



# Evaluating Collaborative Options for a Second Century

CRWUA | Zach Renstrom | December 15, 2022

# Three Primary Objectives of Water Providers



PROTECT  
EXISTING  
RESOURCES



USE WATER  
WISELY



DEVELOP  
AVAILABLE  
SUPPLIES



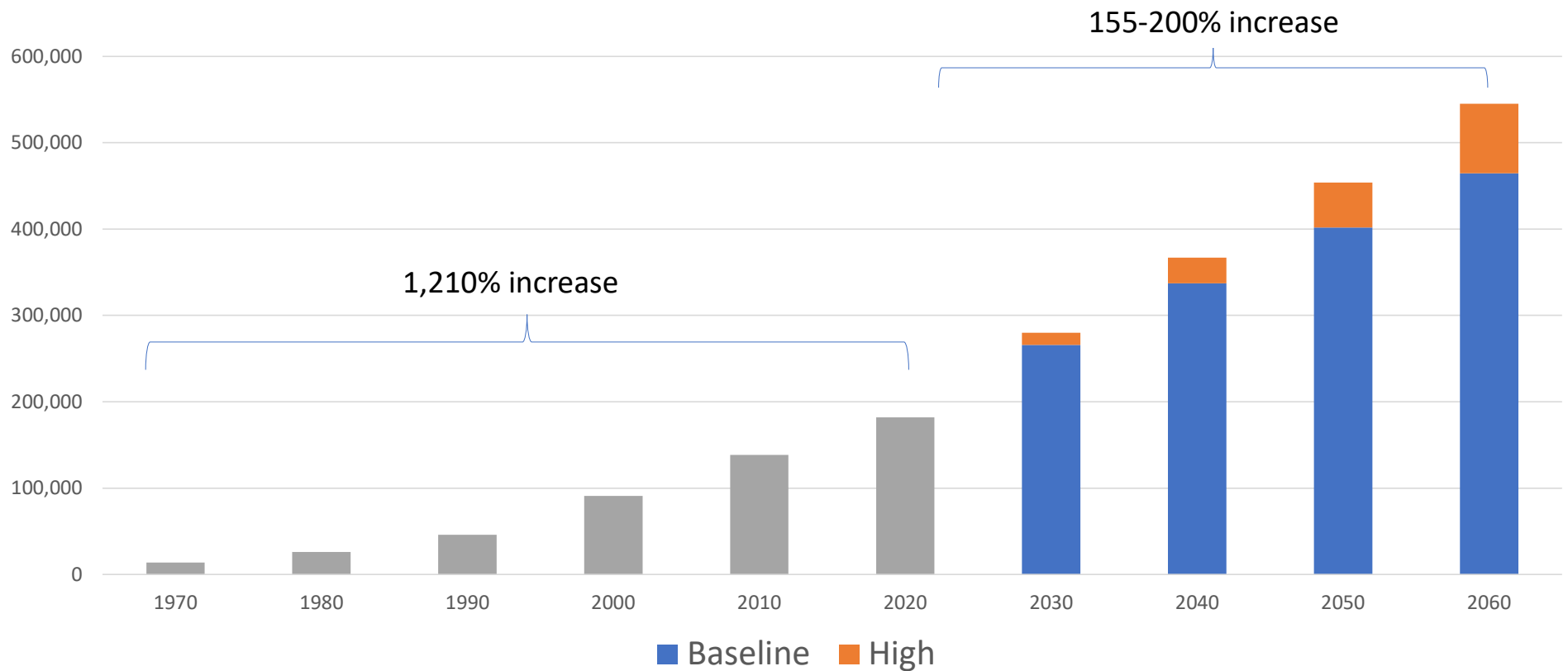


## Washington County, UT Water Supply

- Sole source
- Small, desert tributary
- Drought prone
- Fully appropriated
- More than 90% of the current annual reliable supply is in use



# Washington County Population Growth



# 1910 - 1930

	Virgin River at Virgin, UT (Total monthly flow in ac-ft)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year	1	2	3	4	5	6	7	8	9	10	11	12
1910	17,560	12,549	50,535	36,893	20,416	6,448	6,157	15,172	18,863	10,046	6,446	9,068
1911	48,609	15,414	47,127	55,785	45,900	13,438	29,786	8,041	29,968	11,514	8,208	8,559
1912	7,456	7,107	8,596	11,393	26,680	9,650	17,179	11,697	7,987	30,313	9,818	8,783
1913	8,783	8,473	13,916	23,833	13,313	9,013	8,993	12,752	9,782	8,692	11,157	10,415
1914	17,234	15,931	19,343	48,113	40,028	14,670	17,133	7,083	6,200	6,764	5,950	6,149
1915	7,379	9,985	14,485	29,837	54,365	18,115	7,055	5,564	20,473	10,520	13,357	13,815
1916	15,808	13,099	48,020	52,102	39,057	15,886	22,296	27,126	11,460	18,543	8,594	7,801
1917	9,876	11,213	10,385	23,665	38,325	16,397	8,126	4,915	4,899	7,492	8,761	9,540
1918	7,773	6,200	38,539	20,333	27,733	7,712	11,736	7,678	13,525	11,821	9,759	11,082
1919	8,608	7,829	13,993	22,923	13,583	6,549	9,221	8,785	9,931	9,116	10,449	12,071
1920	11,609	14,277	14,830	23,536	41,643	11,794	2,573	11,889	5,096	10,141	13,638	15,777
1921	13,069	9,830	16,792	21,279	23,744	5,373	4,276	17,068	8,856	13,857	12,738	32,358
1922	20,331	19,146	26,771	37,966	84,754	27,094	12,129	26,622	23,240	32,495	36,067	34,423
1923	24,226	22,409	20,854	34,913	40,209	9,782	8,081	7,781	6,063	7,513	9,919	8,949
1924	10,675	5,897	5,637	11,585	11,320	4,431	7,305	4,748	12,173	6,327	8,128	9,281
1925	10,861	9,953	8,852	14,301	10,207	9,302	4,713	16,227	6,563	4,276	4,931	7,242
1926	7,565	5,046	5,782	39,011	26,620	6,157	5,873	5,359	5,341	5,669	11,798	9,636
1927	10,122	13,367	14,729	25,051	22,280	6,960	6,621	12,149	21,388	18,083	7,853	7,581
1928	7,311	14,099	15,735	18,303	12,756	4,102	1,870	2,676	3,634	3,769	5,974	6,032
1929	5,982	7,182	10,941	16,808	20,721	5,361	12,081	18,476	21,253	7,430	5,950	5,534
1930	5,534	6,109	7,543	13,269	27,537	5,865	5,004	14,275	8,339	7,204	12,109	7,680



# 2000 - 2021

	Virgin River at Virgin, UT (Total monthly flow in ac-ft)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year	1	2	3	4	5	6	7	8	9	10	11	12
2000	7,361	8,961	11,599	16,727	10,181	4,701	4,003	4,370	3,880	7,498	7,031	7,380
2001	7,254	7,200	11,476	17,109	16,169	5,189	4,328	5,459	3,535	4,580	5,863	7,016
2002	7,940	6,147	6,147	5,137	3,983	3,029	3,428	3,069	4,896	5,905	8,121	6,672
2003	7,113	7,781	9,836	8,102	8,342	3,770	3,496	4,360	3,621	4,192	6,027	6,841
2004	6,632	7,509	9,552	13,267	7,819	3,757	3,925	3,993	4,003	20,376	14,414	10,147
2005	53,728	25,740	30,982	57,241	106,314	35,879	8,866	9,796	5,901	8,831	7,948	8,053
2006	7,995	7,974	12,783	24,339	18,591	5,791	7,574	5,273	5,192	8,797	6,788	7,296
2007	7,186	6,807	7,712	7,351	5,360	3,632	4,665	7,607	6,308	4,969	6,042	9,802
2008	11,673	9,007	10,685	12,526	12,236	5,793	4,897	4,623	3,808	5,062	6,662	6,912
2009	8,519	7,841	8,763	14,993	15,673	6,258	4,444	3,817	3,820	4,737	6,079	6,870
2010	7,815	8,668	12,028	22,461	33,951	11,151	5,266	6,492	4,571	9,287	7,753	54,040
2011	11,863	9,497	19,521	53,292	65,371	24,409	8,214	6,381	6,692	9,473	9,927	9,427
2012	8,180	7,950	9,745	11,778	6,189	3,908	4,547	6,220	5,222	5,571	6,553	6,976
2013	7,735	7,859	8,757	9,483	7,555	3,736	5,375	6,995	8,580	7,102	9,705	8,093
2014	8,319	6,934	7,345	5,720	5,079	3,417	3,909	5,735	13,524	5,490	6,085	6,816
2015	7,103	6,107	8,186	5,909	6,455	4,368	4,811	4,995	8,645	9,451	6,849	7,654
2016	8,509	9,695	11,718	17,829	14,283	5,749	4,195	8,275	8,440	5,703	7,939	11,554
2017	14,658	20,668	24,510	35,669	17,542	5,685	5,964	5,577	5,069	5,740	7,555	8,150
2018	8,136	6,472	9,862	6,911	5,148	3,587	5,104	7,909	5,048	7,716	6,695	7,097
2019	10,092	13,329	31,261	36,799	46,354	20,579	5,935	4,964	4,528	5,959	8,505	13,047
2020	7,676	7,283	15,035	16,352	13,972	4,843	3,981	3,827	3,822	4,449	5,947	7,166
2021	7,252	5,960	6,789	5,427	4,350	3,666	5,501	7,394	4,051	7,610	6,476	12,129





# Water Conservation

- Reduced per capita water use more than 30% since 2000
- Invested more than \$70 million in recent conservation efforts
- Passed Utah's most restrictive ordinances for new construction



# Conservation Programs

Real water loss reduction	Tiered water conservation rate	Advanced Metering Infrastructure	Weather-based irrigation controller rebates
Irrigation equipment rebates	Efficient outdoor watering education	Outdoor water audit	Tree coupon
Public and school education	School building retrofit	High-efficiency fixture giveaway	Commercial washing machine rebate
Commercial toilet and urinal rebate	Residential landscape design consultations	Landscape conversion (grass removal) rebate	Hot water on demand rebate
Leak devices/flow sensor rebate	Water audits for hotels/motels	New development standards	Customized incentive program for high water users



# Water Efficient Landscape Rebate



*IT Pays TO Save*

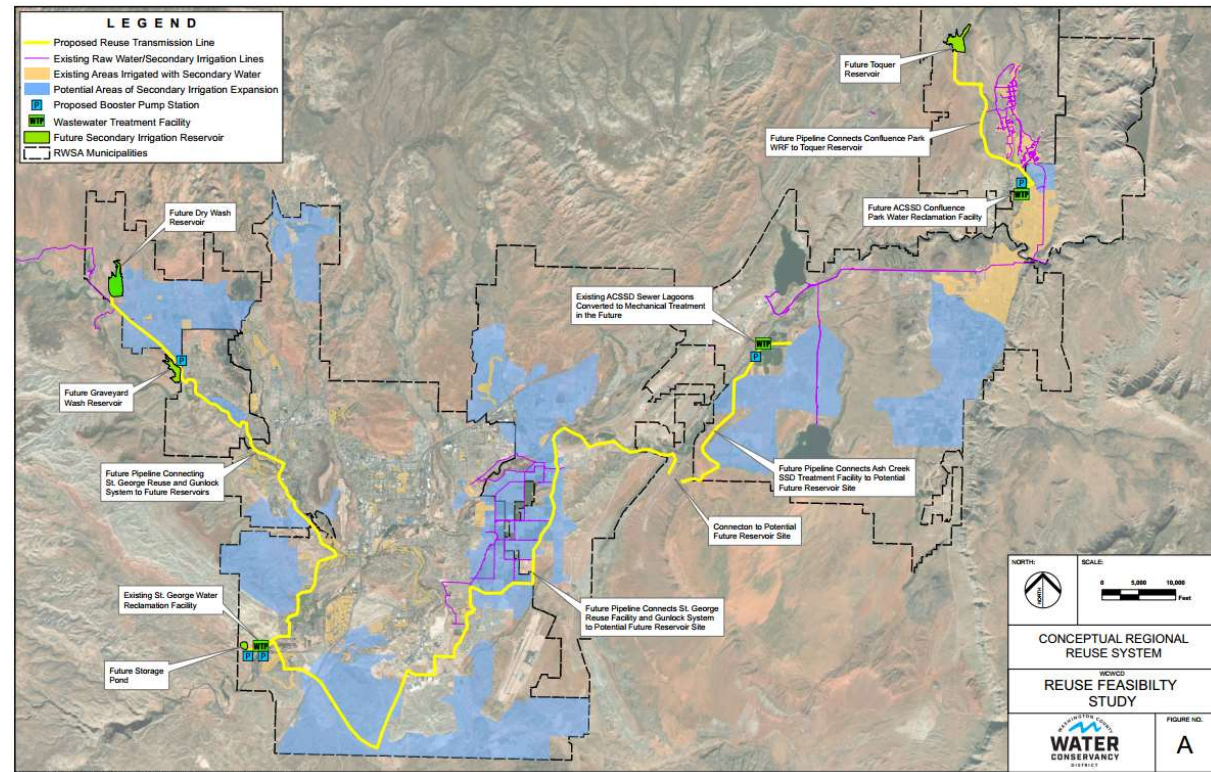
**LEARN MORE**

**Earn \$2 per square foot**  
when you upgrade  
thirsty grass  
to water efficient  
landscaping



# Conceptual Regional Reuse System

- Connects reservoirs to wastewater treatment plants via pipelines
- 10-30 year estimated implementation plan
- Estimated 12,000 to 20,000 AFY
- Anticipated \$600+ million



The background image shows a natural hot spring pool with a low stone wall and a wooden bench. The water is a deep blue color, and the surrounding landscape is arid with rocky terrain and sparse vegetation. The title 'Hot Springs Desalination' is overlaid on the right side of the image in a blue, sans-serif font.

# Hot Springs Desalination

- The La Verkin Hot Springs add 110,000 tons of salt into the Colorado River system annually
- Study underway to improve water quality for future uses



# Capital Projects

PROJECTS	YEAR
Cottam Well 3	2022
Sand Hollow Well 7	2023
Cottam Wells 3 MG Tank	2023
Sand Hollow North Dam to West Dam Pipeline	2023
Sand Hollow Well 15	2024
Sand Hollow 2 MG Tank B	2024
Quail Creek to Cottam Pipeline and Pump Stations, Phase 1	2024
Ash Creek Pipeline/ <u>Toquer</u> Reservoir Project	2025
Quail Creek WTP 80 MGD Expansion	2025
Quail Creek WTP Ozone Project	2025
Quail Creek 10 MG Tank B	2025
Regional Pipeline to Sand Hollow Pump Station	2025
Additional Water Rights Useable in Existing Supplies	2025
Sullivan Wells Project (Wells, Pipelines )	2026
Sullivan Wells Tank	2026
Quail Creek to Cottam Pipeline and Pump Stations, Phase 2	2028
Toquerville Springs to Cottam Pipeline Pump Station	2028



Next  
Century...

Water conservation

Reuse

Desalinization

Supply development



# Thank you for your time.



[wcwcd.org](http://wcwcd.org)



[info@wcwcd.org](mailto:info@wcwcd.org)

