



An Assessment of
**Central Iron County Water
District Demand Projections**

A hard look at the data and calculations used to justify \$260 million in new spending and a 360-700% increase in water rates across Iron County.



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Published by
Iron County Water Conservatives
Great Basin Water Network
Utah Rivers Council
March 2022

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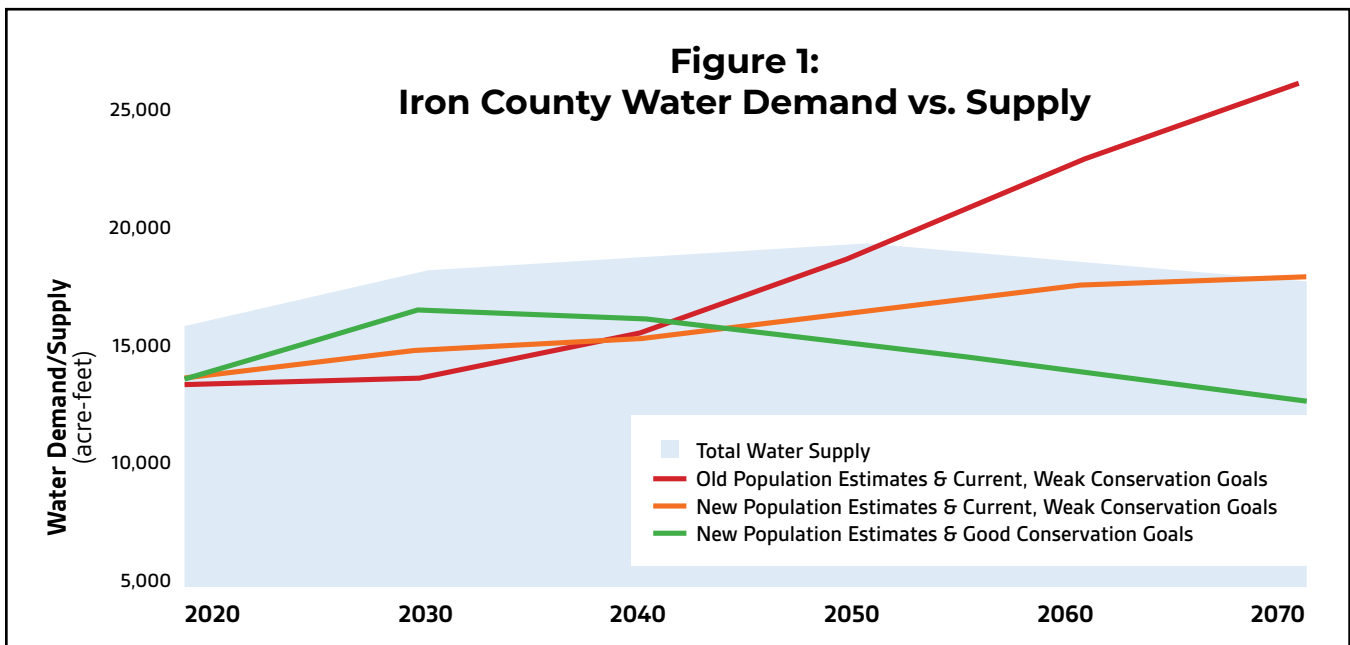
Introduction

The Central Iron County Water District (CICWD) is proposing the Pine Valley Water Project (PVW) to mine aquifers in Beaver County and transport the water to Iron County. The water district's justification for the proposed \$260 million water project is based on the claim that Iron County is running out of water.¹

A peek under the hood demonstrates these claims of need are greatly exaggerated, raising questions about why so much data demonstrating there is no need for this taxpayer spending has been ignored. **The most basic review of the water district's doom and gloom forecasts demonstrates serious exaggerations of future water needs in four ways:**

- 1** The water district used outdated population numbers that inflate future water needs by 46%, in an attempt to justify \$260 million in new spending.
- 2** The water district failed to consider the basic economics of how their proposed 360 – 700% increase to water rates will reduce water consumption. These rate increases come from the water district's own studies.
- 3** The water district ignored the many opportunities to conserve water.
- 4** The water district has ignored large sources of future water supplies, thereby creating the false picture that the \$260 million in new spending is needed.

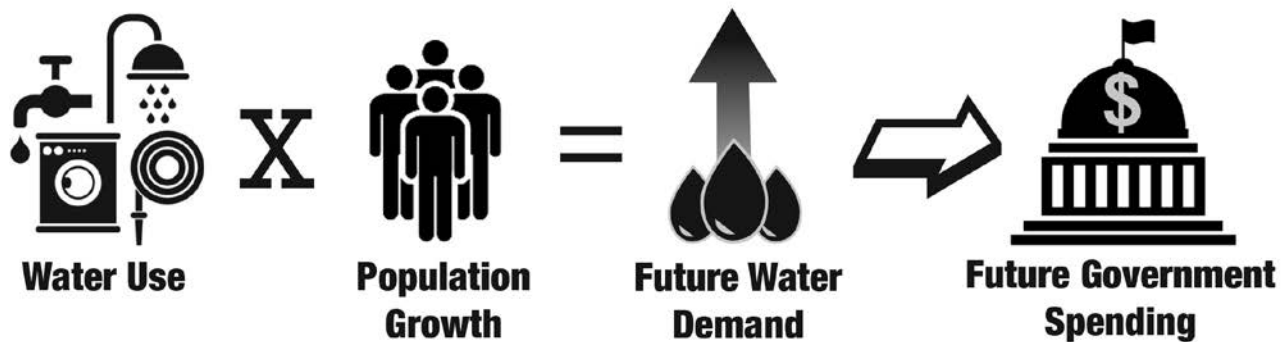
When these omissions and errors are corrected and water demand is properly calculated, it's clear there is no need for the \$260 million water project, as shown in Figure 1.





Outdated population forecasts were used to inflate future water needs by 46%.

The CICWD estimated future water needs by multiplying Iron County's expected future population by the amount of water each person in the area uses each day.² But the CICWD used 10-year-old population estimates which greatly inflated future water demands.



The water district used population estimates from 2012 that projected that Iron County will grow to approximately 154,000 people by 2070.³ But state planners have released two newer population forecasts which were ignored by the water district. In 2017⁴ and again in 2022⁵, updated population growth estimates from the State of Utah show that Iron County will only grow to approximately 105,000 people by 2070, 49,000 people – or 46% – less than was projected in 2012.⁶

In other words, CICWD greatly exaggerated the amount of water Iron County will need in the future. Figure 1 shows this exaggeration as a RED LINE. If one runs the exact same calculation with either the 2017 or 2022 population data, the county's projected future water demand drops significantly, as is shown by the YELLOW LINE. In fact, the county's projected demand drops so much, that there is no longer a need for \$260 million in spending.

The CICWD plans to increase water rates by 360-700%, but is hiding the drop in water use which will occur from this price increase.

According to the water district's own studies, if the \$260 million PVW project is built, water rates must be increased between 360–700% to pay for the project, depending on location in Iron County.⁷ Yet the CICWD has failed to recognize that increasing water rates in such a dramatic fashion will reduce water use in the Cedar City area. This reduction in water demand negates the need for the PVW project in its entirety.



Everyone knows that consumers choose whether to put something in their shopping carts based on its price. Economists have long recognized that the price of a good determines how much of it is purchased.⁸ Although everyone needs to buy water, it is well documented that less expensive water rates lead to more consumption of water, as has been shown for other basic utilities as well.⁹ The more expensive the utility gets, the less of it an individual will use. Yet, the CICWD entirely ignored basic economics when determining the effect of these water rate increases on water demand.

In spite of these market economics, the CICWD assumed that these massive water rate increases would have no effect on water use, which is virtually impossible. These huge increases in water rates will dramatically lower water use, meaning that after \$260 million of debt is placed on Iron County residents and rate increases follow, residents will have reduced their water use so much that they will not need any water from the water project. The residents of the Cedar City area will be stuck with a mountain of debt for a pipeline that was never needed.

The basic economic relationship between price and demand poses a substantial opportunity for Iron County. By modestly increasing water rates, the CICWD could use market forces to encourage high water users to conserve water.¹⁰ Targeting wasteful water users helps ensure that average citizens' don't have to pay more to use water for basic needs.¹¹

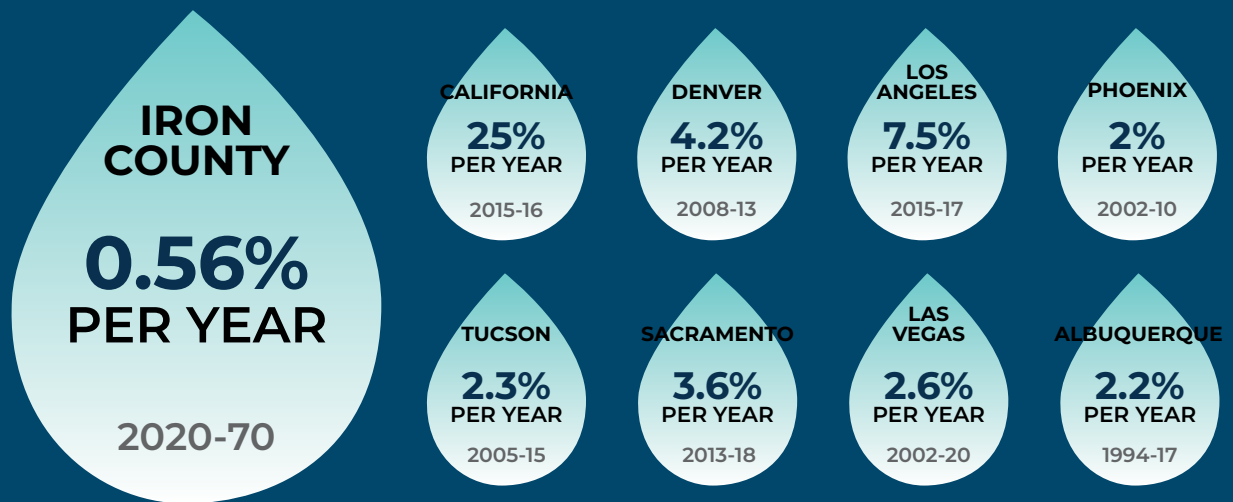
Strategic water rate increases are a powerful water conservation tool, and Iron County could employ them to achieve a reasonable water conservation goal of reducing use 1% per year, instead of the 0.56% goal the water district is embracing. This would also avoid \$260 million in debt on Cedar City area residents, which the water district is seeking for itself.

It is well documented that less expensive water rates lead to more consumption of water.

The CICWD wants to keep water use high, by avoiding real water conservation efforts to justify \$260 million in spending.

The CICWD plans to intentionally keep customer water use high for the next 50 years to create the appearance that spending \$260 million on the PVW project is justified. Many western communities have reduced their water use by significant amounts through a combination of education programs, water rate increases and other incentives. For example, the Southern Nevada Water Authority reduced its water use 47% between 2002 and 2020 for its Las Vegas customers, a reduction of 2.5% per year.¹² A 2% reduction in water use is a common annual rate of water savings among western cities, as the figure below shows.

Annual Rate of Water Savings



By comparison, the CICWD has some of the weakest water conservation goals in the American West. The water district plans to reduce water use only 28% over 50 years, which is a reduction of just 0.56% per year, as shown below.

Figure 2: Current Iron County Water Conservation Goals

	2020	2030	2040	2050	2060	2070
Total Reduction	0%	19%	24%	24%	24%	28%
% Per Year Reduction	n/a	1.9%	1.2%	0.8%	0.6%	0.56%

While the CICWD's water conservation goals start off on the right path by aiming to reduce water use 19% by 2030 – an average of 1.9% per year – they quickly tail off and become anemic. By 2070, the CICWD only plans to reduce water use 0.56% per year. The CICWD could easily adopt a more reasonable water conservation goal that does not drop off over time. This would not only put it on par with other communities in the American West, it would ensure that the CICWD has a secure water supply out to 2070.

Figure 3: Updated Iron County Water Conservation Goals

	2020	2030	2040	2050	2060	2070
Total Reduction	0%	10%	20%	30%	40%	50%
% Per Year Reduction	n/a	1%	1%	1%	1%	1%

Adopting a goal of reducing water use just 1% per year – just half that of what other communities in the American West have achieved – would result in much more water savings and a more secure water future. The GREEN LINE in Figure 1 demonstrates this calculation, using the state's updated population estimates from 2017 and 2022 and a 1% per year conservation goal. Under this scenario, Iron County has ample water supplies, including a substantial buffer to help manage any potential external shocks.





The Water Needs Assessment has quantified how much water the municipal water suppliers will be allowed to withdraw from the Cedar Valley Aquifer.

The CICWD ignored major water sources that can provide ample supplies for Iron County.

Iron County has four primary sources of water to satisfy current and future demand: The Cedar Valley Aquifer, a Coal Creek recharge project, surplus agricultural water, and water freed up by agricultural efficiency improvements. Altogether, these sources can provide approximately 17,800 acre-feet of water by 2070, more than enough for Iron County's future population growth. These water sources include:

Existing rights to the Cedar Valley Aquifer can provide up to 4,163 acre-feet annually.

Much of the water in the Cedar Valley comes from the Cedar Valley Aquifer, and much of the future available water from this aquifer will be determined by the State's Groundwater Management Plan, which seeks to reduce withdrawals from the aquifer until they reach sustainable levels.¹³ The CICWD's *Water Needs Assessment* has quantified how much water the municipal water suppliers will be allowed to withdraw from the Cedar Valley Aquifer as the Groundwater Management Plan takes effect and found that withdrawals will decrease from 15,946 acre-feet in 2020 to 4,163 acre-feet by 2070.¹⁴

A Coal Creek recharge project can provide up to 6,400 acre-feet annually.

The CICWD's *Water Needs Assessment* found that water suppliers in the Cedar City area could extend their water supplies by taking advantage of Coal Creek, a major source of surface water in the area.¹⁵ According to the CICWD, using water from Coal Creek to recharge the Cedar Valley aquifer could allow municipal water suppliers to withdraw an additional 6,400 acre-feet of water from the aquifer each year.¹⁶

Efforts are underway to implement new irrigation technologies that have been shown to reduce water use 5% to 15% while maintaining or improving crop yields.

Surplus agricultural water can provide up to 5,300 acre-feet annually.

It has been well established that as population increases, agricultural water use decreases.¹⁷ This occurs because as populations grow, they expand outward from urban centers, turning agricultural lands into strip malls, subdivisions, parking lots, and other less-water intensive landscapes.¹⁸ While the loss of farmland is nothing to celebrate, it is happening across Utah and almost always frees up significant quantities of surplus water, which could be repurposed to municipal supplies to serve growing populations.

Studies have estimated how much surplus agricultural water is created by growing populations in Utah and have found that for every additional 1,000 people, 30¹⁹ to 50²⁰ acres of irrigated farmland is lost. The Cedar Valley is expected to add approximately 44,000 people by 2070,²¹ meaning somewhere between 1,300 and 2,200 acres of irrigated farmland could be converted. The Division of Water Rights reports that, on average, one acre of irrigated land in the Cedar Valley uses 4 acre-feet of water,²² meaning that somewhere between 5,300 and 8,700 acre-feet of agricultural water could become surplus by 2070.

Agricultural water efficiency improvements can provide up to 1,890 acre-feet annually.

The CICWD's *Water Needs Assessment* states that the Cedar Valley is making efforts to increase the efficiency of irrigation on agricultural lands in an effort to conserve water.²³ Specifically, efforts are underway to implement new irrigation technologies that have been shown to reduce water use 5% to 15% while maintaining or improving crop yields.²⁴ By 2070, an estimated 12,600 acre-feet of water will be used for agricultural purposes in the Cedar City area,²⁵ meaning that implementing these water saving irrigation practices could free up between 630 and 1,890 acre-feet of water for future municipal growth. It should be noted that other pilot programs in Utah,²⁶ and studies of agriculture in the American Southwest²⁷ have found a number of other ways to improve irrigation efficiency beyond the 15% maximum cited by the CICWD, meaning that the 1,890 acre-feet of water freed up by such efforts may be conservative.



Conclusion

CICWD's proposal is unnecessary and expensive.

The justifications for the \$260 million water project are not steeped in reality because they ignore best practices in water demand forecasting and water finance economics. **The population forecasts are outdated by 10 years, exaggerated by nearly 50% and not in line with current 2017 or 2022 projections.** The water district is not letting the free market decide what's best for consumers. **The CICWD is choosing a pathway that will lead to rate hikes between 350-700 percent and a continued reliance on property tax subsidies — all to mask the true price of water.** Right now, Iron County water providers are among the worst at saving water in the American West. **CICWD must focus on meaningful water conservation efforts that compare to other western cities and harness best practices and modern water rates in order to limit the financial burden and protect Iron County residents from unnecessary spending and debt and unwanted impacts to groundwater supplies.** By focusing on the data, the economics and waterwise solutions, residents in the region will have a cheaper, more reliable water supply. Ratepayers and taxpayers deserve better.

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