Nov
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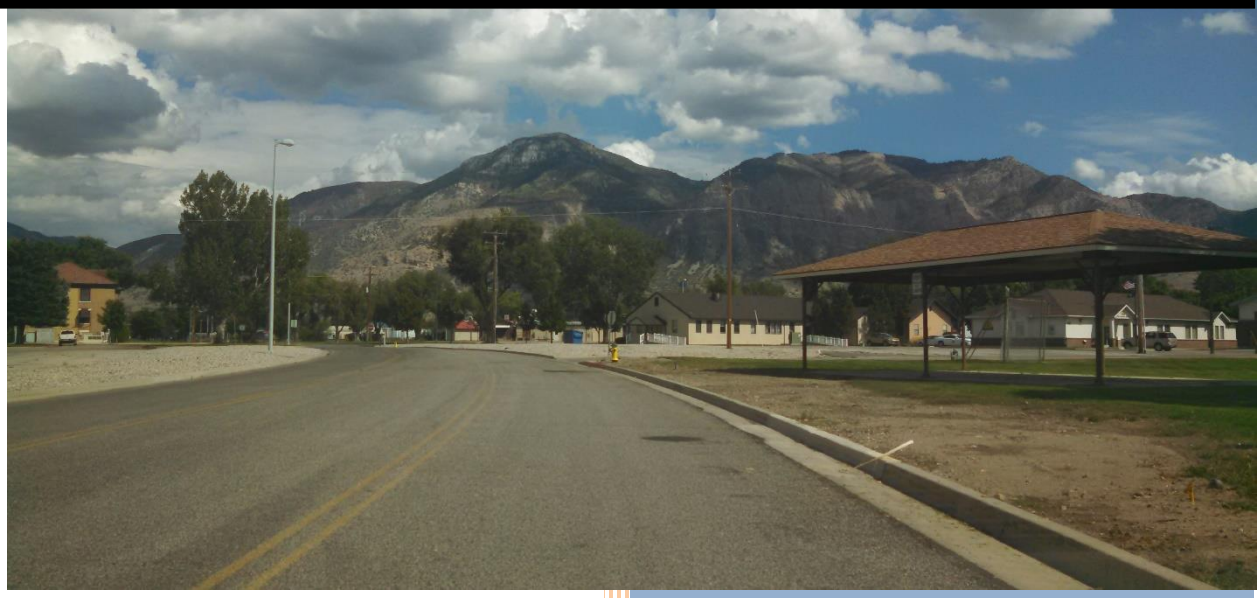
Bona Vista Water Improvement District Water Conservation Plan



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Water Conservation Plan
Bona Vista Water Improvement District
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Water Conservation Goal

The water conservation goal for the Weber River region is 200 gallons per capita per day (gpcpd) by 2030 (see Utah DNR Regional M&I Water Conservation Goals, 2019). This goal includes residential, commercial, institutional, and industrial water use and excludes agriculture, mining, and power generation. Bona Vista Water Improvement District (BVWID) is committed to achieving this goal.

Residential users in the BVWID service area obtain secondary water from Pineview Water Systems (PWS) and Mountain View Irrigation (MVI). Secondary water is included in the state's water conservation goals, and PWS and MVI water use will be included.

Water System Profile

Service Area

BVWID provides water to the communities of Harrisville, Farr West, Marriott-Slaterville, Plain City and portions of West Haven, Pleasant View, and Ogden City. The District service area is approximately 19,860 acres with approximately 245 miles of water mains of various sizes. Each year the District has grown, now serving a population of about 35,570. A map of the current service area is included in Appendix B.

Service Connections

BVWID currently have approximately 10,298 total connections, which include 9,307 residential connections, 863 commercials, 52 industrial, and 7 institutional connections, all of which are metered. Table 1 is a breakdown of the water usage for each type of connection for the year 2023.

Table 1: Culinary Water Connections

Land use category	Connections	Acre-Feet	Gallons	Percent of total
Residential	9,307	1,840.90	599,859,110	44%
Institutional	76	95.26	27,782,060	2%
Commercial	863	1,602.34	522,124,100	38%
Industrial	52	681.17	221,959,930	16%
Totals	10,298	4,219.67	1,371,725,200	100%

Water Supply

The District has water rights of 10.028 cfs (4763.34 ACFT) through wells and springs with additional meters with Ogden City and Weber Basin Water Conservancy District. Table 2 is a list of all the District's water rights and volume of water associated with each water right.

Table 2: Bona Vista Water Rights

Source	WR#	CFS	Total CFS	ACFT/Year	GPM
Harrisville Well	35-3922*	0.78	0.78	107.94	350
Plain City Well	35-4928	0.36	0.36	260.62	162
Farr West Well	35-1320	1.794	8.328	1298.80	3738
	35-2059	1.794		1298.80	
	35-5011	1.80		1303.14	
	a32793	2.94		107.94	
North Ogden Spr.	35-955**	0.56	0.56	241 (386.1)	239
Totals:	---------	**10.028**	**10.028**	**4763.34**	**4489**

Notes:

* 35-3922 is based upon database note of 107.94 ac-ft on a 1969 certificate with 105 ac-ft max flow plus 105 ELU at 0.028 ac-ft/ELU for 107.94 ac-ft total.

**35-955 uses 858 Dwelling units at 0.45 ac-ft/DU for 386.1 ac-ft total.

In addition to the District's water rights, the District has purchased access to an additional 5236 acre-feet of water through Weber Basin Water Conservancy District and Ogden City. Source and distribution capacities are regularly evaluated, and improvement projects are identified in the districts most recent Impact Fee Facility Plan. Table 3 provides a summary of the water source production from 2018 to 2023.

Table 3: Annual Production from Water Sources in Acre-Ft

Source	2018	2019	2020	2021	2022	2023
Harrisville Well	0	0	0	0	0	0
Plain City Well	0	0	0	0	0	0
Farr West Well	42.00	13.00	101.14	251.06	416.00	0
North Ogden Spr.	169.00	133.00	133.65	107.00	100.00	161.00
Weber Basin	3447.00	3281.00	3762.00	3491.48	3026.00	3537.00
Ogden City	969.00	1101.00	1359.73	1219.92	1160.00	1419.00
Totals:	**4627.00**	**4528.00**	**5356.79**	**5069.46**	**4702.00**	**5117.00**

Future Water Use and Supply

The average annual growth rate for BVWID is approximately 4.4% based on historical growth over the past 10 years. Table 4 shows the projected population and connections up to 2060.

Table 4: Projected Growth Rate

Year	Population	Connections
2022	34,005	9,985
2023	37,063	10,298
2030	47,990	13,921
2040	73,816	21,412
2050	113,542	32,936
2060	174,647	50,661

Figure 1 shows the projected annual use and supply to 2060. BVWID currently has access to 6,770 ac-ft annual for water. This supply will be sufficient until between 2030 and 2040. The District owns 10.028 ac-ft in water rights, and plans on developing wells to access those water rights to meet future demands.

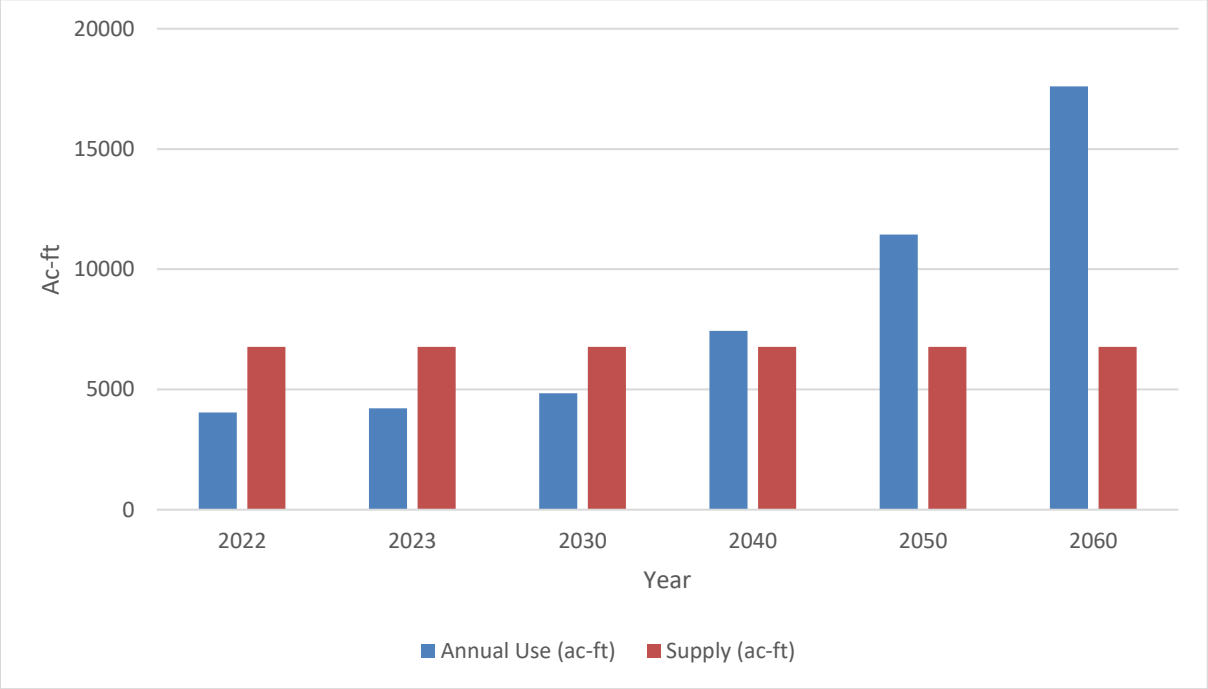

Figure1: Future Use and Supply Projections

Billing

BVWID's have a minimum base rate for each residential and commercial connections based on connection size. Table 5 provides the breakdown for the base rates.

Table 5: Monthly Base Rates

Connection Size	Rate
Residential	
3/4" X 5/8"	$10.84
1"	$15.21
1.5"	$19.53
2"	$31.47
Commercial	
3/4" X 5/8"	$32.78
1"	$45.88
1.5"	$58.99
2"	$95.03
3"	$360.53
4"	$458.83
6"	$688.24
8"	$950.43

In addition to the monthly base rate, there are additional usage rates added on to the base rate measured per 1,000 gallons. Additionally, the residential usage rates are increased based on drought severity. There are four tiers of drought severity: normal, severe, extreme, and exceptional. The increased rated based on drought severity is to help encourage users to practice water conservation practices. Table 6 summarizes the usage rates.

Table 6: Additional Usage Rates

Tier	Normal Rate	Severe Rate	Extreme Rate	Exceptional Rate
Residential				
0 – 7,000 gallons	$0.83	$1.25	$1.45	$1.66
7,001 – 15,000 gallons	$1.55	$2.28	$2.66	$3.04
15,001 – 20,000 gallons	$2.24	$3.36	$3.92	$4.48
20,001 gallons and above	$2.75	$4.13	$4.81	$5.50
Commercial				
0 – 50,000 gallons	$1.55			
50,001 – 100,000 gallons	$1.62			
Over 100,000 gallons	$1.68			

System Water Loss

BVWID has meters at on all connections and requires meters to be installed for all new developments. Water meters allow the District to measure how much water is being used at each connection. This information can be used to determine the system water loss by comparing the total usage from each meter and comparing it to annual usage measured from the source. Table 7 shows the comparison between the annual usage measured from the source and the meter usage data from 2018 to 2023.

Table 7: Estimated Water Loss

Year	Total Meter Usage (ac-ft)	Total from Sources (ac-ft)	Estimated Water Loss %	Estimated Retail Value Loss
2018	4157.72	4627.00	10%	$126,938
2019	4045.60	4528.00	11%	$130,487
2020	4473.41	5356.79	16%	$238,951
2021	4372.76	5069.46	14%	$188,455
2022	4047.07	4702.00	14%	$177,156
2023	4219.67	5117	18%	$242,725

Water loss in the distribution system is primarily caused by leaks at fittings or connections. Additional water loss is caused by fire hydrant flushing, construction, dust control, and filling new lines. The District performs routine maintenance on the system and fixes any know leaks as soon as possible.

Water Conservation

The Weber River Region conservation goal for 2030 is 200 gallons per capita per day (gpcpd). BVWID is committed to working with the Cities and secondary water companies to meet this goal. Table 8 summarizes the GPCPD for the District and the secondary water companies. Since 2018 the GPCPD has steadily declined. Since secondary water companies are now required to have meters for all connections, water use has declined.

Table 8: Historic Use and GPCPD for Bona Vista Water

Year	BVWID **GPCPD**	Secondary GPCPD	Total GPCPD
2018	135	-	-
2019	125	-	-
2020	135	560	695
2021	118	333	589
2022	106	264	370
2023	106	190	296

Water Conservation Practices

Current Conservation Practices

BVWID in the recent past that have promoted conservation, and the effort has helped the District conserve water. These include:

1. Bona Vista Water District has adopted a resolution that requires outside irrigation in all new residential and Commercial developments to be provided by a secondary irrigation system. This has:
    - Preserved culinary water for indoor use.
    - Placed the responsibility on the irrigation companies to implement conservation measures.

2. The District Board has supported secondary irrigation system suggested restrictions on watering during the day.
    - Between hours of 10:00 A.M. to 6:00 P.M.
    - There has been a reported conservation of up to 33 percent during the first few years of implementation.
3. In 2002 the District replaced all water meters (2018 updated meters) that were in service over 5 years and equipped all meters with electronic reading capability allowing us to switch to a monthly, year round reading and billing schedule. Thus has allowed us to:
    - Detect and notify customers of possible leaks more timely.
    - Perform monthly water audits, showing 9.97% of unaccounted water.
4. Commercial users are encouraged to use drip systems, Xeriscape and E.T. mangers if allowed to use culinary water for outdoor use.
5. In 2016, we implemented the “Land Improvement & Construction Cost Plan” to systematically find and replace old and leaky water mains.
6. The district has adopted a drought rate tier system with criterial for drought determination.

Future Conservation Practices

The District plans to work with the cities and secondary water districts within their service area to further water conservation. These future efforts will include:

1. Working with Cities require commercial users to require Xeriscape in the park strips and detention basins to reduce watered area.
2. Policy to regulate fire flow speculation. There is a lot of water loss for fire flow testing done in a time of year that fire flow is not designed for.
3. Continue to review the rate structure to encourage conservation.
4. Implement projects in the Impact Facility Fee Plan to upgrade aging infrastructure, which are more likely to have leaks.
5. Invest in new meters with improved leak detection capabilities.
    - The District currently has 11,000 connections. Approximately 90% of those already have the new Neptune T-10 meters. The remaining 1,100 will be completed by the year 2030 with an average of 20.4 meters replaced each month or 250 per year. The District budgets the purchase of 400 meters annually for both new growth and replacement.

6. Keeping the District's website up to date with current conservation tips, including the addition of information concerning the statewide rebate website utahwatersavers.com.

Implementation, Monitor and Evaluation

Bona Vista Water Improvement District is dedicated to providing quality water and service to all of its customers now and in the future. We also realize the need for everyone to do their part in conserving our most precious resource, water. We will continue to work with those cities we supply water to, helping to educate them so that they may make good decisions in the development and growth of their communities.

Appendix A

Water Conservation Plan Resolution

Appendix B

Service Area Map