction.

The issue of damage occurring to sites outside of the APE is compounded because sites that are not confined within the 250 feet of the APE that was surveyed may not have ever been surveyed, and they certainly weren't for this project. If the sites surrounding the APE are at risk of damage during the construction of the Lake Powell Pipeline, then they need to be surveyed and documented. It does not matter that they are outside of the defined area of potential effect, because according to the DEIS, they are at risk of potential effect. It is a disservice to the history of both states involved to disregard the

³⁴¹ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 965.

³⁴² Utah Rivers Council. *Federal Agency Shoots Down Utah Application for Lake Powell Pipeline*, September 20, 2018.

³⁴³ DEIS, Appendix C-20 page 22

potential damage to archaeological and cultural resources. By admitting that there could be effects to those sites outside of the actual APE and then not surveying those areas to identify what sites could be present is a failure to comply with the purpose of doing survey.

Additionally, the section of the Draft Environmental Impact Statement in which potentially effected sites are discussed is unclear. The DEIS states that only sites within the APE got surveyed,³⁴⁴ and breaks everything down by prehistoric, historic, and multicomponent sites by state. The issue, however, begins when the DEIS states that a certain number of sites were recorded within each section of the pipeline, and then for every section, prehistoric, historic, and multicomponent, all sites in each area were recommended eligible.³⁴⁵ In other sections of the DEIS, there are numerous sites listed as being ineligible, in fact, only 162 out of the total of 230 sites identified in Utah are recommended eligible.³⁴⁶ In Arizona the numbers are 84 sites recommended eligible out of 102.³⁴⁷ Clearly there are sites within the APE that are not recommended eligible. The section where the DEIS breaks down which sites can be routed around, and which sites cannot is confusing because it only refers to eligible sites, but uses language that implies that there are *only* eligible sites within the project's APE.

IV.D.2 National Register of Historic Places eligibility is misapplied

The National Register of Historic Places was created in 1966 with the intent of documenting and preserving our nations historic resources and properties, including archaeological resources. In order for a “place” to be listed on the register, it must meet a form of historical significance. There are four different possible ways these requirements can be met, a place can be associated with a historic event, an important historical person, display exemplary design or physical characteristics, or it can have the ability to provide scientific information about the past.³⁴⁸ Meeting one of these criteria, as well as being over 50 years of age can make a place eligible for the National Register. Additionally a “place” can be a building, structure, object, site, or district.³⁴⁹

One notable issue with the eligibility determinations as presented in the Draft Environmental Impact Statement for archaeological sites along the Lake Powell Pipeline is that of isolated occurrences. Isolated occurrences (IOs) are typically sites that do not

³⁴⁴ Bureau of Reclamation. *Draft Environmental Impact Statement*, 4.

³⁴⁵ Bureau of Reclamation. *Draft Environmental Impact Statement*, 13-16

³⁴⁶ Bureau of Reclamation. *Draft Environmental Impact Statement*, 16.

³⁴⁷ Bureau of Reclamation. *Draft Environmental Impact Statement*, 13.

³⁴⁸ Arizona State Parks & Trails. *National Register: Frequently Asked Questions*. 2018.

³⁴⁹ U.S. Department of the Interior, National Park Service. *How to Define Categories of Historic Properties*.

meet the requirements of what a site consists of, which was outlined earlier in these comments, or are determined at the discretion of the project's crew chief.

FERC, the agency that oversaw this project prior to the BOR, has a strong stance on archaeological isolated occurrences. Within their comments on the PLP, they state that isolated occurrences are not eligible for mitigation or the Section 106 process. They continue that isolates are not significant and therefore cannot be listed on the National Register of Historic Places³⁵⁰ This is incorrect. The Archaeological Compliance Guidelines, as published by the Utah State Historic Preservation Office reads:

Numerous agencies and archaeologists perpetuate the inappropriate perspective that isolated finds are categorically not eligible for the National Register of Historic Places. While it is unclear where this perspective has its origin, it is clearly erroneous given the NRHP's "Object" property type. Further, it is clear that isolated finds on a holistic view might shed important information on broad land use patterns through projectile point distributions, reduction areas, itinerant historic/prehistoric encampments, etc. Isolated finds are important and should be documented appropriately.³⁵¹

This is a problem that at least the UTSHPO is aware of, but it's still problematic that FERC, the prior lead agency, incorrectly states that isolated occurrences don't need to be viewed as possibly being eligible. Therefore, all isolated occurrences should be carefully reviewed to ensure that they are appropriately recommended eligible or ineligible for the National Register of Historic Places, not simply categorically dismissed as ineligible. The fact that FERC's comment on isolates was not explicitly stated in the Preliminary Licensing Proposal and rather in the FERC comments on the PLP can only lead us to suppose that this belief was so unquestioned that it was entirely unnecessary to include within the main text of the PLP. Given that it is actually a false claim, extra care needs to be taken to ensure that everything is properly reviewed. It should be noted that FERC is no longer overseeing the PLP project but given the chance that the BOR shares a similar opinion on this matter, similar precautions should be taken regarding IOs. If this is not the case, then the stance of the BOR on IOs should be made clearer within the DEIS.

The SHPOs involved in the Lake Powell Pipeline have requested that all isolates in the area of potential effect be resurveyed to determine if they should have been included in the boundaries of another nearby site.³⁵² If any isolates were determined to be within the minimum distance of artifacts to be included in another site, the isolated artifacts were then included in the nearby full site, and added to the site forms belonging to that full

³⁵⁰ Federal Energy Regulatory Commission. *Reference: PLP Comments for the Lake Powell Pipeline Project*, March 2016, page A-16.

³⁵¹ Utah State Historic and Preservation Office & Antiquities Section. *Archaeological Compliance Guidance*, 16.

³⁵² Utah Division of Water Resources. *Preliminary Licensing Proposal*, 862.

site. Any numbers that were associated with the isolated occurrence were then voided. This has led to gaps within the numbering system that is associated with the isolated occurrences.³⁵³ There is nothing inherently wrong with this, and it is far better to have all sites properly identified than to ensure that the numbering system in place is perfectly chronological, but it could add some confusion about which isolates have not been added to other sites and their eligibility status for the National Register of Historic Places. As stated above, the isolated occurrences need to be carefully considered for their eligibility to the National Register of Historic Places, and not disregarded simply because they were isolated occurrences that could not be combined with a larger full site.

IV.D.2.a Differences in eligibility between Utah and Arizona need to be addressed

Beyond the isolates, there are several other problems with the recommended eligibility of sites within the area of potential effect. The differences in the number of sites that were recommended eligible for the National Register of Historic Places between Utah and Arizona is stark. In Arizona, 82.35% of all recorded sites were recommended eligible for the NRHP,³⁵⁴ however in Utah, only 70.4% of all recorded sites were recommended eligible,³⁵⁵ a difference of 11.95%. While today, Utah and Arizona are distinct places, the differences in the archaeological record should not be particularly vast. Because the Utah/Arizona border is a modern construction, and did not exist at the time that any prehistoric archaeological materials were left in the area, one could easily assume that there should not be such stark differences between the two states in terms of their eligibility recommendations.

There are a few different possible conclusions for the reasons the distinct differences between the recommended eligibility in Utah and Arizona exist. First, it could simply be that the sites in Utah are more publicized, or easy to access by the public based on land ownership, and this is something that could lead to differences in recommended eligibility. If the sites in Utah are visited much more often by members of the public, then perhaps the sites in Utah could have less integrity, they could have been more likely to be looted, or damaged, and are therefore less likely to be recommended eligible.

However, there is some possibility that the firm that was hired to make the recommendations has introduced potential bias in order to please their client. Or, if different firms were hired in each state, they may not have had the same understandings of how to determine whether or not something should be recommended eligible.

³⁵³ Bureau of Reclamation. *Draft Environmental Impact Statement*, 13-16.

³⁵⁴ Bureau of Reclamation. *Draft Environmental Impact Statement*, 13.

³⁵⁵ Bureau of Reclamation. *Draft Environmental Impact Statement*, 14.

Therefore, each firm could have come up with entirely different determinations, which would impact the percentages of sites in each state that were determined to be eligible.

It is even a possibility that far more construction has occurred on one side of the border than the other, which could lead to more sites in Utah having been mitigated. This would ruin those sites' integrity while perhaps even leaving portions of the site intact (enough to still classify what's left as an entire site) but removing the integrity far enough that the sites are no longer recommended eligible. These are only three of the possibilities for the differences that can reasonably be concluded, without a clear explanation as to the differences between these two states. Anyone who reads the Draft Environmental Impact Statement will be forced to essentially make something up in regards to differences between both states, which should be archaeologically similar.

Again, the DEIS does not address this concern that there is such a large difference between the two states, or even present the data in a way that it is possible to see the difference without doing some basic math. With all due respect to those involved in determining sites for eligibility recommendation, we wonder where the 29.6% of Utah's ineligible sites are located in reference to the pipelines planned location, and what size they are. As we understand, the numbers presented in the DEIS are simply the eligibility recommendations, and had not been concurred with by either the UTSHPO or AZSHPO. SHPOs make decisions based on the best information that is available to them. So, whoever was deciding on eligibility recommendations for the Utah portion of the pipeline APE could have possibly introduced bias into that process. Therefore, it does not seem out of line to think that there are other areas in which bias could have also been introduced. If the information that they provided to the SHPO was inaccurate, the SHPO cannot make proper concurrence determinations.

This type of potential bias would be easy enough to locate. While the public could not necessarily be privy to the process, simply looking at the location of the sites that were found during survey and seeing where the recommended eligible sites were in reference to the recommended not-eligible sites could visually display bias if there is any distinct patterning in this. If there is bias, then it should be corrected, if there isn't, then everyone involved and the public can be assured that there is some other reason why the percentage of sites recommended eligible is lower in Utah than in Arizona. There could be a perfectly reasonable explanation for the difference, but the fact that Draft Environmental Impact Statement does not even note the difference leads to a whole host of potential explanations, some of which are unfavorable to the individuals and agencies involved in the process. Addressing and explaining this would clear up any confusion.

IV.D.3 The project applicants are biased against a thorough archaeological analysis

Representative Mike Noel, who is a Utah Legislator and the General Manager for the Kane County Water Conservancy District (KCWCD) has a notable disdain for public lands and the resources that are a part of them, including archaeological resources.³⁵⁶ This was displayed by his conduct regarding the Jackson Flat Reservoir (JFR) and how he handled the archaeological resources involved in that project.

When the Jackson Flat Reservoir was being approved and constructed, Mr. Noel rushed KCWCD through the approval process, and archaeological and cultural resources suffered as a result. Despite there being clear evidence in the KCWCD meeting minutes that they were well aware of the significance and expanse of cultural resources in the project area for the Jackson Flat Reservoir, they routinely downplayed the significance of these resources, and began construction before the inventory was completed.

Furthermore, the KCWCD uncovered 54 sets of Native American remains in the project area. They continued construction and ignored evidence that there may have been more remains that are still undiscovered. Then, they flagrantly disregarded any input from nearby Native American tribes.

Additionally, it is unclear whether Section 106 consulting requirements were followed for the JFR. Section 106 of the NHPA is the federal code requirement that Tribes be contacted in specific ways, as per U.S. Treaty obligations, for consulting on proposed government projects and activities. Section 106 is widely referenced when Tribes aren't contacted, or properly noticed, about issues that may impact Tribes.

The District's own meeting minutes from 2016 indicate the Army Corps of Engineers (ACOE) was under the impression that KCWCD hadn't actually complied with some archaeological regulations. As recent as 2017, KCWCD was dealing with criticism from the ACOE about their conduct regarding prehistoric human remains and other culturally significant material over the course of Jackson Flat Reservoir's construction.

Moreover, Mr. Noel has a personal investment into the Lake Powell Pipeline and he may personally benefit from its completion. Mr. Noel owns land in the area of Johnson Canyon, which is located in Kane County and might be the only community in Kane County that is supposed to receive water from the Lake Powell Pipeline. Mr. Noel's property in the area is approximately 750 acres and has a worth that is estimated to be between \$4 - \$9 million. Mr. Noel stands to gain property value if the Lake Powell

³⁵⁶ Brian Maffly. "Can Utah's Mike Noel Run the BLM, an agency he despises?," *The Salt Lake Tribune* (Salt Lake City, UT) January 27, 2017.

Pipeline is constructed and his property receives water.³⁵⁷ Therefore, the possibility that other bias could have been introduced by politicians, particularly Mr. Noel, should be considered, and if they stand to benefit from the pipeline, an investigation into possible conflicts of interest should be conducted.

IV.D.4 Eligibility impacts due to scientific research questions and subsurface remains

Subsurface remains are any archaeological material that cannot be seen from the surface, and are rather found below the surface. The Bureau of Land Management states that the possibility of subsurface remains being present is not enough to effect the eligibility determination of a site.³⁵⁸ If this is true, then why were any sites tested for subsurface remains at all? It's a waste of time and resources if it is not going to impact eligibility for the National Register of Historic Places. Additionally, any subsurface remains that are discovered during the construction process will surely have to be mitigated too, even if they weren't specifically documented during the pre-construction process. Therefore, while it makes sense to actually do the subsurface testing, it doesn't make sense that it would have no impact on eligibility determination. It is notable that the possibility for subsurface remains and actual subsurface remains are not the same thing, but to discount the results of the tests for subsurface remains means it was a waste of time and money to do the pre-construction testing for subsurface remains at all.

The Bureau of Land Management also states that general scientific inquiry may not be enough to determine a site as being eligible for the National Register of Historic Places.³⁵⁹ However, is there any site in the project area that would not meet the requirements of "association" or "location" given the location of the project corridor and its relation to the Southwest, the Four Corners Region, and the Colorado Plateau? Even if specific sites in the APE have not been matched up with exact research questions, that doesn't remove the sites in the APE from the broader scientific implications of the surrounding areas.

Once the site is destroyed, any scientific information that could have been discovered from that site is gone forever. As technology advances, more and more information could be discovered from the sites in the APE, as well as the nearby sites. This argument is to primarily urge that the path of the pipeline be routed around as many archaeological sites as possible, although even that is not enough to ensure that no potential scientific data will be destroyed. If perhaps there were maize fields in the area surrounding the sites that are also in the APE, any possibility of discovering them would be completely

³⁵⁷ Utah Rivers Council. *Will the Proposed Lake Powell Pipeline Financially Benefit Rep. Mike Noel?*, March 16, 2018.

³⁵⁸ Bureau of Land Management Comments. *Draft Study Report 9 Review*, 356.

³⁵⁹ Bureau of Land Management Comments. *Draft Study Report 9*, 356.

destroyed by the pipeline construction. That said, limiting the amount of damage done will better serve the communities in the surrounding areas and archaeologists better.

IV.D.5 National Register eligibility and Native Americans impacted by the pipeline

Beyond all of the other archaeological issues with the recommended eligibility for the National Register of Historic Places for sites in the APE, the opinions of local Native Americans should also be highly considered. It is stated in the original Preliminary Licensing Permit that the Hopi consider all sites to be Traditional Cultural Properties (TCPs).³⁶⁰ It also states that the Zuni believe all sites within the APE to be significant, and that the sites should all, therefore, be considered eligible for the National Register of Historic Places, and get all of the protections that are associated with that status.³⁶¹

All sites within the area of potential effect may not meet the requirements for being Traditional Cultural Properties, or are eligible for the National Register of Historic Places. Even so, the thoughts and feelings of those who will be most directly impacted by the destroying of archaeological sites should be considered, whether there is a law that “requires” it or not. If there is even somewhat of a guise that those who are participating in the planning of this pipeline project care about the actual impacts that local or nearby populations will have to contend with then they need to consider things beyond their legal role. Anyone can follow the laws; sometimes certain projects require more than just following the laws to their bare minimum. Consider following the laws to their maximum, as well as looking beyond when it’s needed.

IV.D.6 Archaeological damage differs by alternative and the least damaging alternative should be the one implemented

All proposed actions and alternatives outlined in the DEIS, besides the No Action Alternative, will have a negative impact on cultural resources within the APE.³⁶² The proposed action will have the worst impact on cultural resources of the alternatives. That said, some of the alternatives will cause more damage than others.³⁶³ The Kaibab Band of Paiute Indians has stated that they want the pipeline to follow State Highway 389 across the reservation in order to minimize damage to cultural resources.³⁶⁴

Aligning the Lake Powell Pipeline along State Highway 389 will have a few impacts on the project overall. First, doing so would make the BIA a consulting agency, as the pipeline would then cross the reservation. Additionally, it should make the overall cost

³⁶⁰ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 1020.

³⁶¹ Utah Division of Water Resources. *Preliminary Licensing Proposal*, 1021.

³⁶² Bureau of Indian Affairs. *LPP_BIA Comments on the PLP*, March, 2016, page 1.

³⁶³ Bureau of Indian Affairs. *BIA Comments on the PLP*, 1.

³⁶⁴ Bureau of Indian Affairs. *BIA Comments on the PLP*, 1.

of the pipeline less expensive. This is true for two major reasons, the first of which is that the pipeline route that crosses the reservation is a shorter route than the current proposed action, therefore, it should cost less to complete. The second reason is sites that were disturbed by the construction of State Highway 389 are probably no longer eligible for the NRHP as they should have already been mitigated, and mitigation usually makes it so that something can no longer be eligible. This is because once sites have gone through “data recovery operations” they no longer retain integrity of location or setting, meaning that they lose their status as being eligible for the National Register of Historic Places.³⁶⁵ If sites in this area have already gone through the mitigation process, they likely won’t need to go through it again. Therefore, if this path is followed for the pipeline, mitigation costs should be less expensive, therefore making the entire project less expensive.

Similarly, the reverse is true. As sites along the other possible pipeline path alternatives have not been mitigated, they would raise the cost of the overall pipeline project because more money would have to be spent on mitigating those sites. Additionally, because the sites along other paths have never been mitigated, it would cause more unnecessary damage to archaeological sites, when there is an entire path that could be followed that will be less expensive and do less damage.

IV.D.7 BIA comments on inclusion into the creation of Historic Property Management Plan (HPMP) and Historic Property Treatment Plan (HPTP) suggest that not enough is being done to ensure associated Native Americans are being included in discussions surrounding the Lake Powell Pipeline

One major issue with the Historic Properties Management Plan (HPMP) and the Historic Properties Treatment Plan (HPTP) is that the Kaibab Band of Paiute Indians have expressed concerns that they would not be included in the creation of these documents by the Division of Water Resources.³⁶⁶ Because the cultural resources in the APE of the Lake Powell Pipeline are linked to the Kaibab Band of Paiute Indians among other nearby groups, it would be a gross injustice to not include associated Tribes in the development of the HPMP and HPTP.

That said, is it explicitly stated within the DEIS that the Kaibab Band of Paiute Indians be included in the agreement regarding impact on historic properties. We cannot speak as to why the BIA was concerned despite the DEIS stating that they would be included,

³⁶⁵ Donna J. Seifert. *Appendix: Definition of National Register Boundaries for Archaeological Properties*, ed. Barbara J. Little, Beth L. Savage, and John H. Sprinkle, Jr., National Park Service, 1995.

³⁶⁶ Bureau of Indian Affairs. *BIA Comments on the PLP*, 2.

the fact that they were can only lead one to the conclusion that special care needs to be taken to ensure that they are included in the creation of these documents, as the DEIS says they should be.

IV.D.8 HPMP/HPTP are not publicly available impacting public understanding

One issue throughout the “Results/Environmental Consequences” section of the DEIS is its constant referral to the Historic Properties Treatment Plan (HPTP). As we understand it, neither of these documents had been published or even written at the time that the DEIS was released. Furthermore, since neither of these documents will ever be made available to the public, it is not helpful to constantly refer to them, as only a limited number of people will have access to them.

The DEIS states that specific mitigation plans for archaeological resources will be outlined in the HPTP.³⁶⁷ This is another issue with those documents not being released to the public. It means that the public has to blindly trust that all of the archaeological and cultural resources within the APE will be properly mitigated, as there is no current intention for the public to gain access to the plans for mitigation. It is understandable that that the HPTP is not available to the public, and it cannot reasonably be requested that either document be released to the public, but there are some compromises that can be made.

One possible compromise could be a separate document outlining the general plan for mitigation of the archaeological and cultural resources could be released. This could be done in such a way no harm would come to the resources. Perhaps the method of mitigation could be divided by resource type, as in “resources of this type will be mitigated in this way,” and a document outlining that process could be made publicly available. Another potential option is a trusted third party, possibly a knowledgeable lawyer, who would not be a member of the public, could be approved to view the documents and certify that the plans to mitigate the resources are appropriate for the cultural groups to whom the cultural resources belong to, the resources themselves, and the public.

Furthermore, the DEIS states that possible mitigation measures are “excavation, identification, documentation, curation, and other treatments as applicable.” While these are all terms that are known to archaeologists and other involved parties, concerned members of the public may not be familiar with what these mitigation

³⁶⁷ Bureau of Reclamation. *Draft Environmental Impact Statement*, 7.

measures actually entail. Therefore, in the public document, care could be taken to explain what each of these measures mean and what that particular plan would consist of. This way, even interested members of the public that do not have background knowledge in archaeology, museum studies, or cultural resource management will be able to understand and know that archaeological and cultural resources within the APE are being protected as much as they reasonably can be.

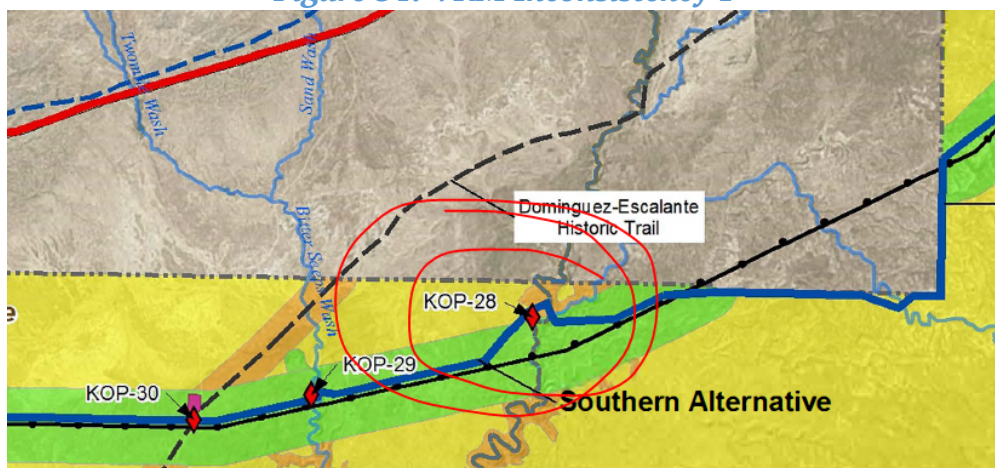
In summary, either remove the mentions of the Historic Property Treatment Plan that direct readers to the information contained within them, because the public cannot access them, provide a separate document with a more in depth explanation for what the mitigation plans are, or even possibly edit the DEIS to include more information. The DEIS as currently written and without supporting documents does nothing to ease the worries of concerned citizens over the actual mitigation plans for the archaeological and cultural resources of the area surrounding the proposed Lake Powell Pipeline pathway.

IV.E The DEIS's analysis of how the Lake Powell Pipeline will affect visual resource is arbitrary

We believe the decision by the BLM and the BOR to amend one VRM II segment in the Kanab Creek ACEC that the LPP will intersect but no other VRM II segments that the LPP will intersect is arbitrary.

The DEIS analysis includes proposed revisions to the ASFO RMP decisions where the LPP would cross (in the Southern Alternative) Kanab Creek. The figure below depicts where the Southern Alternative would cross the VRM II designated area in the Kanab Creek ACEC. In all the accompanying figures, red areas are VRM I, orange are VRM II, yellow are VRM III, and green are VRM IV.

Figure 54: VRM Inconsistency 1



Both the BOR and BLM acknowledge that constructing the LPP through a VRM II designated area will degrade the visual quality of that area, thereby violating the VRM II protections.³⁶⁸ This is explicitly stated in the DEIS. See:

*An amendment to the RMP would be necessary to make the Proposed Project conform with the RMP and to address other **conflicting management direction in the RMP related to the visual resources, ACEC, and the utility corridor.***³⁶⁹ [Emphasis added].

The BLM cannot legally issue a LPP right-of-way that would violate any existing BLM RMP decisions, such as the visual degradation of an existing VRM II area. To avoid this violation, the BOR and BLM are proposing a series of amendments to the Kanab Creek ACEC. These amendments were noticed in the Federal Register and underwent a public comment period concurrent with the LPP DEIS public comment period.³⁷⁰

In contrast, however, the DEIS does not propose similar revisions of other existing RMP decisions relating to the Old Spanish Trail (OST), Dominguez Escalante Historic Trail (DEHT), Honeymoon Historic Trail (HHT) and some VRM Class II designated areas. See the following figures for examples of the LPP passing through existing VRM II areas without any proposed changes.

For example, this section where the LPP proposed route passes through a small section of VRM II land in the Fivemile Valley Unit.

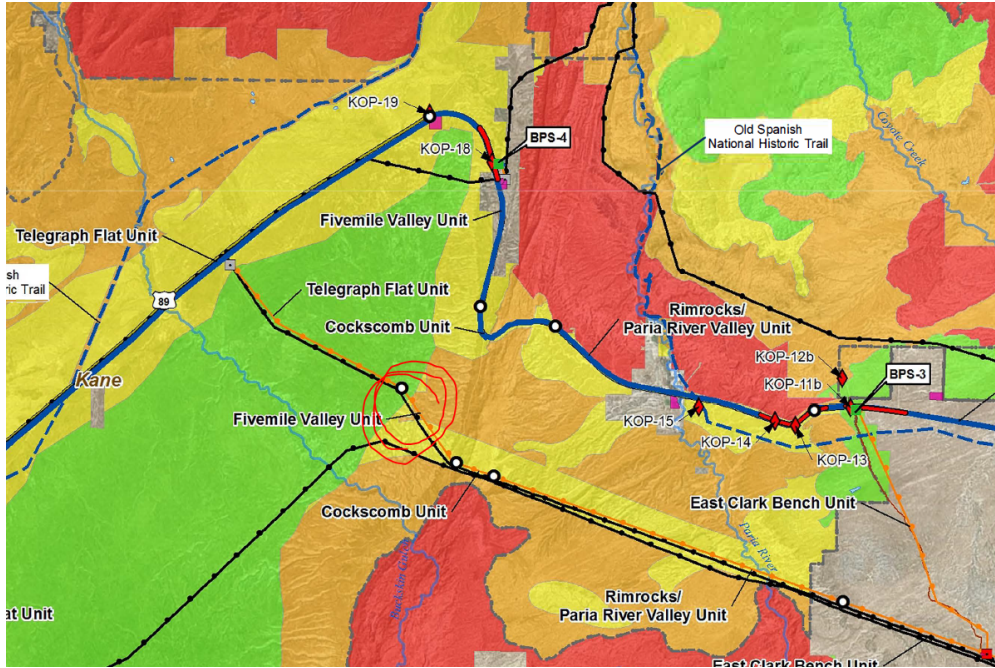
³⁶⁸ *Lake Powell Pipeline Draft Environmental Impact Statement*, Bureau of Reclamation. (2020).

<https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 4.

³⁶⁹ Ibid.

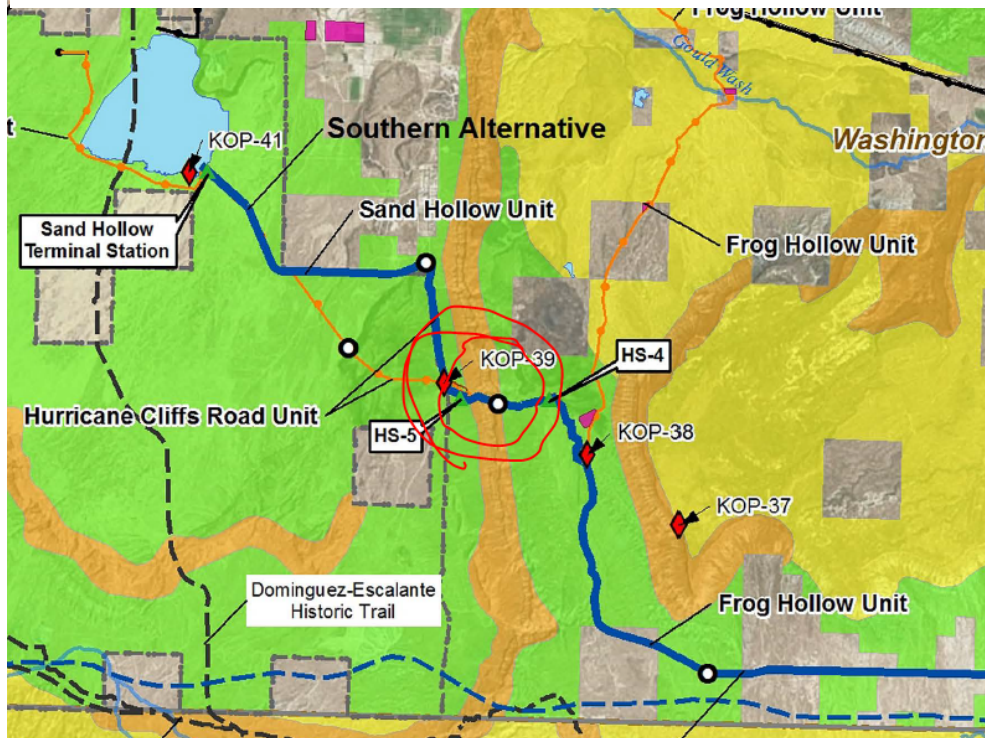
³⁷⁰ Bureau of Reclamation. “Notice of Availability of the Lake Powell Pipeline Project Draft Environmental Impact Statement/Draft Resource Management Plan Amendment; Coconino and Mohave Counties, Arizona and Washington and Kane Counties, Utah.” Published in the Federal Register on 06/08/2020.

Figure 55: VRM Inconsistency 2



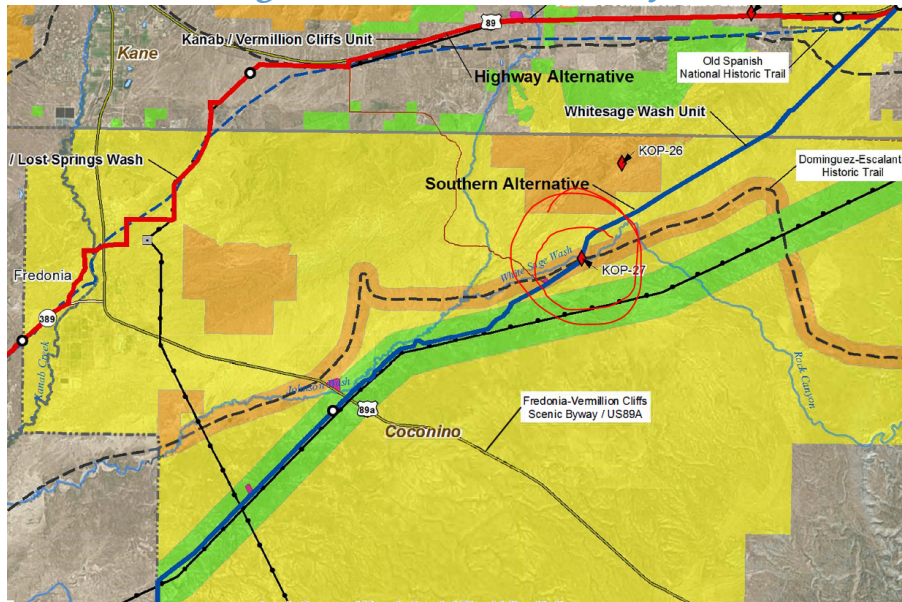
And this portion where the LPP passes through a portion of VRM II area covering the Hurricane Cliffs. In addition to the pipeline tunneling through the Cliffs, a hydropower station will be built directly outside the VRM II area, also likely degrading the visual resource of the Cliffs.

Figure 56: VRM Inconsistency 3



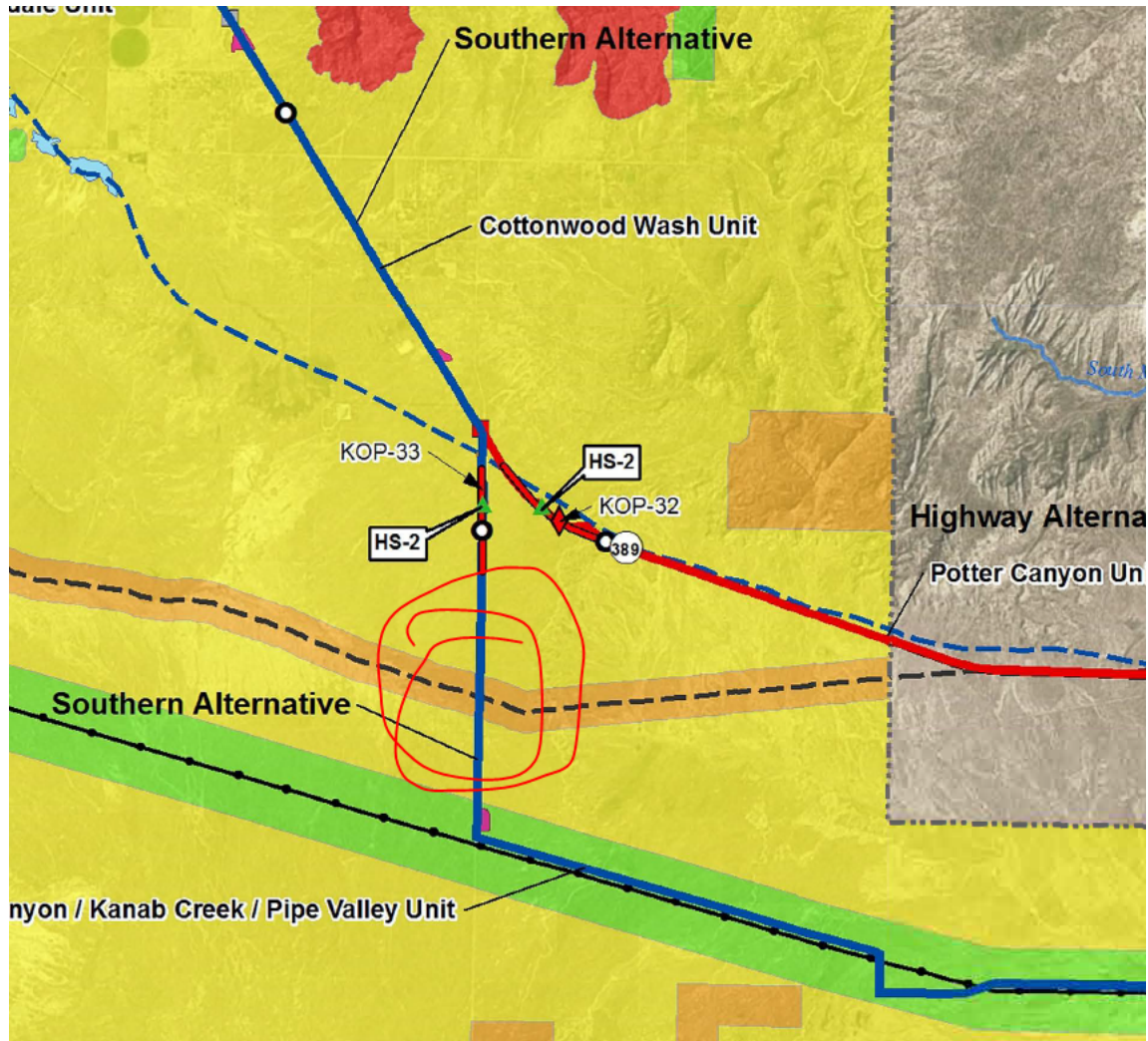
And this area where the LPP passes through the middle of the Dominguez-Escalante Historic Trail, another VRM II protected area.

Figure 57: VRM Inconsistency 4



And similarly this area where the proposed LPP routes passes through the Honeymoon Historic Trail, which is also a VRM II protected area.

Figure 58: VRM Inconsistency 5



In all of these instances, the proposed LPP route would pass through and visually disrupt a VRM II area. Yet, only the VRM II area in the Kanab Creek ACEC had amendments proposed to address this VRM violation.

There is nothing unique about the Kanab Creek VRM II area or the impacts the LPP would likely have on it that could justify only having amendments proposed to the RMP there. See, for example, the description of disruptions at key observation point (KOP) 28, the point immediately next to the VRM II area that will be disrupted by the LPP:

Ground-disturbing activities would remove a uniform band of predominately grasses interspersed with pinyon and juniper vegetation low to medium in height and density, expose lighter soils, and cut through several deeply incised wash formations. The Southern Alignment would also remove approximately 66 total

acres of vegetation for the three staging areas within the VAU. The existing 500 kV Navajo McCullough transmission line is a dominating feature that attracts attention within the VAU.

The Southern Alignment would draw attention from the natural setting in the short- and long-term and would create a notable degree of change in the characteristic landscape in the foreground because of the introduction of distinct lines into the landscape.³⁷¹

And the description of the impacts to KOP 39, which is immediately next to where the LPP would disrupt the VRM II area of the Hurricane Cliffs:

Ground-disturbing activities would remove a uniform band of dense, evenly spaced low to medium height vegetation, expose lighter soils, and cut through several washes and rock formations. The lines and forms of the Proposed Project components including a 21-acre staging area would be visually prominent in the foreground. The pipeline alignment for this option would traverse a mix of undisturbed land and dirt roads. In the foreground, the Proposed Project components would draw attention from the characteristic landscape in the short-term and would create substantial change in the setting. In this rolling terrain, the pipeline may be intermittently visible in the middle ground as the uniform line and exposed light-colored soils would be exposed on the sloped portions of landforms that are scattered throughout the landscape. This would result in a minor change in the characteristics landscape in the middle ground in the short-term.

HS-4 would be located less than a mile from the western base of Little Creek Mountain and the facility's presence would create a substantial degree of change to the landscape by introducing an industrial facility into a remote undeveloped area. The vertical lines and rectangular forms of the HS-4 would begin to dominate the landscape in the foreground.³⁷²

In both instances, the LPP construction will have substantial short and long term effects on the visual resources of the parcels. In fact, the long term effects on KOP 39 (the Hurricane Cliffs area of VRM II land) will likely be worse than the effects on KOP 28 (the Kanab Creek area of VRM II land). Yet, RMP amendments were only proposed for the

³⁷¹ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-19*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>. Page 52.

³⁷² *Ibid*, pg. 58

KOP 28 area of VRM II land. This discrepancy holds for the other examples shown above where the proposed LPP route crosses a portion of VRM II land.

In some cases, the DEIS claims that the VRM areas impacted by the proposed LPP route will not suffer any significant long term impacts to the visual quality of that area. See, for example, the statement of the long term impacts to KOP 27, which is immediately next to where the LPP will cross the VRM II area of the Dominguez-Escalante Historic Trail:

This portion of the Proposed Project would also include a permanent maintenance road over the pipeline, which would create a long-term impact. Although the road would introduce a new line in the landscape, the scale of the wide-open landscape, variety of dark soil color; and the height of the surrounding sage-scrub would diminish the degree of contrast with existing features. A segment of the pipeline would also parallel the existing Navajo-McCullough 500 kV Transmission Line. The new road and pipeline would create a minor change in the characteristic landscape and would not attract attention in the long- term in the foreground or middle ground of the VAU.³⁷³

Here, the DEIS acknowledges that some long-term impacts from the LPP will exist in the VRM II area. However, the DEIS claims that these impacts will lessen over time and will eventually become so subtle that they will “not attract attention.”

However, there is good reason to believe that the DEIS’s assumption about VRM compliance is unrealistic. The Department of Interior’s poor overall record of monitoring the ultimate success of required mitigation measures³⁷⁴ and the ever-worsening megadrought — which is causing aridification and drier soil conditions, thereby impeding upon the local environment’s ability to recover from development³⁷⁵ — both cast doubt upon the assertion that VRM II affected areas that sustain significant visual impacts will eventually return to nearly pre-development conditions.

Additionally, the following questions pertaining to the DEIS’s assumption that short term effects to VRMs will subside over time remain unanswered.

- How long would it take for the pipeline "scar" (visual contrast) to heal on the visual landscape?

³⁷³ Ibid, pg. 50

³⁷⁴ Gardner, R. C., Zedler, J., Redmond, A., & Turner, R. E. (2008). Compensating for wetland losses under the Clean Water Act (redux): Evaluating the federal compensatory mitigation regulation. *Stetson L. Rev.*, 38, 213.

³⁷⁵ Overpeck, J. T., & Udall, B. (2020). Climate change and the aridification of North America. *Proceedings of the National Academy of Sciences*, 117(22), 11856-11858.

- How much confidence should the public have that VRM mitigation measures on paper will be effectively implemented and become successful out on the ground?
- What happens if the VRM mitigation is unsuccessful but the pipeline is already constructed and Utah and the WCWCD refuse to pay for any necessary remedial actions?

For these reasons it is unrealistic to believe that the DEIS's assumption that short term impacts to VRM II areas from the LPP will fade over time.

Therefore, the decision by the BLM to amend the Kanab Creek RMP decision but not the various other RMP decisions with the same protection level (VRM II) and facing the same disturbance (significant short and long term impacts to visual resources from the LPP) is unjustified and arbitrary. This also invalidates the analysis conducted in Appendix C-19 of the DEIS.³⁷⁶

IV.F The Provo Office of the Bureau improperly studied the impacts to threatened and endangered species

The BOR is required to “describe the environment of the area(s) to be affected or created by the alternatives under consideration.”³⁷⁷ Such review “ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts.”³⁷⁸ Further, it “guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.”³⁷⁹ These action-forcing requirements “ensure[] that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast.”³⁸⁰

The DEIS's description of the affected environment does not allow for an accurate assessment of the environmental impacts of the alternatives, is not based on the best scientific information available, and the BOR (and the cooperating agencies) have not done their due diligence to ensure proper baseline information exists from which to analyze effects and compare among the project alternatives. Some of the first and most important considerations for determining impacts to aquatic and riparian species is to

³⁷⁶ *Lake Powell Pipeline Draft Environmental Impact Statement, Appendix C-19*, Bureau of Reclamation. (2020). <https://cdxnodengn.epa.gov/cdx-enepa-II/public/action/eis/details?eisId=297778>

³⁷⁷ 40 C.F.R. § 1502.15

³⁷⁸ *Robertson v. Methow valley Citizens Council*, 490 U.S. 332, 349 (1989)

³⁷⁹ *Ibid.*

³⁸⁰ *Ibid.*

determine the species presence and history in the action area as well as whether suitable or critical habitat is found there. The BOR and its cooperating agencies have failed to ensure that this basic information was collected and is available for the numerous species identified as impacted by the proposed project.

As a result of this failure to set forth and establish the baseline conditions for the species and their habitat, it becomes difficult, if not impossible, to evaluate the direct, indirect, and cumulative effects of the proposed action. When there is no established baseline and context for the listed species, including the recovery plan and the current status or trajectory of the species, the effects analysis becomes an exercise in futility. The DEIS also fails to describe certain activities and explain its conclusions regarding the effects to the species and their habitat. Given this overall failure to establish the baseline conditions and the flawed and unsupported effects analysis that occurs throughout, we highlight in the comments below several species—including the Mexican spotted owl, Southwestern willow flycatcher, yellow-billed cuckoo, and the four endangered Colorado River fish (the Humpback chub, Razorback sucker, Bonytail chub, and Colorado Pikeminnow)—to demonstrate the flaws in the DEIS. These comments, however, apply more generally to the inadequacies of the DEIS in the context of other species as well.

Finally, it is clear from the alternatives presented in the DEIS that the effects on critical habitat and listed species was not a priority in establishing a range of alternatives that would reduce or eliminate these risks. Many of the effects are present in both the Southern (Preferred) Alternative and the Highway Alternative. Since The BOR decided to dismiss any other alternatives (e.g. the Local Waters Alternative) that might actually avoid impacts to the listed species and their critical or suitable habitat, it has essentially conceded that impacts will occur and it becomes about how and whether these impacts can be mitigated. This disregard for the effects on listed species and critical and suitable habitat leaves no real choice when evaluating the effects of the proposed action. This cuts against both the spirit and letter of the NEPA’s alternatives requirement and leaves the BOR with no choice other than to choose the No Action Alternative to protect the listed species and their critical and suitable habitat in the action area.

IV.F.1 Examples of flaws in the baseline and effects analysis of the DEIS

IV.F.1.a Mexican spotted owl

The National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq., is designed to facilitate informed decision-making and public transparency by requiring federal agencies to take a “hard look” at the direct, indirect, and cumulative impacts of their proposed actions and reasonable alternatives. In formulating an EIS, an agency must “insure the professional integrity, including scientific integrity, of the discussions and

analyses.”³⁸¹ NEPA requires an agency to maintain and disclose adequate baseline data about resources it manages, to allow for evaluation of a project’s impacts.³⁸² The agencies cannot rely on future monitoring because data must be available during the EIS process and be available for public comment.³⁸³

The DEIS fails to comply with NEPA in numerous respects: the agency improperly relies on future monitoring, failed to insure the professional and scientific integrity of the discussions and analyses, and failed to provide site-specific baseline information, use the best available science, analyze impacts to Mexican spotted owl riparian corridors and other habitats, and analyze the direct, indirect and cumulative impacts of the LPP project. In addition, the agencies failed to analyze the cumulative impacts of climate change and the proposed project on Mexican spotted owl—indeed, there’s no mention of climate change in the Mexican spotted owl sections of the DEIS.

While the action agencies have initiated consultation, they have not completed the first step, to determine whether Mexican spotted owl may be present in the action area. Despite having over a decade to conduct monitoring to determine Mexican spotted owl presence and habitat conditions in the project area, none of the agencies have done so and there is no current population or habitat monitoring information in the DEIS or Special Status Wildlife Species Report, and none of these documents are based on the best available science.

Instead, the agencies are leaving any monitoring or coordinating with wildlife agencies for just prior to the start of construction, which is far too late.

*Coordination with wildlife agencies prior to construction would determine if recent occurrences of Mexican spotted owl have been reported within or near the LPP Action Area. If new information shows that Mexican spotted owls are occurring in or adjacent to the Action Area, then USFWS protocol levels surveys would be conducted 2 years prior to construction activities within 0.5 mile of construction activities.*³⁸⁴

But, the determination of whether Mexican spotted owl and their habitat may be present, and the impacts of the project on Mexican spotted owl and their habitat, must be done as part of the NEPA and ESA consultation processes, not after the project has been approved.

³⁸¹ 40 C.F.R. § 1502.24

³⁸² *Neighbors of Cuddy Mountain*, 137 F.3d 1372, 1379-80 (9th Cir. 1998)

³⁸³ *See N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1084-85 (9th Cir. 2011).

³⁸⁴ *DEIS Appendix C-18, p. 25*

The documents referenced in the DEIS and Special Status Species Report are woefully out of date. For example, the claim that there is no breeding or nesting habitat within the analysis area is based on suitable habitat modeled in 2000.³⁸⁵ There is no evidence that any of the agencies, including BLM, NPS, BOR, FWS, have complied with the ESA's or the 2012 Mexican spotted owl Recovery Plan's requirements to conduct Mexican spotted owl population, presence or habitat monitoring.³⁸⁶

According to the 2012 Recovery Plan, “[t]o accomplish the recovery of the Mexican spotted owl, the recovery strategy has five key elements designed to conserve the subspecies throughout its range: 1) protecting existing populations; 2) managing for habitat into the future; 3) managing threats; 4) monitoring population and habitat; and, 5) building partnerships to facilitate recovery.”³⁸⁷ The agencies failed to comply with these key elements. If there is no current population or habitat monitoring, it is impossible to protect existing populations, manage threats or manage habitat into the future. The LPP project will directly, indirectly and cumulatively impact and fragment Mexican Spotted Owl habitat, including riparian habitat and foraging and dispersal habitat. And, as stated above, the agencies relied on woefully out-of-date nesting and breeding habitat modeling. Without current data or information, the DEIS is based on unsupported and unverified assumptions in violation of the 2012 Mexican spotted owl Recovery Plan and the ESA. For example:

- *Potential recovery habitat within the analysis area **may** include riparian habitats such as Paria River and Kanab Creek, which may be used for foraging and dispersal.*³⁸⁸
- *Foraging and dispersal habitat **may** occur.*³⁸⁹
- *Some overlap **may** occur with construction activities and juvenile dispersal since juveniles disperse in September and October.*³⁹⁰
- *Owl foraging habitat includes a wide variety of forest conditions, canyon bottoms, cliff faces, tops of canyon rims, and riparian areas and **may** occur within the analysis area.*³⁹¹

“May” does not suffice for either the ESA or NEPA.

³⁸⁵ See DEIS Appendix C-18, p. 43

³⁸⁶ U.S. Fish and Wildlife Service. (2012). *Mexican Spotted Owl Recovery Plan, First Revision*. Albuquerque, NM: U.S. Fish and Wildlife Service Southwest Region.

³⁸⁷ Ibid, page. V

³⁸⁸ DEIS, p. 181 (*emphasis added*).

³⁸⁹ DEIS p. 186 (*emphasis added*).

³⁹⁰ Ibid

³⁹¹ Ibid.

“Recovery habitat is defined as primarily ponderosa pine-Gambel oak, mixed-conifer, and riparian forest that either is, **or has the potential for becoming**, nest/roost habitat or does **or could provide** foraging, dispersal, or wintering habitats.”³⁹² The DEIS claims that, based on vegetation mapping, there is low potential for recovery habitat to occur within the analysis area.³⁹³ It is not clear what vegetation mapping the agency is referring to or where or when it was conducted. The DEIS also states that the value of riparian habitats is low and would not likely provide suitable recovery habitat for nesting owls.³⁹⁴ Yet, there is no site-specific information on the current condition of the riparian areas, including why their value is low and whether they have the potential for becoming nest/roost habitat or could provide foraging, dispersal or wintering habitats. These riparian areas bisect designated critical habitats and the agencies should be assessing and managing them so that they can provide the necessary Mexican spotted owl habitat components, not further degraded them and exacerbating Mexican spotted owl habitat fragmentation.

In fact, the DEIS and Special Status Wildlife Species Report falsely claim that there will be no effect to designated Critical Habitat.³⁹⁵ The DEIS states that two designated critical habitat polygons near the analysis area, CP-11 and CP-12, are “over 2.5 miles north of the proposed infrastructure.”³⁹⁶ Yet, “[t]he geographic scope of data collected for sensitive fish and wildlife included information within a 6-mile-wide corridor of both action alternatives (i.e., 3 miles on either side of a reference centerline).”³⁹⁷ It appears that portions of these to critical habitat polygons are within this 6-mile wide corridor, but there is no evidence that the agencies collected data on either of them.

The agencies’ other claims regarding juvenile dispersal are equally unverified and unsupported. First, the agencies claim that the number of owls using riparian corridors and dispersing is likely to be low since most juveniles remain close to natal sites.³⁹⁸ This claim is not supported by the Recovery plan, which found that juvenile dispersal ranged from <1 to >92 km (<0.6 to >57.2 mi), and that these distances likely represent minimum estimates of dispersal capability.³⁹⁹ Further, the agencies acknowledged that some overlap may occur with construction because juveniles disperse in September and October, and that they use a wide variety of habitats during dispersal, which vary greatly

³⁹² DEIS Appendix C-18, p. 68, citing USFWS 2012 (emphasis added).

³⁹³ DEIS Appendix C-18, p. 68.

³⁹⁴ DEIS Appendix C-18, p. 43.

³⁹⁵ DEIS, Appendix C-18, p. 43.

³⁹⁶ *Id.*

³⁹⁷ DEIS, p. 161

³⁹⁸ DEIS, Appendix C-18, p. 68

³⁹⁹ U.S. Fish and Wildlife Service. (1979). *Humpback Chub Recovery Plan*. Denver, CO: U.S. Fish and Wildlife Service Colorado Fishes Recovery Team., p. 242-243.

from typical breeding habitat.⁴⁰⁰ Yet, they then come to the irrational conclusion that “[t]hese factors combined make it highly unlikely that an owl would be using the riparian corridors at the time of construction minimizing the potential for effects to foraging or dispersing owls.” *Id.* If owls use riparian areas and a wide variety of habitats for dispersal, and they are known to travel long distances during dispersal, it is likely that this project, which will bisect Mexican spotted owl riparian and other habitat such as pinyon-juniper, has significant potential to effect foraging and dispersing owls.

Notably, there’s no site-specific information on foraging habitat within the project area, despite the fact that the project will impact such habitat. “Some effects to foraging habitats associated with pinyon-juniper woodlands would be expected on both the Southern Alternative and Highway Alternative. There would be 124.4 acres (temporary) and 429.3 acres (permanent) disturbance within pinyon-juniper woodlands on the Southern Alternative and 128 acres (temporary) and 434.1 acres (permanent) disturbance on the Highway Alternative.”⁴⁰¹ These unsupported and unverified claims that there may be “some effects” to not suffice for either the ESA or NEPA.

Accordingly, without up-to-date, site-specific monitoring, data and analysis on Mexican spotted owl and their habitats, the agencies’ claims that the LPP Project will not impact Mexican spotted owl and their habitats violates the ESA and the 2012 Mexican spotted owl Recovery Plan.

Given the numerous ESA and NEPA violations, the agencies must withdraw the current DEIS, undertake significant monitoring and analysis of Mexican spotted owl presence and habitat in the project area, prepare a new DEIS based on this monitoring data and the best available science, and re-initiate ESA consultation.

IV.F.1.b Southwestern willow flycatcher

Recovery Goals and Status of the Species Not Established

The DEIS provides a brief summary of the listing history, distribution, critical habitat, and the life history and ecology of the species that represents the baseline condition for the species. This information, however, is dispersed in at least three separate documents: the DEIS, Appendix C-18 of the DEIS and the *Special Status Wildlife Species – Affected Environment* Report dated April 30, 2016 (prepared during the FERC proceeding). The baseline information generally is sparse and the information in the *Special Status Wildlife Species* report is out of date and does not represent the current baseline condition of the species. Regardless, none of these documents provide context regarding the importance

⁴⁰⁰ *DEIS, Appendix C-18, p. 68.*

⁴⁰¹ *Id., p. 69.*

of habitat in this region to recovery of the species or the status of the species in this region based on the 5-year status reviews or other comprehensive survey data.

For example, DEIS provides a general description of the critical habitat that will be impacted by the project:

Southwestern willow flycatcher critical habitat has been designated along the Virgin River in northwestern Arizona and southwestern Utah (Virgin Management Unit) (USFWS 2002a) and occurs within the analysis area. This habitat extends from approximately 6.9 miles north of the headwaters of Lake Mead in Nevada to a point approximately 1.4 miles north of the Washington Fields Diversion in Utah. The Proposed Project is approximately 1.7 miles from the stream segments designated as critical habitat within the Virgin Management Unit of the Lower Colorado Recovery Unit. Designated critical habitat also exists at the Paria River crossing on private land and includes 4.9 acres of critical habitat, north of U.S. 89, within the Powell Management Unit, which crosses both action alternatives. See Figures 1.4-2 and 1.4-3 for Southwestern Willow Flycatcher Designated Critical Habitat.⁴⁰²

The DEIS, however, does not provide the parameters of recovery set forth in the *Final Recovery Plan Southwestern Willow Flycatcher* dated August 2002 or the existence of or details on the two five-year reviews that were completed with regard to the status of the flycatcher in 2014 and again in 2017.⁴⁰³ These important documents are only referenced in passing on page 45 of Appendix C-18 of the DEIS as a link to the U.S. Fish and Wildlife Service's database of threatened and endangered species. This important context is needed to lay out the baseline in a way where direct, indirect, and cumulative effects can be assessed in the action area and decision on mitigation or selection between alternatives can be informed. This context is also important to inform the U.S. Bureau of Land Management's decision on whether to amend the Resource Management Plan to loosen the protections for or reduce the size of the Kanab Creek ACEC.

The 2002 Recovery Plan establishes criteria for the Service to use to reclassify the flycatcher from endangered to threatened or to remove the species from the list entirely,

⁴⁰² DEIS Appendix C-18 at 45 See also, Figures 1.4-2 and 1.4-3 on pages 46-47.

⁴⁰³ USFWS. Final Recovery Plan, Southwestern Willow Flycatcher. Albuquerque, NM: U.S. Fish and Wildlife Service Region 2.

USFWS. *Southwestern Willow Flycatcher, 5-Year Review: Summary and Evaluation*. Phoenix, AZ: U.S. Fish and Wildlife Service Arizona Ecological Services.

USFWS. *Notice of 12-month Petition Finding and 5-Year Review for the Southwestern Willow Flycatcher*. Phoenix, AZ: U.S. Fish and Wildlife Service Arizona Ecological Services and Southwest Regional Office.

essentially spelling out a way to assess the survival and recovery of the species.⁴⁰⁴ The Recovery Plan for the Southwestern willow flycatcher requires the following criteria are met for reclassification of the species from endangered to threatened:

*Increase the total known population to a minimum of 1,950 territories (equating to approximately 3,900 individuals), geographically distributed to allow proper functioning as metapopulations, so that the flycatcher is no longer in danger of extinction . . . these prescribed numbers and distributions must be reached **as a minimum, and maintained over a five year period.***⁴⁰⁵

The minimum number of territories is divided among recovery and management units throughout the range of the flycatcher.⁴⁰⁶ Table 9 of the Recovery Plan provides the number of territories known on surveys from 1993 to 2001 (prior to the recovery plan being finalized) and the recovery goals by recovery and management units.⁴⁰⁷ The Service's 5-year reviews in 2014 and 2017 provide a summary of the most recent information regarding the species and data reflecting the most recent surveys.⁴⁰⁸ The 5-year review completed in 2014 (USFWS 2014) is particularly relevant and informative as to the status of the species. The two recovery units relevant to this project are the Upper and Lower Basin Recovery Units.

The Upper Colorado Recovery Unit makes up 6 percent of the overall recovery goal (50 of 1,950 territories).⁴⁰⁹ This Recovery Unit includes both the San Juan and Powell Management Units; each management unit's goal is 25 territories.⁴¹⁰ At the time the recovery goals were set, 3 known territories were identified in the San Juan Management Unit and none in the Powell Management Unit.⁴¹¹ In 2014, the Service found (based on data from Durst et al. 2008) that the San Juan Management Unit had 10 territories, while the Powell Unit still had no territories.⁴¹² (USFWS 2014, Table 1 at p. 13). Thus, the recovery unit is only 20 percent toward meeting its recovery goal of 50 territories and

⁴⁰⁴ Final Recovery Plan, Southwestern Willow Flycatcher. Albuquerque, NM: U.S. Fish and Wildlife Service Region 2. page. iv-v

⁴⁰⁵ Ibid, page 77.

⁴⁰⁶ Ibid, Table 9, page 78.

⁴⁰⁷ Ibid, Table 9, p. 84-85).

⁴⁰⁸ U.S. Fish and Wildlife Service. (1979). *Humpback Chub Recovery Plan*. Denver, CO: U.S. Fish and Wildlife Service Colorado Fishes Recovery Team.

USFWS. *Southwestern Willow Flycatcher, 5-Year Review: Summary and Evaluation*. Phoenix, AZ: U.S. Fish and Wildlife Service Arizona Ecological Services.

USFWS. *Notice of 12-month Petition Finding and 5-Year Review for the Southwestern Willow Flycatcher*. Phoenix, AZ: U.S. Fish and Wildlife Service Arizona Ecological Services and Southwest Regional Office.

⁴⁰⁹ Final Recovery Plan, Southwestern Willow Flycatcher. Albuquerque, NM: U.S. Fish and Wildlife Service Region 2.

⁴¹⁰ Ibid.

⁴¹¹ Ibid.

⁴¹² *Southwestern Willow Flycatcher, 5-Year Review: Summary and Evaluation*. Phoenix, AZ: U.S. Fish and Wildlife Service Arizona Ecological Services. Table 1 at page 13.

none of those territories are in the Powell Unit (as required by the recovery goals). This is relevant information to consider when evaluating effects, alternatives, determining mitigation measures, and evaluating the any amendment to the RMP (which would further reduce other independent protections for this endangered bird). It is also quite clear that the existing habitat in the Powell Unit is particularly important given the continued challenge of establishing the species in that management unit.

The Lower Colorado Recovery Unit makes up 28 percent of the total recovery goals (525 of 1,950 territories).⁴¹³ This Recovery Unit includes seven management units including the Little Colorado, Middle Colorado, Virgin, Pahrnagat, Hoover-Parker, Bill Williams, Parker-Southerly International Boundary. *Id.* The Virgin Management Unit (located in the action area of the project) has a goal of 100 territories, which is 19 percent of the territories in the recovery unit. *Id.* At the time the goals were developed, the Virgin Management Unit had 40 territories. In 2014 (based on data from Durst et al. 2008), the Virgin Management Unit had an estimated 43 territories (up from 40 during the 1993-2001 time period). However, this is only modest progress toward the goal of 100 territories. The overall number of territories in the Lower Basin Recovery Unit was 146, which is only 27 percent of the total goal of 525 territories.⁴¹⁴

While this DEIS provides basic information on the Southwestern willow flycatcher in the action area, the specific context around goals for survival and recovery—in which to evaluate the direct, indirect and cumulative effects—is missing. Additional information is required to be provided in the DEIS (not just linked to many other documents associated with the species in the Service’s database) for the environmental review to serve its important purpose as a baseline for comparison under the law.

Paria River Critical Habitat Importance Not Established

The DEIS also fails to identify or describe why the Paria River critical habitat designation is important to the recovery of the species. This 11.8-mile critical habitat designation (78 Fed. Reg. 344) for the flycatcher “was not within the geographical area known to be occupied by flycatchers at the time of listing”, however, the Service found that

This river segment may be able [to] develop and sustain flycatcher habitat and territories and therefore is essential to flycatcher conservation in order to help meet recovery goals in this Management Unit.

⁴¹³ Final Recovery Plan, Southwestern Willow Flycatcher. Albuquerque, NM: U.S. Fish and Wildlife Service Region 2. Table 9, Page 84.

⁴¹⁴ *Ibid*

*This segment of the Paria River was identified as having substantial recovery value in the Recovery Plan (Service 2002, p. 88). This essential river segment is anticipated to provide flycatcher habitat for metapopulation stability, gene connectivity through this portion of the flycatcher's range, protection against catastrophic population loss, and population growth and colonization potential. As a result, this river segment and associated flycatcher habitat are anticipated to support the strategy, rationale, and science of flycatcher conservation in order to meet territory and habitat-related recovery goals.*⁴¹⁵

Not surprisingly, the Utah Governor's office opposed the designation claiming "there is no evidence of willow flycatcher occupancy ever on the Utah portion."⁴¹⁶ The Service defended its decision reiterating the statement above and adding that

*The Flycatcher Recovery Team discussed that the low number of breeding sites and territories within the Upper Colorado Recovery Unit is probably a function of relatively low survey effort rather than an accurate reflection of the bird's actual numbers and distribution (Service 2002, p. 64) and that much willow riparian habitat occurs along drainages within this Recovery Unit and remains to be surveyed (Service 2002, p. 64).*⁴¹⁷

This not only restates the importance of the designation, but also how vital comprehensive long-term surveys in this region are to determine the true extent of flycatcher presence.

Surveys for Species and Habitat are Inadequate and Outdated

Appendix C-18 to the DEIS provides that "[i]n 2009, riparian areas were evaluated for the presence of potentially suitable habitat" and identified a number of areas where suitable habitat exists.⁴¹⁸ The Appendix also notes that "field surveys were completed at all the sites except for Paria River," but that the Paria River area was subsequently surveyed in 2010. No detection of Southwestern willow flycatchers occurred in 2009 and one "migrant willow flycatcher was detected on May 18, 2010, but there were no further detections or subsequent visits."⁴¹⁹ The Appendix also notes "documented occurrences of southwestern willow flycatcher within the analysis area (UDWR 2020) primarily associated with designated critical habitat at the Paria River within the Powell

⁴¹⁵ 78 Fed. Reg. at 375.

⁴¹⁶ *Id.* at 464.

⁴¹⁷ *Id.* at 464.

⁴¹⁸ Appendix-C-18 to DEIS at 46.

⁴¹⁹ *Ibid*

Management Unit.”⁴²⁰ There is no additional information, however, on where or how many willow flycatchers were observed in the Powell Management Unit.

One survey of suitable and designated critical habitat in the action area over the past decade is not sufficient to evaluate the presence or absence of listed species in these areas. The Service made this point in its critical habitat designation and recommended that a long-term comprehensive survey was essential for understanding flycatcher occupancy and that one had not been conducted (at least as of 2002).⁴²¹ In addition to short a duration, the survey conducted in 2009/2010 is now 10 years old. The DEIS specifically points out that “[r]iparian habitats within the analysis area are dynamic; therefore, suitable habitat documented 10 years ago may have changed.”⁴²² Suitable habitat can change year-to-year based on annual flow conditions.

The action agency and project proponents in coordination with the U.S. Fish and Wildlife Service have had ample time to conduct the necessary suitability studies and field surveys to uncover a decade of information on flycatcher activity in the action area. Given the circumstances, it seems critical that this be done before evaluating a project that could harm that habitat and the species. Instead, the action agency and project proponent are waiting until the eleventh hour to conduct “pre-construction surveys” to provide “more up-to-date information on habitat suitability and species presence.” These last-minute surveys only give the agency a brief snapshot of a moment in time, rather than a history (of at least several years pre-construction). This is not adequate due diligence on the part of the project proponent or action agency and leaves the decisionmaker to evaluate alternatives and Resource Management Plan amendments with only partial information.

DEIS analysis of effects is flawed and is too general to assess significance of impacts

As mentioned above, it is difficult if not impossible to conduct an effects analysis when the baseline is not properly established. As such, the analysis in the DEIS is inherently flawed. The DEIS acknowledges that the project will impact flycatcher critical and suitable habitat and that impact “is expected to affect biological and physical attributes of designated critical habitat such as food, cover or shelter, and riparian habitat characteristics that support breeding populations.”⁴²³ However, the DEIS only provides conclusory statements that do not help quantify or weigh the effects. For example, even where the DEIS identifies the number of acres that will be affected (e.g. 1.14 acres of the

⁴²⁰ Ibid

⁴²¹ See 78 Fed. Reg. at 464.

⁴²² DEIS at 188.

⁴²³ DEIS at 186.

Paria River critical habitat), there is no context as to how much of the total critical habitat on the Paria River will be impacted, which goes to significance. The same is true for the other riparian habitat identified in Table 2.2-1, which make up the total 1.8 acres of habitat impacted.

Further, as soon as the effects are identified, the DEIS discounts the gravity of those effects by noting that “EPMs and Section 7 consultation conservation measures would minimize this threat” and that “restoration of the habitat components for the species would be long term.”⁴²⁴ In so doing, the DEIS fails to disclose the true term or length of the effect in some cases. For example, the DEIS asserts that “[r]estoration at riparian crossings would minimize long-term effects of construction activities allowing for biological and physical features of the habitat to be restored.”⁴²⁵ The DEIS admits that “this may take more than one full year to achieve restoration objectives,” but does not disclose or discuss that while the restoration may mitigate the long-term impact of clearing, an additional short-term impact (likely a year or longer) still exists during the course of the restoration efforts.⁴²⁶

Further, with the exception of the EPMs, which are included in the DEIS, the section 7 consultation conservation measures or requirements of the biological opinion and any restoration plan are not part of the DEIS. An informed decision cannot be made with a future promise of restoration and conservation measures that are not presented along with the effects of the action.

The DEIS cannot rely on a forthcoming restoration plan to mitigate effects to critical and suitable habitat of the species. The DEIS points to “restoration of the habitat components for the species” as the long-term solution to addressing impacts.⁴²⁷ EPM B.1.62 requires “a detailed Restoration Plan [] be submitted to the BLM for approval **prior to the start of construction**” and also submitted to the Service where listed species are involved.⁴²⁸ However, the details of any plan for restoration are not laid out in the DEIS and thus not subject to public notice and comment or available to a decisionmaker who is deciding between alternatives and assessing the viability of the project.

River Crossings Require Corps to Issue Section 404 Permit under CWA

In section 3.9 of the DEIS, it is contemplated that the pipeline alignments will either cross or encounter surface or shallow groundwater.⁴²⁹ The DEIS provides at table showing

⁴²⁴ DEIS at 187.

⁴²⁵ DEIS at 187.

⁴²⁶ Ibid.

⁴²⁷ Ibid.

⁴²⁸ DEIS, Appendix C-18 at 19 (emphasis added).

⁴²⁹ See DEIS at 122-135.

any waterbody that are within 500 feet of the Lake Powell Pipeline Alternatives.⁴³⁰ Further, it is clear that the proposed alternatives cross several rivers, including the Paria River, Short Creek at Canaan Gap, Short Creek at Colorado City, Two-mile Wash, Kanab Creek, Cottonwood Wash, Kanab Creek at Fredonia, and Bitterseeps Wash, among others.⁴³¹ However, the DEIS does not contemplate the need for a permit under Section 404 of the Clean Water Act. The U.S. Army Corps of Engineers should be included as a cooperating agency for the environmental review and these permits are required before approval or final decision on this project. Further, the permits and the effects should be incorporated into this environmental review.

A Resource Management Plan Amendment is Not Appropriate

FLMPA mandates that the BLM “give priority to the designation and protection of areas of critical environmental concern.”⁴³² Areas of Critical Environmental Concerns (ACECs) are areas “where special management is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes.”⁴³³ As stated in the DEIS, “this designation also serves as a reminder that significant values or resources exist that must be accommodated when future management actions and land use proposals are considered near or within an Area of Critical Environmental Concern.”⁴³⁴

The Kanab Creek ACEC was designated to protect southwestern willow flycatcher habitat, cultural resources, riparian, and scenic values.⁴³⁵ This protection of habitat is a separate and important extra level of protection for the Southwestern willow flycatcher and their suitable and critical habitat in this important geography in addition to the protections received under the ESA. The relevance and importance of the area include: 1) cultural resources that significant regionally and vulnerable to vandalism and impacts; 2) high scenic quality due to canyon depths, intricacies and colors of Kanab Creek; and 3) a natural riparian system that includes “rare, endemic plant communities and suitable unoccupied habitat for endangered southwestern willow flycatcher,” which is “**fragile, irreplaceable, and unique and is vulnerable to adverse change.**”⁴³⁶

⁴³⁰ DEIS at 124, Table 3.9-1

⁴³¹ DEIS at 181

⁴³² 43 U.S.C. §1712(c)(3).

⁴³³ *Ibid.* at §1702(a)

⁴³⁴ DEIS, Appendix C-7 at 1.

⁴³⁵ DEIS, Appendix C-7 at 5.

⁴³⁶ DEIS, Appendix C-7 at 9 (emphasis added).

The Southern (Preferred) Alternative in the DEIS would bisect the Kanab Creek ACEC and therefore require an amendment to the Arizona Strip Field Office Resource Management Plan. DEIS at 83. The RMP amendment would not only allow for the substantial impacts associated with this Project, but would ensure that other development projects could move forward that would change the character and eliminate the protections and special features of the Kanab Creek ACEC as designated. See Table 2.2-1 of DEIS, Appendix C-7 at 17. This amendment alone should be reason to halt the Southern (Preferred) Alternative. The only choice that protects the suitable riparian habitat of the Southwestern willow flycatcher in this region is the no action alternative.

IV.F.1.c Western Distinct Population of Yellow-billed Cuckoo

Much of the discussion above with regard to the Southwestern willow flycatcher also applies to the yellow-billed cuckoo because the effects of the species were conflated into one section of the DEIS. As is often the case, the DEIS assumes that the flycatcher and cuckoo are such similar species that no separate analysis of effects is required. This is simply a misbelief.

DEIS assumes in error effects to flycatcher and cuckoo are identical

While the Southwestern willow flycatcher and yellow-billed cuckoo are birds that require riparian habitat that can overlap and have some similar life history traits, there are differences in the species that require them to live in different riparian niches along riverside habitat. For example, in its joint discussion of the two species, the DEIS identifies the amount and general location suitable and critical habitat of the Southwestern willow flycatcher and the yellow-billed cuckoo collectively in the action area. It is unclear from this discussion if there is really complete overlap of habitat or whether some habitat applies to the flycatcher, but not the cuckoo. The flycatcher and cuckoo do typically share some riparian habitat along rivers, but each have unique habitat requirements that should not be overlooked by lumping them together in the way the DEIS has presented the information. The DEIS should be clear about what the shared habitat and the effects are and where habitat or effects are unique to one or the other species. We believe that the DEIS should analyze the effects to each species separately.

Surveys for Species and Habitat are Inadequate and Outdated.

Appendix C-18 to the DEIS references field surveys evaluating potential suitable and nesting habitat within the Proposed Project “as documented in survey reports” and cites (UBWR 2016a), which appears to be the *Special Status Wildlife Species Report*.⁴³⁷ It is unclear what “field surveys” conducted in what year the DEIS is referencing. This needs

⁴³⁷ DEIS, Appendix C-19 at 49.

to be made clear if this information is included in the DEIS. The 2009 surveys, referenced above, that occurred in connection with the Southwestern willow flycatcher are similarly outdated. As mentioned above, one survey for western yellow-billed cuckoos and their suitable habitat in the action area over the past decade (or at least since the species was listed in 2014) is not sufficient to evaluate the presence or absence of listed species in these areas. The Service made this point in its critical habitat designation for the flycatcher and recommended that a long-term comprehensive survey was essential for understanding flycatcher occupancy and that one had not been conducted (at least as of 2002).⁴³⁸ This same argument can be made for the cuckoo. In addition to short a duration, the survey conducted in 2009/2010 is now 10 years old. The DEIS specifically points out that “[r]iparian habitats within the analysis area are dynamic; therefore, suitable habitat documented 10 years ago may have changed.”⁴³⁹ Suitable habitat can change year-to-year based on annual flow conditions.

The action agency and project proponents in coordination with the U.S. Fish and Wildlife Service have had ample time to conduct the necessary suitability studies and field surveys to uncover a decade of information on cuckoo activity in the action area. Given the circumstances, it seems critical that this be done before evaluating a project that could harm that habitat and the species. Instead, the action agency and project proponent are waiting until the eleventh hour to conduct “pre-construction surveys” to provide “more up-to-date information on habitat suitability and species presence.” These last-minute surveys only give the agency a brief snapshot into one-month of one-year, rather than at least several years pre-construction. This is not adequate due diligence on the part of the project proponent or action agency and leaves the agency to evaluate alternatives with only partial information.

Effects of Water Exchange Contract Lacks Detail and Support

The DEIS provides:

the LPP water exchange contract would have beneficial effects to proposed critical habitat for western yellow-billed cuckoo in the Upper Colorado and Green River, particularly at Canyonlands National Park at the confluence of the Green and Colorado Rivers (Unit-5, Green River 2) and the Ouray National Wildlife Refuge (Unit 1- Green River 1) (79 FR 48547).⁴⁴⁰

⁴³⁸ See 78 Fed. Reg. at 464.

⁴³⁹ DEIS at 188.

⁴⁴⁰ DEIS at 188.

The DEIS references the 2014 critical habitat designation (79 FR 48547) for the yellow-billed cuckoo.⁴⁴¹ The Service revised its critical habitat designation for the yellow-billed cuckoo on February 27, 2020 and it can be found at 85 Fed. Reg. at 11458. This update needs to be made to the DEIS.

The DEIS identifies “the intent” of the LPP water exchange contract “to allow flows from Flaming Gorge Dam to meet the ESA Upper Colorado River Recovery Implementation Program.”⁴⁴² The DEIS—without any additional discussion of how the exchange would operate, how much water would be released, the timing of those releases, or any other parameters—concludes that the “it is expected the LPP water exchange contract would maintain dynamic riverine processes for meeting biological and physical features” of proposed critical habitat for the cuckoo.⁴⁴³ The DEIS goes on to likewise conclude that “return flows associated with water delivery of Lake Powell water . . . may result in increased flows into the Virgin River . . . which would be beneficial to maintaining habitat for the species.”⁴⁴⁴ This is another unsupported conclusion that is actually contradicted in another part of the DEIS where it provides that any increase in flows to the lower portions of the Virgin River would decline after 2060 (as shown in model runs) because secondary demands would continue to increase and use more return flows through reuse.⁴⁴⁵ It is unacceptable for the DEIS to generalize about benefits that are fleeting and draw glib conclusions around benefits to species when no meaningful analysis of the hydrology and the species and habitat needs has been done.

IV.F.1.d Colorado River endangered fish (Colorado Pikeminnow, Razorback sucker, Bonytail chub and Humpback chub)

The DEIS fails to provide the full baseline condition of the four listed Colorado River endangered fish. These fish exist in a heavily managed Colorado River system subject to various agreements (biological opinions, guidelines, operating agreements, etc.) that mandate certain dam operations and management. The DEIS presumes that the existing management agreements and operations—with the additional water from the water exchange contract—will cure the many challenges these species face given the deteriorated condition and lack of historic flows, temperature, and dynamism under which these species evolved. However, the DEIS fails to analyze how the release of more water from Flaming Gorge Reservoir under the exchange contract, the timing of those releases, and the temperature of those releases will work to the “benefit” of these four endangered fish species.

⁴⁴¹ Ibid.

⁴⁴² Ibid.

⁴⁴³ Ibid.

⁴⁴⁴ Ibid.

⁴⁴⁵ DEIS at page 122.

A salient example of how and why it is not necessarily a foregone conclusion that these releases will “benefit” the species is the recent local extirpation of humpback chub in Dinosaur National Monument, which is downstream of Flaming Gorge Dam. This population of chub, while relatively rare, persisted in the Green and Yampa Rivers of the monument from 1979 until the late 1990s.⁴⁴⁶ In 2017, the Service reported that from 1998 to 2000 only about 400 adult humpback chub occupied Yampa Canyon and “[d]ensity has declined below level of detection since” (USFWS 2017a, p. 6).

In the recent effort to reclassify the species from endangered to threatened, the Service admits that water temperature in the Green River and low flows in the Yampa River are responsible for extirpation of these populations:

Unlike the other four populations in the upper basin, the Dinosaur National Monument population is currently below detection limits and is now considered functionally extirpated. By 1998, humpback chub were absent or rare in habitats where the species was likely common in the 1940s (Tyus 1998, p. 192), and the decline in the Dinosaur National Monument population likely was the result of the construction of the Flaming Gorge Dam. Humpback chub in the Green River portion of the Dinosaur National Monument population were negatively affected by the cold releases from the Flaming Gorge Dam starting in 1963, and the Yampa River portion was negatively affected by low river flows, especially in the early 2000s.⁴⁴⁷

One of the Service’s concerns in its 2017 memorandum regarding sufficient progress for the recovery program stated “Humpback chub apparently extirpated from Dinosaur National Monument”.⁴⁴⁸

Dams’ cold-water releases significantly alter temperature regimes in the Colorado River and its tributaries, impacting the survival and recovery of the humpback chub.⁴⁴⁹ In 1979, the major reason cited for the decline of the humpback chub was “the operation of

⁴⁴⁶ U.S. Fish and Wildlife Service. (1979). *Humpback Chub Recovery Plan*. Denver, CO: U.S. Fish and Wildlife Service Colorado Fishes Recovery Team. Page. 7.

USFWS. *Humpback Chub 2nd Revised Recovery Plan*. Denver, CO: U.S. Fish and Wildlife Service Colorado Fishes Recovery Team. Page. 8

USFWS. *2016-2017 Abbreviated Assessment of Sufficient Progress under the Upper Colorado River Endangered Fish Recovery Program in the Upper Colorado River Basin*. Denver, CO: U.S. Fish and Wildlife Service Mountain-Prairie Region. Page. 6

⁴⁴⁷ 85 Fed. Reg. 3590

⁴⁴⁸ USFWS. *2016-2017 Abbreviated Assessment of Sufficient Progress under the Upper Colorado River Endangered Fish Recovery Program in the Upper Colorado River Basin*. Denver, CO: U.S. Fish and Wildlife Service Mountain-Prairie Region. Page. 13.

⁴⁴⁹ USFWS. *Humpback Chub (Gila cypha) Recovery Goals*. Denver, CO: U.S. Fish and Wildlife Service Mountain-Prairie Region. Page 19.

Flaming Gorge and Glen Canyon dams, and perhaps Hoover dam” where both “impoundments and cold tailwaters” eliminated habitat.⁴⁵⁰ “Suitable river flow and temperature regimes” are vital conditions to the humpback chub’s success.⁴⁵¹

The Service dismisses this threat of altered temperature regime below dams and claims “[w]ater temperature is suitable and unaltered by reservoir releases in the four extant populations”⁴⁵² The Service, however, fails to explain the “extirpated Dinosaur National Monument population in the Green River” where a portion of the Green River is cooled by releases from Flaming Gorge Dam”.⁴⁵³

The example demonstrates that the cursory look in the DEIS into how the exchange contract and its reservoir releases will only provide benefits to the species and even if it does provide a benefit, the DEIS must actually take a hard look at the exchange, explain its operation, and its direct and indirect benefits to the four endangered Colorado River fish. The DEIS is woefully inadequate in this regard.

The DEIS evaluates quite briefly the four Colorado River endangered fish species specifically because the BOR believes that its exchange contract will provide a benefit to the species in the Upper Basin.⁴⁵⁴ The DEIS explains that

*Under the exchange contract, the UBWR would forbear the diversion of a portion of the natural flows to which the 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, the UBWR would deplete an equal amount of water released from Flaming Gorge Dam throughout the year and available at Lake Powell.*⁴⁵⁵

While this may be the case, the DEIS does not provide enough detail on how the exchange will work, what amount of water (the entire amount or some portion) that UBWR would forebear and to which the Recovery Program would be entitled to take credit for. It is also unclear from the DEIS whether the Recovery program’s use of the water is simply maintaining the status quo, because UBWR is not taking its entitlement by diverting it without the project and the Recovery Program must fulfill its obligation regardless of the LPP. These details are necessary for any assessment of the “benefits” or “harms” to the species realized by operating the exchange contract.

⁴⁵⁰ U.S. Fish and Wildlife Service. (1979). *Humpback Chub Recovery Plan*. Denver, CO: U.S. Fish and Wildlife Service Colorado Fishes Recovery Team. Page 8.

⁴⁵¹ USFWS. *Species Status Assessment for the Humpback Chub* (Gila cypha). Denver, CO: U.S. Fish and Wildlife Service Mountain-Prairie Region. Page v.

⁴⁵² 85 Fed. Reg. 3590.

⁴⁵³ Ibid.

⁴⁵⁴ DEIS at 190.

⁴⁵⁵ Ibid.

Further, the DEIS does not contemplate that taking an additional 80,000 acre-feet of water out of Lake Powell in the Upper Basin might impact flows available for the Lower Basin. The DEIS doubles down on the Hydrologic models put forth in the DEIS and assumes that under no circumstances will the additional depletions associated with the Lake Powell Pipeline impact flows to the Lower Basin. Given the realities of climate change and the need for assessing the worst-case scenario, it appears the DEIS should take a hard look at what those impacts might be. In fact, three of these species (the razorback sucker, bonytail chub, and humpback chub) also reside in and have critical habitat designated in the lower basin and there is no analysis of whether flows might be impacted by the project.

IV.F.2 Environmental protection measures

The Environmental Protection Measures (EPMs) proposed to “reduce or avoid adverse impacts” of the Proposed Project were “considered when assessing initial residual effects on listed species and their habitats.”⁴⁵⁶ The DEIS provides that these measures will be implemented as “part of the Proposed Project” as standard practice. These EPMs, however, are insufficient to alleviate impacts to the species, often come after the fact, and are generally unenforceable.

For example, some of the EPMs only provide guidance or encouragement at the discretion of the agency, but do not mandate action on behalf of the species. For example, with regard to the California condor, EPM B.5.73 provides “[w]here condor nesting activity is known within 0.5 miles of permitted or authorized activities that include operation of heavy machinery, **BLM may encourage the operator** to avoid use of the equipment during the active nesting season.”⁴⁵⁷ This “encouragement” should not be an assurance that the BLM will take the step to influence the operator to avoid using its equipment AND under the EPM the operator does not have to change their behavior based on that suggestion direction (if it comes at all). A similar EPM B.5.74 and B.5.75 exists with encouragement from the BLM to postpone activity when “blasting” is involved.⁴⁵⁸

In addition, monitoring protocols that only require the agency to start monitoring 30 days prior to construction does not help establish the baseline condition and assumes

⁴⁵⁶ DEIS Appendix C-18 at 4.

⁴⁵⁷ See EPM B.5.73, DEIS Appendix C-18 at 13.

⁴⁵⁸ DEIS, Appendix C-18 at 13.

that this pre-construction monitoring in and of itself will provide enough information on where the species are located to curb harmful activities.⁴⁵⁹

The EPMs cannot be effective or relied upon in choosing between alternatives unless they are mandatory and enforceable. The mere suggestion of mitigation is not sufficient to offset the significant effects to the environment and listed species of the proposed action.

IV.F.3 Pending consultation under Section 7 of the ESA with U.S. Fish and Wildlife Service

In attempting to justify the adverse effects of the proposed project, the BOR relies on the “EPMs” and the “Section 7 consultation conservation measures” to “minimize the [identified] threat[s].”⁴⁶⁰ It is impossible to evaluate and comment upon the so called “conservation measures” if they are not available to the public in an updated and final biological assessment or complete biological opinion.

It is unclear, but appears unlikely, that the draft revised preliminary biological assessment dated March 27, 2019 is the most recent version of this document and if this is the biological assessment that was provided to the Service to initiate consultation associated with the Lake Powell Pipeline Project as described in this DEIS. However, it is apparent from reviewing the March 27, 2019 draft revised biological assessment that it cannot be relied upon to evaluate the project because it is outdated, inaccurate, and does not represent the project or the effected species as presented in the DEIS.

The status of that consultation with the Service and a final biological assessment and biological opinion on the proposed action is also not apparent from reviewing the DEIS. It is our understanding, based on a communication with the Provo Office of Reclamation, that both the final biological assessment submitted to the Service and the final and issued biological opinion of the Service are complete and will be appended to the Final Environmental Impact Statement. These documents were not provided to us upon request during that communication.

Given the significant evolution of this project and the potential for significant impacts to listed species that may or may not be able to be mitigated, we believe that it is unacceptable to withhold important scientific information and opinions from consulting agencies during the public environmental review process. If completed and available, the public should be able to benefit and evaluate the technical information on numerous

⁴⁵⁹ See EPM B.5.14, DEIS Appendix C-18 at 6.

⁴⁶⁰ See *e.g.* DEIS at 180, 184, 185, 187, 189, 192, and 195 (re Southwestern willow flycatcher).

species and effects of the proposed action that will be included in those documents by the Service. The public should not have to wait until the eleventh hour to express its concerns regarding impacts that were not included in the environmental impact statement, but were revealed in the consultation documents.

The BOR has a separate and independent obligation under the National Environmental Policy Act to review the project and attaching the analysis and conclusions of the Service does not relieve them of that obligation. An ESA consultation with the Service is not a substitute for taking a hard look at the project impact under NEPA.

We reserve the right to supplement these DEIS comments after the final biological assessment and issued biological opinion for the Project have been released to the public and/or request sufficient time be provided to the public after the FEIS is released so these documents can be review and incorporated into our FEIS comments.

V. The DEIS failed to take a hard look at the cumulative impacts of the Lake Powell Pipeline

The Lake Powell Pipeline is a massive proposed project at 140 miles in length which crosses an array of sensitive environments and cultural resources, affects a large and diverse array of stakeholders and requires an array of necessary permits, land use plan modifications and other approvals. Yet these many cumulative effects have not been property considered by the Provo Office of the Bureau in the DEIS. The LPP also has a number of components that underwent separate NEPA processes which also failed to consider the cumulative effects of the Lake Powell Pipeline project. This segmentation is a violation of NEPA and precludes the public from understanding the full scope and impacts of the project.

An EIS must analyze the cumulative impacts of the proposed action.⁴⁶¹ Cumulative impacts “result[] from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.”⁴⁶²

As previously noted, the amended CEQ NEPA regulations that will go into effect on September 14, 2020, do not define “cumulative impacts.” The BOR must nonetheless fully analyze the Lake Powell Pipeline’s cumulative impacts in the FEIS. As discussed above, the BOR is not required to apply the new regulations to ongoing NEPA processes such as this. It would be arbitrary and capricious for the BOR to begin analyzing cumulative impacts in the DEIS, only to reverse course and ignore such impacts in the

⁴⁶¹ 40 C.F.R. §§ 1508.7, 1508.25(c); *High Sierra Hikers Ass’n v. Blackwell*, 390 F.3d 630, 640 (9th Cir. 2004).

⁴⁶² 40 C.F.R. § 1508.7

FEIS. Moreover, multiple states and other parties have filed lawsuits challenging the new NEPA regulations. The BOR risks issuing an invalid FEIS if it relies on the new regulations to justify an inadequate cumulative impacts discussion, and a court subsequently vacates the new regulations. In addition, the new NEPA regulations do not invalidate or diminish the long-standing NEPA case law and precedent that requires agencies to take a hard look at the environmental consequences of their actions. In this case, the cumulative impacts (and indirect effects) of the Lake Powell Pipeline are substantial, and thus NEPA requires the BOR to take a hard look at these consequences.

V.A The FEIS must analyze the cumulative impacts of the Lake Powell Pipeline and the past, present, and future water diversions planned for the Upper Colorado River Basin

One of the primary flaws in the Lake Powell DEIS is the failure to acknowledge and adequately analyze how this new 86,000 acre-feet per year diversion from the Upper Colorado River Basin will affect other Colorado River water users and increase the odds of a compact call. As previously discussed, the Colorado River is in crisis because water supplies are declining, and climate change will continue to exacerbate water shortages in the future. As a result, the Upper Basin states face an increasing risk of not being able to deliver the 7.5 million acre-feet annually to the Lower Basin, as required by the 1922 Colorado River Compact. As discussed above, the BOR is well aware of this crisis, as it oversees and operates many aspects of the Colorado River system, and it is currently seeking ways to mitigate these issues and leave additional water in the river through Drought Contingency Plans, demand management strategies, and other mechanisms. Other government agencies have also highlighted this crisis.⁴⁶³ The Lake Powell Pipeline would result in a massive new diversion from the Upper Colorado River Basin. Yet the DEIS never even attempts to analyze how this new diversion would impact other water users or increase the odds of a compact call. As previously noted, the FEIS must analyze these impacts as indirect effects of the Lake Powell Pipeline. The FEIS must also analyze the cumulative impacts of the Lake Powell Pipeline, in light of the other past, present, and future consumptive uses and water diversions planned in the Upper Colorado River Basin.

The first component of this cumulative impacts analysis requires a list of the past and present consumptive uses and water diversions from the Upper Colorado River Basin.⁴⁶⁴ The BOR already possesses this data in its role of managing the Colorado River, and it

⁴⁶³ See, e.g., Cong. Research Serv., *Management of the Colorado River: Water Allocations, Drought, and the Federal Role* (2019), available at <https://fas.org/sgp/crs/misc/R45546.pdf>.

⁴⁶⁴ See, e.g., *League of Wilderness Defs-Blue Mountains Biodiversity Project v. U.S. Forest Serv.*, 549 F.3d 1211, 1218 (9th Cir. 2008) (noting the “general rule that ‘NEPA requires adequate cataloguing of relevant past projects in the area’” (quoting *Lands Council v. Powell*, 395 F.3d 1019, 1028 (9th Cir. 2005))).

regularly publishes reports summarizing Upper Basin consumptive uses and losses.⁴⁶⁵ The BOR must include similar information in the cumulative impacts section of the FEIS, as a thorough understanding of the past and present depletions and water uses in the Upper Basin are necessary to analyze the cumulative impacts of the Lake Powell Pipeline.

The cumulative impacts analysis must also include a list of the reasonably foreseeable future actions that have potential cumulative impacts.⁴⁶⁶ As the DEIS notes, a future action is reasonably foreseeable “when there is a reasonable expectation that the action could occur,” including “a future action stated in a report, such as a planning document” or a future action that has obligated funding.⁴⁶⁷ The BOR has already studied future water depletions in the Upper Basin, as it issued a 2012 report that analyzed projected future water supply and demand scenarios for the entire Colorado River.⁴⁶⁸ This report should serve as the starting point for identifying the reasonably foreseeable future diversions in the Upper Basin, and the BOR should update its 2012 analysis to include new planned diversions. At a minimum, the cumulative impacts section of the FEIS must list and analyze the following reasonably foreseeable diversions that are planned in the Upper Basin:

Future Utah Water Diversions

- Navajo Utah Water Rights Settlement Act of 2019 (81,500 acre-feet)⁴⁶⁹
- Flaming Gorge Pipeline (55,000 acre-feet)⁴⁷⁰
- Green River Water Rights Exchange (up to 50,000 acre-feet)⁴⁷¹
- Enefit Oil Shale Production Facility (10,800 acre-feet)⁴⁷²
- Garley Dam (5,000 acre-feet)⁴⁷³

⁴⁶⁵ See, e.g., Reclamation, *Provisional Upper Colorado River Basin Consumptive Uses and Losses Report 2016-2020* (July 2019), available at <https://www.usbr.gov/uc/envdocs/plans.html#CCULR>.

⁴⁶⁶ See, e.g., *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214-15 (9th Cir. 1998).

⁴⁶⁷ DEIS at 258.

⁴⁶⁸ Reclamation, *Colorado River Basin Water Supply and Demand Study* (2012), available at <https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/index.html>.

⁴⁶⁹ S. 1207, 116th Cong. (2019), available at <https://www.congress.gov/bill/116th-congress/senate-bill/1207>.

⁴⁷⁰ Flaming Gorge Pipeline Application to Appropriate Water (Jan. 12, 2018), available at <http://savethecolorado.org/wp-content/uploads/2018/02/Million-Application.pdf>.

⁴⁷¹ Reclamation, *Green River Block Water Exchange Contract, Final Environmental Assessment* (2019), available at <https://www.usbr.gov/uc/envdocs/ea/20190100-GreenRiverBlockWaterExchangeContract-FinalEAandFONSI-508-PAO.pdf>.

⁴⁷² Bureau of Land Mgmt., *Record of Decision for the Enefit American Oil Utility Corridor Project* (2018), available at https://eplanning.blm.gov/public_projects/nepa/37462/158127/193295/001_ROD_for_the_Enefit_UTILITY_Corridor_Project_-_Signed_9.24.18.pdf.

⁴⁷³ Amy Joi O’Donoghue, *Carbon County eyeing new reservoir to meet future water demands*, Deseret News (Oct. 28, 2016), <https://www.deseret.com/2016/10/28/20599309/carbon-county-eyeing-new-reservoir-to-meet-future-water-demands>.

- Green River Pipeline/Wasatch Front Diversion (75,000 acre-feet)⁴⁷⁴

Future Colorado Water Diversions

- Windy Gap Firming Project (30,000 acre-feet)⁴⁷⁵
- Moffat Collection System Project (15,000 acre-feet)⁴⁷⁶
- Cow Creek Pipeline (14,400 acre-feet)⁴⁷⁷
- Wolf Creek/White River Storage Project (20,000-90,000 acre-feet storage capacity)⁴⁷⁸
- Whitney Reservoir (9,000-19,000 acre-feet of storage capacity)⁴⁷⁹
- Crystal River Ranch Dams (1,000 acre-feet)⁴⁸⁰

Future New Mexico Diversions

- Navajo-Gallup Water Supply Project (36,000 acre-feet)⁴⁸¹

Future Wyoming Diversions

- Fontenelle Reservoir Expansion (125,000 acre-feet)⁴⁸²
- Big Sandy Reservoir Expansion (2,400 acre-feet)⁴⁸³

Future Arizona Diversions

- Gila River Diversion (14,000 acre-feet)⁴⁸⁴

As this list demonstrates, the Upper Basin states plan to divert substantial amounts of additional water from the Upper Colorado River Basin. The FEIS must analyze the incremental impacts of diverting 86,000 acre-feet per year of water for the Lake Powell Pipeline, when added to these reasonably foreseeable future diversions, along with the

⁴⁷⁴ H.B. 328, 2020 General Session (Utah 2020), available at <https://le.utah.gov/~2020/bills/static/HB0328.html>.

⁴⁷⁵ Reclamation, Record of Decision Windy Gap Firming Project Final Environmental Impact Statement (2014), available at https://www.usbr.gov/gp/eca/wgfp_feis/wgfp_rod.pdf.

⁴⁷⁶ U.S. Army Corps of Eng'rs, Record of Decision Moffat Collection System Project (2017), available at <http://cdm16021.contentdm.oclc.org/utis/getfile/collection/p16021coll7/id/4088/filename/4089.pdf>.

⁴⁷⁷ Tanya Ishikawa, *First steps taken in developing Cow Creek pipeline and reservoir*, Telluride News (Jan. 29, 2020), https://www.telluridenews.com/the_watch/news/article_dcc8603a-42f5-11ea-be0d-778bfb17d9e7.html.

⁴⁷⁸ Rio Blanco Water Conservancy Dist., White River Storage Project, <https://rioblancowatercd.colorado.gov/white-river-storage-project> (last visited Sept. 1, 2020).

⁴⁷⁹ U.S. Forest Serv., Scoping Letter (May 28, 2020), available at https://www.fs.usda.gov/nfs/11558/www/nepa/113772_FSPLT3_5299145.pdf.

⁴⁸⁰ Heather Sackett, *Crystal River Ranch near Carbondale seeks to preserve water rights tied to potential dams, reservoirs*, Aspen Journalism (May 4, 2020), <https://www.aspenjournalism.org/2020/05/04/crystal-river-ranch-near-carbondale-seeks-to-preserve-water-rights-tied-to-potential-dams-reservoirs/>.

⁴⁸¹ Reclamation, Navajo-Gallup Water Supply Project, <https://www.usbr.gov/projects/index.php?id=580> (last visited Sept. 1, 2020).

⁴⁸² America's Water Infrastructure Act of 2018, Pub. L. No. 115-270 (2018), available at <https://www.congress.gov/115/plaws/publ270/PLAW-115publ270.pdf>.

⁴⁸³ Reclamation, *Big Sandy Enlargement Project Draft Environmental Assessment* (2017), available at <https://www.usbr.gov/uc/envdocs/ea/pdf/BigSandyEnlargeDraftEA.pdf>.

⁴⁸⁴ Arizona Water Settlements Act (2004). <https://www.congress.gov/108/plaws/publ451/PLAW-108publ451.pdf>

past and present diversions and consumptive uses.⁴⁸⁵ The BOR must analyze how the Lake Powell Pipeline and these many other planned diversions will affect the Colorado River’s water supply, and how these diversions will affect the ability of the Upper Basin to deliver the 7.5 million acre-feet per year to the Lower Basin that is required by the 1922 Colorado River Compact. In doing so, the BOR should also determine which of the most junior water rights inside Utah and other states, are most likely to be impacted under these competitive uses in lieu of climate change’s reductions in water flows which are occurring today.

Relatedly, the FEIS must also analyze how the Lake Powell Pipeline and these other planned diversions will increase the odds of water shortages in the Upper Basin, and increase the odds of a compact call. In addition, the FEIS must analyze how the Lake Powell Pipeline and these other planned diversions will exacerbate climate change impacts on the Colorado River. In short, diverting an additional 86,000 acre-feet of water from the Colorado River for the Lake Powell Pipeline will cause additional water shortages, and these impacts will be cumulative with other planned water diversions in the Upper Basin. The DEIS’s complete failure to acknowledge, let alone analyze, these impacts violate NEPA and prevents the BOR, the other federal agencies, and the public from taking a hard look at the Lake Powell Pipeline’s cumulative impacts.

V.B The Lake Powell Pipeline project has been segmented and undergone multiple separate NEPA processes, thereby failing to consider the cumulative effects of the project and its impacts upon the affected environment

The regulations implementing NEPA define “connected actions” as those that “are closely related and therefore should be discussed in the same impact statement.”⁴⁸⁶ Actions are connected if they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.”⁴⁸⁷ Further, “[p]roposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.”⁴⁸⁸ An agency must consider all “connected actions” in a single EIS.⁴⁸⁹ The “purpose of this requirement is to prevent an

⁴⁸⁵ 40 C.F.R. § 1508.7.

⁴⁸⁶ 40 C.F.R. § 1508.25(a)(1)

⁴⁸⁷ *Id.* § 1508.25(a)(1)(iii).

⁴⁸⁸ *Id.* § 1502.4(a)

⁴⁸⁹ *Great Basin Mine Watch v. Hankins*, 456 F. 3d 955, 968\69 (9th Cir. 2006). *See also Kleppe v. Sierra Club*, 427 U.S. 390, 399 (1976) (a single environmental review document is required for distinct projects when there is a single proposal governing the projects); *Alpine Lakes Prot. Soc’y v. U.S. Forest Serv.*, 838 F. Supp. 478, 482 (D. Wash. 1993) (“In its use of the word ‘shall,’ 40 C.F.R. § 1508.25 makes mandatory the consideration of

agency from dividing a project into multiple actions, each of which individually has an insignificant environmental impact, but which collectively have a substantial impact.”⁴⁹⁰

The Tenth Circuit utilizes an “independent utility test in which it concludes that projects that have independent utility are not connected actions under 40 C.F.R. § 1508.25(a)(1)(iii).”⁴⁹¹ Where projects are interdependent, they must be reviewed together.⁴⁹² The Ninth Circuit has required the Forest Service to prepare a single EIS for multiple post-fire timber sales that were planned in response to the same fire and located in the same watershed.⁴⁹³

All of the connected actions discussed below should be analyzed in the Lake Powell Pipeline DEIS as connected actions. Accordingly, the Lake Powell Pipeline DEIS should have analyzed the direct effects, indirect effects, and cumulative impacts of the Green River Block Exchange and the Sand Hollow Regional Pipeline, and failing to include these connected actions in the Lake Powell Pipeline DEIS. At a minimum, the DEIS should have examined the cumulative impacts of the Lake Powell Pipeline, when added to these reasonably foreseeable and related projects.

V.B.1 Approval of the Green River Block Exchange prior to the initiation of the Lake Powell Pipeline NEPA process constitutes a segmentation of NEPA

Two contracts will likely be used to supply the LPP. The first, the Green River Block (GRB), was finalized in 2019 through an environmental assessment process spearheaded by the Provo Office of the Bureau.⁴⁹⁴ This first proposed Green River Block Exchange is currently being litigated by an array of stakeholders. The second, the Lake Powell

connected, cumulative, and similar actions by an agency when determining the scope of an EIS.”); *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 998 (9th Cir. 2004) (“[p]roposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement”); *Utahns for Better Transp. v. United States Dep’t of Transp.*, 305 F.3d 1152, 1182 (10th Cir. 2002), modified in part on other grounds, 319 F.3d 1207 (2003)

⁴⁹⁰ *Great Basin Mine Watch*, 456 F. 3d at 969 (quotation marks omitted).

⁴⁹¹ *Citizens’ Comm. to Save Our Canyons v. U.S. Forest Serv.*, 297 F.3d 1012, 1029 (10th Cir. 2002) (citations & quotations omitted).

⁴⁹² *Id.* at 1028; see also *Thomas v. Peterson*, 753 F.2d 754, 758\59 (9th Cir. 1985) (finding agency must analyze road construction project and timber sales together because “[i]t is clear that the timber sales cannot proceed without the road, and the road would not be built but for the contemplated timber sales.”)

⁴⁹³ *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214-15 (9th Cir. 1998).

⁴⁹⁴ Bureau of Reclamation. “Green River Block Water Exchange Contract, Final Environmental Assessment” (2019). Report No. PRO-EA-16-020.

<http://www.riversimulator.org/Resources/USBR/ExchangeContracts/GRBWaterExchangeContractFinalEAFONSI2019.pdf>

Pipeline Block (LPPB), is still under negotiation.⁴⁹⁵

The Bureau claims that these two water exchange contracts are distinct and will be used for separate purposes, but this argument is contingent on the belief that climate change is not reducing the water flows available in the Colorado River Basin. Both contracts allow additional water to flow from Flaming Gorge into the Green River for use in southern Utah communities. The GRB final EA even states that the GRB is specifically related to the proposed Lake Powell Pipeline project. Since climate change is reducing the flows available inside the Colorado River Basin, the Green River Block water rights being exchanged through the Provo Office's actions are themselves at least partly the same water rights for the Lake Powell Pipeline.

The DWRe has even expressed its belief that the water rights from the GRB are in fact associated with the Lake Powell Pipeline water rights claim. Eric Millis, Director of the Utah Division of Water Resources, spoke directly to the Board of Water Resources on October 11, 2018 about the water claims of the Application at issue. Millis noted at Minute 1:45:40 of the meeting:

*We have been working with the Bureau of Reclamation on a number of things. We held negotiation meetings, as you'll remember last winter, on the terms for the [GRB], which are required as a condition for the [BOR] having given the Board [of Water Resources] the Flaming Gorge water right, which become the basis for the water right for the Lake Powell Pipeline, as well as many other projects.*⁴⁹⁶

To avoid further confusion and misinterpretations, a Board Member then asked a clarifying question, "That's the Flaming Gorge water right we're talking about?" To which Millis responded "It is."

This recorded transcript is proof that DWRE intends to use water from the GRB water exchange to contract for the Lake Powell Pipeline. This demonstrates that the GRB contract was implemented advance the controversial Lake Powell Pipeline, not as a necessary aspect of the Bureau's operations.

Furthermore, the rapid decline in available water flows as a function of climate change temperature increases and appurtenant snowpack declines has extinguished valid claims to these water rights as distinct water volumes. Rather, this separation appears to be a

⁴⁹⁵ Bureau of Reclamation. "Contract for Exchange of Water, Lake Powell Pipeline" Contract No. 17-WC-40-656. https://www.usbr.gov/uc/provo/pdf/DRAFT_LPP_ExchangeContract_Oct2017.pdf

⁴⁹⁶ Utah Board of Water Resources. Public Meeting 10/11/2018. <https://www.youtube.com/watch?v=CPZ9pdsqmb8>. Minute 1:45:40.

deliberate attempt by the Applicant to avoid considering the cumulative impacts of these projects together in a single NEPA evaluation.

This is especially erroneous as the Lake Powell Pipeline is still undergoing federal permitting. The Provo Office of the Bureau should not have divided the GRB water exchange contract from the rest of the Lake Powell Pipeline NEPA process, as the GRB contract contributes to the cumulative effects of the Lake Powell Pipeline. Approving the GRB exchange contract before the Lake Powell Pipeline NEPA process is complete constitutes a segmentation and violation of NEPA because the GRB exchange contract has no productive use outside of the Lake Powell Pipeline. The Provo Office of the Bureau cannot isolate aspects of the Lake Powell Pipeline project and permit them separately, as it has done for the GRB exchange contract. And at a minimum, the BOR must consider the cumulative effects of all these foreseeable and related actions in the cumulative impacts analysis, something the Bureau has not done in the Lake Powell Pipeline DEIS.

V.B.2 Approval of the Sand Hollow Regional Pipeline prior to the initiation of the Lake Powell Pipeline NEPA process constitutes a segmentation of NEPA

The Sand Hollow Regional Pipeline (SHRP) represents a continuation of the Lake Powell Pipeline, which is currently undergoing the NEPA process with the Bureau. However, the SHRP was permitted and approved under a separate NEPA process.⁴⁹⁷ This constitutes a segmentation of NEPA, as the SHRP is effectively an extension of the Lake Powell Pipeline.

The scope of the environmental analysis for the SHRP did not include the consideration of the purpose and need for the project and connected and cumulative actions with potentially significant impacts, like the proposed Lake Powell Pipeline. Our organization questions why the SHRP was not part of the LPP NEPA process. The plausible explanation is that the WCWD obtained approval for the pipeline before the NEPA process for the Lake Powell Pipeline began in an effort to segment and subvert the NEPA process.

The SHRP appears similar in design to the LPP and would consist of a 48-inch pipe stretching 11.5 miles from Sand Hollow Reservoir to the Warner Valley. Because the SHRP begins at the terminus of the proposed LPP at Sand Hollow Reservoir in Washington County, it will therefore convey water brought to Sand Hollow Reservoir by

⁴⁹⁷ Bureau of Land Management. "Finding of No Significant Impact, Sand Hollow Regional Pipeline Project." (2018). Permit No. DOI-BLM-UT-C030-2018-0046-EA. https://eplanning.blm.gov/public_projects/nepa/106110/162718/198494/Signed_BLM_FONSI_Sand_Hollow_Regional_Pipeline_11_14_2018.pdf

the LPP, if the LPP is approved. The EA tries to hide this fact by claiming the 4-foot diameter SHRP is merely intended to increase capacity:

The purpose of the pipeline is to provide additional transmission capacity for culinary water to the southern areas of St. George and Washington City. Currently, these areas are serviced through only 1 existing pipeline, known as the “Regional Pipeline,” which is fed from the Quail Creek Water Treatment Plant, along with limited capacity from the Sand Hollow Reservoir well field.⁴⁹⁸

The claim that a new pipeline is needed adjacent to an existing pipeline is disingenuous and capricious. Across the country many small communities’ water needs are serviced through one pipeline. The project service area is already served by a regional pipeline from Quail Creek Reservoir and the Sand Hollow well field, so it is unclear why there would be any need for a second pipeline with additional capacity without additional water provided by the Lake Powell Pipeline. The EA again tries to hide this fact:

The proposed pipeline would not add a new water source to the WCWCD system nor would it change the amount of water that can already be pushed through the existing system.⁴⁹⁹

We believe this is a disingenuous way of cloaking a new water source, that of the LPP, which would provide new water, that can be delivered to the Warner Valley via the SHRP and on to St. George and other parts of Washington County. This is a clear segmentation of NEPA. Because the LPP water would enter Sand Hollow Reservoir, it is reasonable to assume that LPP water would be transported by the proposed SHRP.

Moreover, according to engineering drawings in Appendix B of the SHRP EA, the SHRP would be a 4-foot, or 48-inch diameter pipe. That is an unusually large diameter pipe for a pipeline that is merely intended to provide redundancy to an existing water conveyance system. It is also just 21 inches in diameter smaller than the LPP, itself a very large pipeline far in excess of the community’s water needs. It should be noted that a 48-inch diameter pipe could convey approximately 45 million gallons of water per day, or 50,370 acre-feet per year, which is roughly 60 percent of the water the LPP would pump to Sand Hollow Reservoir annually. This suggests that the true purpose of the SHRP is to convey water delivered to Sand Hollow Reservoir by the Lake Powell Pipeline, effectively making it an extension of the Lake Powell Pipeline project.

The EA contains no analysis of socioeconomic impacts or any mention of the construction cost for the 11.5-mile SHRP. This is unacceptable because the SHRP will

⁴⁹⁸ Ibid.

⁴⁹⁹ Ibid.

likely cost tens of millions of dollars and this cost will be passed on to ratepayers and taxpayers in Washington County. If the SHRP were included as part of the LPP NEPA process, it would increase the construction cost, operation and maintenance costs and repayment obligations on Washington County residents for the Pipeline, as dictated by the Lake Powell Pipeline Development Act. Because of this, the SHRP should be included in the LPP NEPA process in order to address the cumulative impacts of the two projects as though they were one continuous pipeline.

The EA lacks essential information about costs, economics and financial consideration and numerous questions still remain about the purported need for, environmental impacts of, economic feasibility of and taxpayer liability of the LPP and therefore the SHRP. Our organization maintains that the SHRP should have been included in the LPP NEPA process in order to comply with NEPA, and to better serve the public interest. Permitting and approving the SHRP separately from the Lake Powell Pipeline segments NEPA and prevents the cumulative effects of the whole Lake Powell Pipeline project (which in reality includes the SHRP) from being studied.

V.B.3 The KCWD is attempting to circumvent the NEPA process and, therefore, segment NEPA

Kane County Water Conservancy District (KCWD) was a project participant in the Bureau of Reclamation's 2019 to 2020 scoping effort for the Lake Powell Pipeline. However, on April 10, 2020, KCWD claimed that it had removed itself from the Lake Powell Pipeline project. Personal communication with someone involved in this momentous announcement revealed that someone from the Provo Office of the Bureau contacted the KCWD to inform them of this development via telephone. The nature of how the Provo Office staff member communicated to the KCWD to inform the water district that it should not be part of the LPP DEIS remains a mystery, and one which should be described further in the FEIS since the reasoning behind this phone call is in the public interest.

However, the KCWD executive director, Mike Noel, has explicitly stated it was his intention to pull Kane County from the NEPA process, not the Lake Powell Pipeline itself. The DEIS does not explain why the Provo Office contacted the KCWD, nor does it provide written evidence of any correspondence from the KCWD requesting that this water district sought to remove itself from the DEIS.

According to the DEIS:

Kane County Water Conservancy District (KCWCD) was previously a Project Participant as recently as Reclamation's 2019 to 2020 scoping effort. However, in evaluating the KCWCD's supply and demand data using the Kem C. Gardner

Institute’s 2017 population projects [...], Reclamation determined that projected demand in 2060 did not outpace the KCWCD’s estimated future reliable water supply [...]. On April 10, 2020, the KCWCD informed Reclamation it no longer wished “to be included as part of any alternative in the current NEPA Process” (KCWCD 2020). The Kane County System was subsequently removed from the Proposed Project and is not included in this DEIS.⁵⁰⁰

V.B.3.a Kane County officials have explicitly stated their intention to exempt themselves from the NEPA process while still remaining involved with the LPP project

In April 2020, LPP News, the ‘Official Project Information Source’ and marketing arm of the project sponsors, the Division and WCWD, sent out a memo indicating KCWD’s decision to opt out of the NEPA process. The memo noted:

At the request of the Kane County Water Conservancy District, the Bureau of Reclamation will not consider Kane County’s future water supply needs in the National Environmental Policy Act review of the Lake Powell Pipeline.⁵⁰¹

This was determined after further review of the county’s projected population growth and water available determined they did not need the water. From the same memo though, it also notes:

If the need arises [for LPP water in Kane County], KCWCD can complete a separate NEPA process and connect to the LPP in the future.⁵⁰²

On April 16th, 2020, the KCWD held a board meeting the same day this memo was released. One of the topics up for discussion was KCWD and their removal from the NEPA process. In the meeting, Mike Noel, executive director of the KCWD, also read aloud the statement above from the memo, suggesting that KCWD would need to complete a separate NEPA process in the future. During the meeting, Mr. Noel opened up for public comment and Zachary Frankel – Executive Director of the Utah Rivers Council – began the public comment period with:

⁵⁰⁰ DEIS, 3

⁵⁰¹ Washington County Water Conservancy District. *Kane County opts out of Lake Powell Pipeline NEPA Process.* (April 16, 2020). Retrieved from <https://lpputah.org/wp-content/uploads/2020/04/Kane-CO-opt-out-041620.pdf>

⁵⁰² Ibid.

Zachary Frankel: What was the thinking that went into the Kane County Water District's decision to pull out to the Lake Powell Pipeline?

Mike Noel: The population projections came in from the Gardner, Kem Gardener Institute were lower than expected, that probably came as a result of the loss of the uranium project.⁵⁰³

Mr. Noel also suggests that the Kem C. Gardner Institute, who released the population projects for the state and counties, were lower than they expected. According to Mr. Noel:

They don't include any transient population. They don't include hotels, motels, RV parks, just tourists coming through restaurants, etcetera.

Mr. Noel searched for a way to justify why the KCWD dropped out of the NEPA process and continued with:

Washington County was up against a pretty tight deadline to be able to finish their EIS in a timely manner this year, and we just felt like it was prudent for us to pull out.

It is unclear why Washington County was on a deadline to finish their EIS this year, when project proponents have claimed the water is not actually needed for some time, as presented to the Utah Executive Water Finance Board in which all Lake Powell Pipeline water would not be taken until the year 2054. However, it is clear that KCWD could not justify why they no longer would participate in the NEPA process, but maintained that they still will need the project in the future:

So, we feel like they're gonna come. The growth is now between here and Johnson Canyon... so it will grow and it will continue to grow and the board has had the foresight to make sure that we do have water available for people.⁵⁰⁴

Despite an external analysis of population growth projections in Kane County, the KCWD General Manager continues to say otherwise. He made several statements indicating the KCWD still intends to connect up to the Lake Powell Pipeline, at any time after the NEPA process is complete.

Zachary Frankel: is the executive director empowered to make this decision [to pull out of the Lake Powell Pipeline EIS] on his own?

⁵⁰³ Kane County Water District Board meeting. April 16, 2020.

⁵⁰⁴ Mike Noel, comments at Kane County Water District board meeting. April 16, 2020.

Mike Noel: Well, it's a pretty rapid turnaround. I did call every individual board member, but in fact we had to do it within a 24-hour period because of the timing on it. It's an EIS.

It is once again unclear why the KCWD had only a 24-hour time period to pull out of the project, after years of the KCWD has spent taxpayer's and ratepayer's money on the permitting and planning. This raises the question as to whether the KCWD might have been pressured to remove itself from the project by any entity, including from BOR staff. Since KCWD has been involved in the project for over 10 years, and is referenced in LPP documents over this time and in the DEIS, we think it would be appropriate for the FEIS to include more information about what communications transpired between the Provo Office of the Bureau and the KCWD to warrant KCWD removing itself from the DEIS.

The General Manager noted he doesn't believe that money was wasted. He continued by saying:

Now we've pulled out of the EIS. It doesn't necessarily mean that we can't get back into the project. We can get back into the project. Those 4,000 acre-feet of water rights are in the name of the Division of Water Resources, but we filed the change application ourselves, so at some point in the future we would have an opportunity. Not in the near future, but it may be the next 20 years. We didn't anticipate needing that water for at least 20 years, but we will need it in the next 50 years. It's not in the foreseeable future, but it's still in our plans to use that water, so the decision was not to give up our water rights, the decision was to take ourselves out of the project. Which actually saved us 1.3 million dollars of the cost of the EIS at this point, so pretty easy decision to make.

Mr. Noel's quote above highlights an important point: the KCWD is still listed on the water right for the Lake Powell Pipeline. The water right change application for the LPP was filed on April 13th 2020⁵⁰⁵ yet the DEIS states that the KCWD notified the Provo Office of the Bureau that they would not be participating in the NEPA process on April 10th 2020.⁵⁰⁶ This means that the KCWD decided to remove themselves from the NEPA process and still file an application to receive a water right from the LPP.

When taken with the quote above, this demonstrates that Mr. Noel clearly is determined to connect KCWD to the Lake Powell Pipeline, to use Colorado River water, but to do it

⁵⁰⁵ Utah Division of Water Rights. Water Right Change Application a45683.

<https://waterrights.utah.gov/cblapps/chprint.exe?chnum=a45683>

⁵⁰⁶ DEIS at 3; Kane County Water Conservancy District (KCWCD). 2020. Personal communication. Letter from KCWCD General Manager Mike Noel to Bureau of Reclamation LPP Program Manager Rick Baxter. Dated April 10, 2020.

in a way that avoids permitting through the NEPA process. The fact that the DEIS indicates the planning of a turnout of the pipeline itself for Kane County raises the expectation that the Provo Office of the Bureau indicated to the KCWD a possible willingness to allow KCWD to evade NEPA consideration in this controversial project, and somehow still let KCWD participate in the project in the future. This will also save the small water district money and the embarrassment of postponing or delaying a decision. However, those are not valid reasons for abandoning federal regulations when it comes to permitting projects like the Lake Powell Pipeline.

Throughout the April 2020 KCWD Board of Directors meeting, Mr. Noel argued aggressively about the need for Lake Powell Pipeline water, highlighting new connections and future growth as cause for new development stating:

So I just told you we could need the project 20 years from now. Telling us that we should just wait till we run out of water and the tap doesn't run, doesn't do my job. I have to do my job and look out 20 years in the future, and that's what I'm trying to tell you, that growth is happening in Kanab, you saw the new connections you saw that 20 years ago we had zero connections. We got over 3000 and you're saying, well, you didn't need the water and I'm telling you, Zach, you're absolutely wrong. We do need the water.

Based on the above statement, it is remarkably evident that the Kane County Water Conservancy District intends to pursue water from the Lake Powell Pipeline. Despite “withdrawing” officially from the project KWCD intends to use the same arguments about growth and new connections to further, their designs and interest in connecting to the project in the future.

Later in the evening Mr. Noel went even further, explicitly stating that KCWCD’s withdrawal from the project is specifically to expedite the NEPA process and to segment the projects ongoing environmental review. Mr. Noel stated:

Now we pulled out of the EIS, the environmental impact document, which is the foreseeable future, the near foreseeable future, so we don't want to muddy, the unfortunately pun, waters. Right now, we think Washington County needs it sooner than we do, but we're gonna need that water in the future, especially when there's 500,000 people in Washington County. I know that makes you upset, but it's gonna go through, we're gonna have a Lake Powell Pipeline and the yellow dog will bark and the caravan will go on. Thank you very much.

Mr. Noel’s statement that KCWCD did not want to “muddy the waters” of the environmental review blatantly demonstrates that the KCWCD wanted to streamline the

environmental review of the Lake Powell Pipeline and ensure that they were subject to a much smaller and much less rigorous review when they connect to the project in the future. It is a clear effort to avoid the full scrutiny of the Lake Powell Pipeline EIS process and it is a blatant attempt to segment a larger project into smaller pieces to avoid studying the full environmental impacts of the Lake Powell Pipeline.

Combined, the statements above make abundantly clear that Mr. Noel and the KWCD have every intention of pursuing the Lake Powell Pipeline and are actively working to ensure that they can connect in the future. Their withdrawal from the project is a clear attempt to avoid the regulations of NEPA and to streamline their application process in the future. Until the BOR considers the project's impacts, including additional pipeline construction in Kane County, this environmental review is not complete or thorough, and therefore should be considered invalid.

The project proponents openly admit that the KCWD will need to complete a NEPA process for any connection to the Pipeline in future years. This idea though, is clearly contradictory to statements made public by Mr. Noel after the April 2020 removal of the KCWD from the ongoing NEPA process.

Immediately after the release of this memo by the Lake Powell Pipeline project proponents, Mr. Noel appeared in an interview with Utah Public Radio regarding the current status of the Lake Powell Pipeline project.⁵⁰⁷ In this article, Mike Noel is quoted as saying:

*We actually did not pull completely out of the project itself. We pulled out of the environmental impact statement, and the reason we did that is because our population number projections have gone down in the last few years.*⁵⁰⁸

This statement again confirms the intent of the KCWD to avoid the NEPA process. The KCWD continued to show their active participation in the Lake Powell Pipeline NEPA process. On June 11th, 2020, the KCWD board of trustees meeting included this note in their agenda:

*8. 8:40 PM Lake Powell Pipeline Progress Report
a. EIS update Mike/Dirk*

⁵⁰⁷ *A Look At The Current Status Of The Lake Powell Pipeline Project*, Utah Public Radio, <https://www.upr.org/post/look-current-status-lake-powell-pipeline-project> (May 27, 2020).

⁵⁰⁸ *A Look At The Current Status Of The Lake Powell Pipeline Project*, Utah Public Radio, <https://www.upr.org/post/look-current-status-lake-powell-pipeline-project> (May 27, 2020).

The KCWD continued to update their board of trustees and the public on the LPP NEPA process. In this meeting, they noted that one of their board members traveled to St. George to attend a meeting with the Washington County Water District for the specific purpose of planning steps for the proposed Lake Powell Pipeline. In the KCWD Board Meeting, it was noted that:

Mike Noel: Dirk [Clayson] attended the meeting and he will give an update.

Dirk Clayson: I think everything is moving forward. Mostly Washington County driving things along. The calendar looks good. They seem to have worked through lots of minor issues, like the Kanab Creek crossing... Starting to work on some of the details, issues, for the design and legal descriptions for where the Pipeline and pump station will come out of Lake Powell.

The idea that the KCWD is still planning to participate in the LPP was expressed in June 2020 at a subcommittee meeting of the Utah Legislature. Representative Chew, a Utah legislator and member of the Legislative Water Development Commission, stated the following during a June 22nd Water Development Commission meeting:

Kane County hasn't, to my understanding, withdrawn from the [Lake Powell Pipeline], they've only withdrawn from the environmental assessment of that project. Something about the environmental assessment is what they've withdrawn from, not the project itself. [...] I know I discussed that with former Representative Mike Noel and he said 'Oh no no, we're still on board with the Lake Powell Pipeline project.'⁵⁰⁹

On July 9th, 2020, the KCWD once again discussed the progress of the Lake Powell Pipeline as a formal item on their agenda for their Board of Directors Meeting, listed as

Section 7: Lake Powell Pipeline Progress Report.

While brief in length, Mike Noel and Dirk Clayson, presented in that board meeting as being an independent contractor for the WCWD, and formerly a board member of the KCWD discussed the project and its ongoing environmental review. Mr. Clayson spoke specifically to the NEPA process and even spoke of begging to plan for what came after a positive Record of Decision by the Bureau, saying:

⁵⁰⁹ Legislative Water Development Commission, June 22nd, 2020 meeting. Audio Minutes 43:50.
<https://le.utah.gov/asp/interim/Commit.asp?Year=2020&Com=SPESWD>

I think things are moving ahead well on that and some of the things I've been working with them on mostly are to start to line to line out the processes for more detailed planning phases and surveys and those kind of things that need to move forward once we get the final go ahead on the NEPA processes that are underway. But I think everything is moving ahead well and we should be through the NEPA Process here in the next 90 days.

Mr. Noel was still bullish on the chances of the project's success, stating:

I know they are scrambling to get this done by the end of the year and they should have it done.

The discussion at the July 9th board meeting suggests that the KCWD is eager for the NEPA process to resolve and for there to be a positive Record of Decision by BOR as soon as possible. This is disconcerting given the KCWD's recent decision to withdraw from the project due to a lack of need and suggests that KCWD is still vested in the completion of the Lake Powell Pipeline.

V.B.3.b The KCWD is attempting to circumvent NEPA so they do not prevent the approval of the LPP

There is no need for LPP water in Kane County. This has not only been officially recognized by the BOR but has also been stated by the Utah Rivers Council time and time again. It is plausible that the KCWD recognized this fact and removed themselves from the LPP NEPA process so they would not bar the project from being approved.

The Kane County Water District, under Mr. Noel's leadership, initially requested 4,000 acre-feet of water from the LPP.⁵¹⁰ Although the water district appears to collect property taxes from taxpayers across the entire county, it actually serves just a small portion of the county, as evidenced in part by the existence of several other special service district water suppliers in Kane County.⁵¹¹ In fact, the majority of Kane County residents do not receive water from the Kane County Water District because they live outside of the water district delivery area. This is evidenced by the Division of Water Resources LPP Application to FERC:

KCWCD is a new water conservancy district, formed in 1992. It has a very

⁵¹⁰ 2016 LPP Water Needs Assessment. Page 1-6

⁵¹¹ 2017 Kane County Master Plan, Chapter 4

*limited customer base and limited supply sources at present. The only substantial community in Kane County – the City of Kanab – has developed its own water supply system over time, and may continue to meet the needs of M&I customers within its current city boundaries, and within future annexation areas as well.*⁵¹²

*Most water users within the county are not served by the [Kane County Water] District (e.g. Kanab City)*⁵¹³

The vast majority of the Kane County population is not slated to receive water from the proposed LPP because additional water is unnecessary, even accounting for robust growth in the future. Kane County already has an abundance of water to serve the growth of its population centers from now until the year 2060, as is clear from the Division of Water Resources' study of the LPP:

*The difference between the projected KCWCD 2060 demand of 5,850 ac-ft./yr. and the existing supply of 4,040 ac-ft./yr. is 1,810 ac-ft./yr. For all four subbasins, a combination of existing and new ground water supplies is sufficient to meet all future needs within the planning horizon. **Thus based strictly on water need, LPP supplies are not needed in the KCWCD service area within the 2060 planning horizon.***⁵¹⁴

This study further clarified that even converting agricultural water isn't necessary to meet the county's future needs, which further indicates the lack of any water need from the LPP:

*For all four sub-basins, a combination of existing and new ground water supplies is sufficient to meet all future needs within the planning horizon. Of the two largest sub-basins, Kanab Creek and Johnson Canyon a maximum of 60 percent of the available ground water supply will be needed. Thus based strictly on water need, neither agricultural conversion nor LPP supplies are needed in the KCWCD service area within the 2060 planning horizon.*⁵¹⁵

The water demand forecasts for the population of Kane County by 2060 generated by the Utah Division of Water Resources rely on outdated population data.⁵¹⁶ These outdated projections come from population data from the Division of Water Resources in 2009. Using these population projections and assumed conservation estimates, the total

⁵¹² 2008 LPP Water Needs Assessment, Page 4-47

⁵¹³ 2008 LPP Water Needs Assessment, Page 2-12

⁵¹⁴ 2011 LPP Water Needs Assessment, Page ES-24

⁵¹⁵ 2011 LPP Water Needs Assessment, Page 6-13

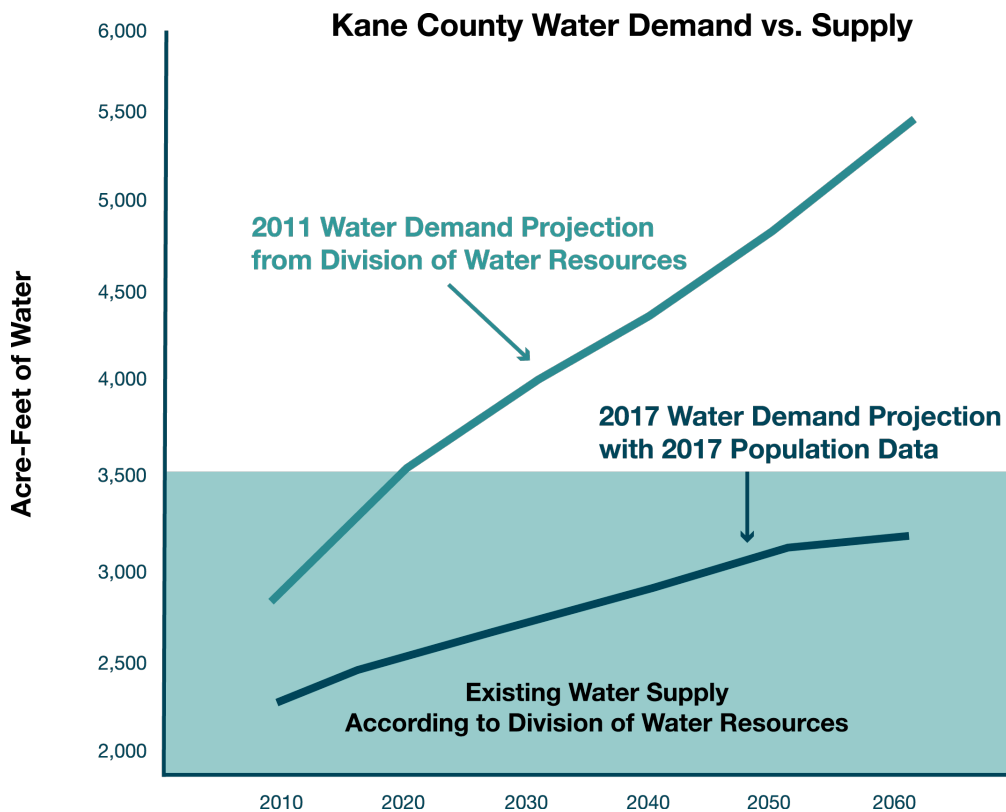
⁵¹⁶ 2016 LPP Water Needs Assessment

projected water demand reaches 5,850 ac-ft./yr. in 2060, based on a 2060 population of 17,280 residents.

However, based on current 2017 population projections, as referenced by the Governor’s Office of Management and Budget and provided by the Kem C. Gardner Policy Institute, the projected water demand is significantly lower than predicted by the Division of Water Resources. The graph below shows that the Division overestimated water demand for Kane County by nearly 56% because the current, revised forecast for the population of Kane County in 2060 is just 11,093 people.

Using Kane County Water District’s water use estimates, the updated population projections show that the current available water supply is sufficient to meet demand for the projected population growth to 2060 and beyond. The available water supply of 4,039 ac-ft./yr. and yearly assumed conservation estimates from the Division of Water Resources 2011 Water Needs Assessment were used.

Figure 59: Kane County Water Demands



There is no need for water in Kane County and the Provo Office of the Bureau proposing to construct a “turnout” for the KCWD and its very small group of water users in the Johnson Canyon area is not justified without a full NEPA review of Kane County’s future water demands.

V.B.3.c Including Kane County in the DEIS would require the BOR to rethink the Lake Powell Pipeline’s overall purpose and need and to conduct a thorough analysis of possible cumulative effects of extending the Pipeline to Kane County

As demonstrated above, the KCWD is attempting to circumvent the LPP NEPA process. We believe they are doing this because there is a large amount of controversy surrounding the KCWD and their involvement in the LPP project. Including the KCWD in the LPP DEIS would likely have made the project much more difficult to approve. In an effort to expedite the LPP project, we believe the Provo Office of the Bureau requested that the KCWD remove themselves from the project and, therefore, remove much of the controversy surrounding the KCWD.

However, Kane County officials have made it abundantly clear that they are attempting to avoid the NEPA process, not the Lake Powell Pipeline altogether. Comments from Mike Noel above demonstrate that the KCWD plans to receive water from the LPP after it has completed the NEPA process. This would be a direct violation of NEPA.

The Provo Office of the Bureau claims that that the KCWD would have to go through a separate NEPA process before receiving water from the LPP. However, this would constitute a segmentation of NEPA. There are a range of effects that would stem from extending the Lake Powell Pipeline that need to be considered as cumulative impacts in the DEIS. For example, extending the LPP to Kane County means an additional 50,903 feet of 24-inch pipe.⁵¹⁷ Additionally, Kane County has explicitly stated that they do not have a need for additional water at this point in time through 2060. Consequently, Kane County’s participation in the Lake Powell Pipeline has no purpose or need. Utilizing this water source would create massive debt obligations for the County, obligations that are completely avoidable and unnecessary. All of these impacts should be studied in conjunction with the LPP. Dividing these effects into separate NEPA processes “waters down” their impacts and violates the cumulative effects requirement of NEPA.

VI. Other legal issues raised by the Lake Powell Pipeline and the DEIS

⁵¹⁷ Stantec. 2020b. “Revised LPP cost estimate.” Email communication from Joshua Cowden March 3, 2020.

As discussed in detail above, the DEIS for the Lake Powell Pipeline is flawed and violates NEPA in many ways. The DEIS—and the Lake Powell Pipeline more generally—also raise other non-NEPA legal issues that we briefly highlight here.

First, there is a critically important unresolved legal issue of whether Utah can use Upper Basin water in the Lower Basin under the 1922 Colorado River Compact. Although most of Utah is located in the Upper Basin and the WCWD plans to divert Upper Basin water for the Lake Powell Pipeline, Washington County and the nearby areas where this water would be used are in the Lower Basin. The Colorado River Board of California previously submitted scoping comments raising this issue, and we expect other organizations and water users may submit DEIS comments also raising this issue. As the Colorado River Board of California’s scoping comments explained, Congressional authorization is likely necessary for the Lake Powell Pipeline. The FEIS must fully discuss and analyze this unresolved issue. And most importantly, Reclamation and the other federal agencies must resolve this legal uncertainty and/or obtain the necessary Congressional authorization before issuing a Record of Decision approving the Lake Powell Pipeline.

Second, the DEIS acknowledges that the Lake Powell Pipeline will require a Clean Water Act section 404 permit because pipeline construction will discharge dredged or fill material into the waters of the United States.⁵¹⁸ A 404 permit cannot be issued for a project if “there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.”⁵¹⁹ Notably, section 404 presents a different legal standard for rejecting alternatives than NEPA, and even if an agency reasonably rejects an alternative under NEPA it does not mean the alternative is impracticable under section 404.⁵²⁰ As discussed in detail above, the DEIS unreasonably limited the alternatives analysis by improperly excluding water conservation as an alternative. Because utilizing water conservation is a feasible and practicable alternative for meeting Washington County’s future water demand, and because a conservation alternative would cause less harm to the aquatic ecosystem, the U.S. Army Corps of Engineers cannot issue a valid 404 permit for the Lake Powell Pipeline. In addition, EPA’s 404 regulations note that if an EIS does not consider the alternatives to a proposed project “in sufficient detail to respond to the requirements” of EPA’s 404 guidelines, “it may be necessary to supplement the[] NEPA documents with this additional information.”⁵²¹ As previously noted, Reclamation should fully analyze a water conservation alternative in the FEIS to comply with NEPA. And if it refuses to do so, it

⁵¹⁸ 33 U.S.C. § 1344; DEIS Appendix C-14 at 26, 30, 36,

⁵¹⁹ 40 C.F.R. § 230.10(a).

⁵²⁰ See, e.g., *Utahns for Better Transp. v. U.S. Dep’t of Transp.*, 305 F.3d 1152, 1187 (10th Cir. 2002).

⁵²¹ *Id.* § 230.10(a)(4).

will be necessary under Clean Water Act section 404 to supplement the NEPA documents so that a water conservation alternative is analyzed in sufficient detail for the required section 404 Least Environmentally Damaging Practicable Alternative (LEDPA) analysis.

This is especially egregious since in December of 2018, the DWRe sought a 404 permit from the Army Corps of Engineers (USACE) as part of the NEPA process under the former lead federal agency FERC.⁵²² Since that time, the Lake Powell Pipeline project has undergone significant changes, including significant engineering changes, and the lead federal agency has changed from FERC to the Bureau. The 404 permit initiated in 2018 fails to consider the effects of these new changes. Therefore, the issuance of a 404 permit prior to the completion of the Lake Powell Pipeline NEPA process was premature.

Any permit issued before a ROD is made will likely become outdated as the project is subject to change up until that time. For example, the USACE determined that the Lake Powell Pipeline will impact 10.54 acres of waters of the U.S. including wetlands. However, that estimate was based off the old Lake Powell Pipeline engineering design and relied on fieldwork conducted in 2009.⁵²³ It is plausible that the Pipeline's new design affects more than 10.54 acres of waters and that the ecological condition of those waters has changed since 2009. This means that the USACE's analysis is likely outdated. For that reason, the 404 permit issued by the USACE in 2018 is no longer relevant to the Lake Powell Pipeline project and fails to consider the true effects of the project.

Additionally, in their issuance of the 404 permit, the USACE effectively only analyzed a piece of the proposed and incomplete Lake Powell Pipeline project. This cut up the NEPA process into a series of smaller decisions, which constitutes a segmentation of NEPA.

Third, the DEIS is unclear about whether the Lake Powell Pipeline will require a Clean Water Act section 402 National Pollutant Discharge Elimination System (NPDES) permit for the discharge to Sand Hollow Reservoir. The DEIS states that a NPDES permit "would be required for O&M discharge," and "[c]hemical treatment for [Aquatic Invasive Species] control would be included in the application for that permit."⁵²⁴ Yet the DEIS also notes EPA's Water Transfers Rule, which suggests that Reclamation may believe the Lake Powell Pipeline would not require a NPDES permit as a water transfer.⁵²⁵ In addition, the Plan of Development states the pipeline would only require a temporary discharge permit.⁵²⁶ The FEIS must clarify that the Lake Powell Pipeline will require a NPDES

⁵²² Army Corps of Engineers. "Lake Powell Pipeline Project, AZ and UT." (2019). Permit No. SPK-2008-00354. <https://www.spk.usace.army.mil/Media/Regulatory-Public-Notices/Article/1734573/spk-2008-00354-lake-powell-pipeline-project-az-and-ut/>

⁵²³ Ibid.

⁵²⁴ DEIS Appendix C-12 at 4.

⁵²⁵ DEIS Appendix C-11 at 2-3.

⁵²⁶ DEIS Appendix E at 4-2.

permit for the discharge to Sand Hollow Reservoir if chlorine or any other chemical treatment is added to the pipeline's water to limit the spread of quagga mussels. Under the Water Transfers Rule, a transfer of water from one waterbody to another requires an NPDES permit if pollutants are added to the waters being transferred.⁵²⁷ That is precisely what would occur if chlorine or other chemicals are added to the Lake Powell Pipeline water as it travels to Sand Hollow Reservoir, and thus a NPDES permit would be required.

Fourth, the Bureau of Land Management (BLM) must apply and comply with its off-road vehicle (ORV) minimization criteria regulations because the public will have access to the new permanent access roads constructed for the Lake Powell Pipeline. BLM's ORV regulations "apply to all public lands, roads, and trails" under BLM administration.⁵²⁸ The regulations require BLM to "designate all public lands as either open, limited, or closed" to ORV use, and BLM must locate ORV trails to minimize various environmental harms.⁵²⁹ BLM implements these regulations through its resource management planning (RMP) process, and the approval of a RMP revision or RMP amendment "constitutes formal designation of off-road vehicle use areas."⁵³⁰ The DEIS explains that the Southern Alternative for the Lake Powell Pipeline would require construction of over 91 miles of new permanent access roads, including over 62 miles of new permanent access roads on BLM lands.⁵³¹ The Highway Alternative would require construction of over 78 miles of new permanent access roads, including over 50 miles of new permanent access roads on BLM lands.⁵³² These new permanent access roads would be gravel or two-track roads.⁵³³ The DEIS states that these new permanent access roads may include "[a]ccess controls . . . such as fences or gates."⁵³⁴ Yet elsewhere, the DEIS states numerous times that the public may have unfettered access to these new roads. For example, the DEIS states:

- "New access roads built for construction may be left in place in coordination with the BLM and may be designated as part of the BLM's transportation network. New access road design and construction on other federal, state, or private lands would be coordinated with the appropriate agency and consider ROW permits, grants, or other approvals to minimize potential adverse effects."⁵³⁵

⁵²⁷ 73 Fed. Reg. 33,697, 33,705 (June 13, 2008) ("[W]here water transfers introduce pollutants to water passing through the structure into the receiving water, NPDES permits are required."); *see also Catskill Mountains Chapter of Trout Unlimited, Inc. v. Envtl. Prot. Agency*, 846 F.3d 492, 505 (2d Cir. 2017) (the addition of a pollutant occurs under the Water Transfers Rule "when pollutants are introduced from outside the waters being transferred" (quoting 73 Fed. Reg. at 33,701)).

⁵²⁸ 43 C.F.R. § 8340.0-8.

⁵²⁹ *Id.* § 8342.1.

⁵³⁰ *Id.* § 8342.2.

⁵³¹ DEIS at 92-94.

⁵³² *Id.* at 97-99.

⁵³³ *Id.* at 93, 98.

⁵³⁴ *Id.* at 94.

⁵³⁵ DEIS Appendix C-8 at 22, 34 (parenthetical omitted).

- “Once completed, permanent access roads could allow for additional users and increased access, but they also may open areas to users/uses that are not intended for motor vehicles.”⁵³⁶
- “[A]ccess roads could be accessed by the public for recreational purposes, which could increase trampling, illegal collection, and increased off-highway vehicle use, which could lead to a loss and degradation of plants and habitat.”⁵³⁷
- “Recreational pursuits, including OHV use, camping, and target shooting may increase due to additional Proposed Project access roads of BLM property that could cause disturbance to wildlife species and their habitats.”⁵³⁸

BLM must apply its ORV minimization criteria regulations here, because it is proposing to amend its Arizona Strip RMP and to authorize the construction of approximately 50-60 miles of new permanent gravel and two-track access roads that the public will have access to for ORV use. The DEIS, however, makes no mention of these ORV minimization criteria regulations. Consequently, before BLM makes a final decision amending its RMP and approving the rights-of-way for the Lake Powell Pipeline, it must apply the minimization criteria and ensure that these new permanent access roads are located to minimize damage to the various environmental resources protected by the ORV minimization criteria regulations.

⁵³⁶ *Id.* at 28, 35, 41.

⁵³⁷ DEIS Appendix C-18 at 74.

⁵³⁸ DEIS Appendix C-25 at 35.