



LaVerkin City Water Conservation Plan

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LAVERKIN CITY WATER CONSERVATION PLAN

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TABLE OF CONTENTS

1.	BACKGROUND INFORMATION.....	1
A.	INTRODUCTION	1
B.	LAVERKIN CITY	1
C.	POPULATION	1
D.	GROWTH PROJECTIONS	2
E.	CURRENT WATER SUPPLY	3
i.	CULINARY WATER.....	3
ii.	IRRIGATION WATER.....	4
F.	EXISTING WATER CONNECTIONS.....	4
i.	CULINARY WATER.....	4
ii.	IRRIGATION WATER.....	4
G.	EXISTING WATER USAGE.....	5
i.	CULINARY WATER.....	5
ii.	IRRIGATION WATER.....	6
H.	WATER SOURCE CAPACITY.....	7
I.	WATER BUDGET	8
J.	CURRENT & FUTURE WATER NEEDS.....	9
i.	WATER RIGHTS	9
ii.	WATER SOURCE CAPACITY.....	11
2.	WATER CHALLENGES AND GOALS	13
A.	IDENTIFIED PROBLEMS	13
B.	WATER CONSERVATION GOALS	13
3.	CONSERVATION MEASURES.....	15
A.	REPLACEMENT OF AGING INFRASTRUCTURE.....	15
B.	REDUCING WASTE AND OVERWATERING	15
C.	REUSE OF TREATED WATER	16
D.	DUAL WATER SYSTEMS	16
E.	BILLING & CONSERVATION PRICING	16
4.	CURRENT PRICING STRUCTURE.....	17
5.	ADDITIONAL CONSERVATION MEASURES.....	19
A.	PUBLIC EDUCATION.....	19
B.	LANDSCAPE DESIGNS & IRRIGATION SYSTEMS.....	19
C.	EMERGENCY CONSERVATION POLICIES & ORDINANCES.....	20
D.	ADMINISTRATIVE POLICY MEASURES	20
6.	EFFECT OF CONSERVATION	21
A.	CULINARY WATER.....	21
B.	IRRIGATION WATER.....	22
7.	PLAN IMPLEMENTATION	24
A.	WATER CONSERVATION COORDINATOR.....	24
B.	UPDATING THE WATER CONSERVATION PLAN.....	24
C.	COMPLIANCE WITH UTAH CODE.....	24

LIST OF FIGURES

Figure A: Culinary Water Right Demands over the Planning Period	21
Figure B: Culinary Water Source Capacity Demands over the Planning Period	22
Figure C: Irrigation Water Right Demands over the Planning Period.....	23
Figure D: Irrigation Water Source Capacity Demands over the Planning Period	23

LIST OF TABLES

Table 1: Population Growth Rates.....	2
Table 2 Projected Population & Culinary Water ERUs	3
Table 3: LaVerkin City & Other Culinary Water Rights.....	4
Table 4: LaVerkin City Irrigation/Other Water Rights.....	4
Table 5: Total Culinary Water Deliveries by Type	5
Table 6: Average Usage Per Connection - Residential	5
Table 7: Average Usage Per Connection – Commercial	5
Table 8: Average Usage Per Connection - Other	6
Table 9: Total Irrigation Water Deliveries	6
Table 10: Average Usage Per Connection - Irrigation	7
Table 11: Existing Culinary Water Source Capacity	7
Table 12: Existing Irrigation Water Source Capacity.....	8
Table 13: Water Budget.....	8
Table 14: Existing Required Culinary Water Right	9
Table 15: Existing Required Irrigation Water Right.....	10
Table 16: Projected 40-Year Required Culinary Water Right	10
Table 17: Projected 40-Year Required Irrigation Water Right.....	11
Table 18: Existing Required Culinary Water Source Capacity	11
Table 19: Existing Required Irrigation Water Source Capacity.....	12
Table 20: Projected 20-Year Required Culinary Water Source Capacity	12
Table 21: Projected 20-Year Required Irrigation Water Source Capacity	12
Table 22: LaVerkin - Culinary Water User Rates	17
Table 23: LaVerkin - Irrigation Water Fee Schedule	18

APPENDICES

APPENDIX A: NOTICING REQUIREMENTS, MEETING MINUTES, AND
RESOLUTION FORMALLY ADOPTING THE WATER CONSERVATION PLAN

1. BACKGROUND INFORMATION

A. INTRODUCTION

In response to the increasing demands and concerns pertaining to water resources throughout the State of Utah, the state legislature has passed and revised the Water Conservation Plan Act (House Bill 71 and Section 73-10-32 UCA). This act requires agencies with more than 500 water service connections to prepare and submit a water conservation plan to the Division of Water Resources. The Act also stipulates that the plans be updated no less frequently than every 5 years.

This water conservation plan has been prepared to meet these requirements and to address the concerns of leaders and citizens of both LaVerkin City and the State of Utah. It is intended that the plan will help LaVerkin City prepare for and meet the future water needs of their community and effectively manage their water resources.

B. LAVERKIN CITY

LaVerkin City (the City) is located in Washington County, Utah, about 20 miles northeast of St. George. The southern boundary of LaVerkin is marked by the Virgin River, while the LaVerkin Creek separates the City from Toquerville to the north. The City sits up on the LaVerkin Bench and overlooks the valley below where the Virgin River, Ash Creek, and LaVerkin Creek converge. The City functions as the gateway leading to Zion National Park as it sits at the intersection of Utah SR-9 and SR-17.

The City's history is deeply rooted in the development of its water resources. The LaVerkin Bench Project was the beginning of what has now developed into LaVerkin City. In 1889, the LaVerkin Fruit and Nursery Company was incorporated. The objective of this company was to build the LaVerkin Bench Canal and tunnel so that water could be brought up from the Virgin River to the bench to establish nursery orchards and vineyards, manufacture wine and liquor, promote fruit and stock raising, and for general farming. It took an extreme amount of hard tedious labor, perseverance and enthusiasm to build the canal and the 840-foot tunnel. Water was originally turned into the canal in 1891.

The City has come a long way since the original LaVerkin Bench Canal was completed. LaVerkin currently owns and operates its own culinary and irrigation water systems which provide water to the residences and businesses in the City.

C. POPULATION

A critical element in analyzing and planning for a community's future water demands is a projection of the City's population growth rate. This projection gives the planner an idea of the future water demands based on current water usage trends. This projection also provides a basis for water

usage reduction goals and objectives. Reviewing historic growth trends can provide valuable information for projecting future growth patterns.

Over the past several decades, LaVerkin City has experienced periods of rapid growth. The table below shows the official census historic growth rates as well as an estimate of the current population. In the decades prior to the year 2000, high growth rates were experienced. Since that time, growth rates have declined. The downturn of the economy in recent years has likely influenced growth in the community.

Table 1: Population Growth Rates

Year	Source	Population	Average Annual Growth Rate	
1970	Census Population	463	-	-
1980	Census Population	1,174	1970 - 1980	9.75%
1990	Census Population	1,786	1980 - 1990	4.28%
2000	Census Population	3,392	1990 - 2000	6.62%
2010	Census Population	4,065	2000 - 2010	1.83%
2020	Census Estimate	4,573	2010 - 2020	1.25%

The City's current population estimate is 4,573 people. For the last 20 years, the City has grown at a rate of 1.5% annually. It is expected that the City will continue to grow and expand at a rate consistent with the last ten years. For planning purposes, a 1.25% average annual growth rate will be projected throughout the planning period. This growth may continue to change the utilization of the land and may put strain on the City's water supply and distribution systems in order to meet increasing demands. By means of careful preparation and efficient utilization of available water supply, these increased demands can be met.

D. GROWTH PROJECTIONS

As mentioned previously, a 1.25% average annual residential growth rate is projected throughout the planning period. However, it is typical that residential connections and city-owned or business ERUs do not all increase at the same growth rate. Because of this, projected ERUs for the city-owned and business categories have been determined using a different growth rate.

Residential connections are assumed to increase according to the 1.25% residential growth rate previously presented. City-owned and business ERUs have been estimated using a 0.75% growth rate. Connections of these types generally increase at a lower rate (and sometimes oscillate), but it is believed that as the residential population experiences a consistent growth pattern, these categories may also experience steady growth increases.

The number of future culinary ERUs has been calculated using the compound interest formula and inserting the projected growth rates, the existing number of culinary water ERUs (residential, city-owned, and business), and the number of years in the planning period. This formula is as follows:

$$F = P(1 + i)^N$$

F = Future ERUs

P = Present ERUs

i = Projected Growth Rate

N = Years

The projected yearly population and number of culinary water ERUs has been calculated and included in the table below.

Table 2 Projected Population & Culinary Water ERUs

Year	Est. Residential Growth Rate	Estimated Residential ERU's	Estimated Business ERU's	City/Other ERU's	Total Estimated ERU's	Estimated Population
2020	1.25%	1,505	269	194	1,968	4,573
2021	1.25%	1,523	271	196	1,990	4,630
2022	1.25%	1,542	273	197	2,012	4,688
2023	1.25%	1,562	275	199	2,036	4,747
2024	1.25%	1,581	277	200	2,058	4,806
2025	1.25%	1,601	279	202	2,082	4,866
2026	1.25%	1,621	281	203	2,105	4,927
2027	1.25%	1,641	283	205	2,129	4,988
2028	1.25%	1,662	286	206	2,154	5,051
2029	1.25%	1,683	288	208	2,179	5,114
2030	1.25%	1,704	290	210	2,204	5,178
2031	1.25%	1,725	292	211	2,228	5,243
2032	1.25%	1,746	294	213	2,253	5,308
2033	1.25%	1,768	296	214	2,278	5,374
2034	1.25%	1,790	299	216	2,305	5,442
2035	1.25%	1,813	301	218	2,332	5,510
2045	1.25%	2,053	324	234	2,611	6,238
2055	1.25%	2,324	349	253	2,926	7,064
2060	1.25%	2,473	363	262	3,098	7,516

E. CURRENT WATER SUPPLY

i. CULINARY WATER

According to the 2017 LaVerkin City Culinary Water Master Plan, the City has approximately 714.43 acre-feet of culinary water that can be diverted annually from several water sources. Additionally, through an agreement with the Washington County Water Conservancy District (WCWCD), LaVerkin City has access to an additional 1,000 acre-feet supplied through Cottam Well. Table 3 shows the available culinary water rights.

Table 3: LaVerkin City & Other Culinary Water Rights

LaVerkin Culinary Water Rights		Flow		
W.R. #	Source	gpm	cfs	AcFt
81-1073	Upper Ash Creek Springs	134.6	0.300	72.0
81-2287	Toquerville Springs	149.5	0.333	241.1
81-687	Upper Ash Creek Springs	220.4	0.491	71.4
81-1602	Ash Creek Spring & Upper Ash Creek Spring	448.8	1.000	330.0
Total La Verkin City Water Rights		953.3	2.124	714.5

Other Available Culinary Water Rights		Flow		
W.R. #	Source	gpm	cfs	AcFt
N/A	* WCWCD - Cottam Well	800.0	1.783	1,000.0
Total Other Available Water Rights		800.0	1.783	1,000.0

ii. IRRIGATION WATER

The City has 2,620.0 acre-feet of irrigation/other water rights that can be diverted annually from the Virgin River. Table 4 shows the available LaVerkin City irrigation/other water rights.

Table 4: LaVerkin City Irrigation/Other Water Rights

LaVerkin Irrigation/Other Water Rights			Flow		
W.R. #		Source	gpm	cfs	AcFt
a13530	Irrigation	Virgin River	3,576.9	7.970	1,630.0
81-4334	Irrigation	Virgin River	1,346.4	3.000	990.0
Total Irrigation/Other Water Rights			4,923.3	11.0	2,620.0

F. EXISTING WATER CONNECTIONS

i. CULINARY WATER

LaVerkin City currently has 1,968 total culinary water connections. These include 1,505 residential connections, 269 business connections, and 194 other connections. However, all of these connections are not consistently active or in use.

ii. IRRIGATION WATER

The City also has 1,551 irrigation water connections. The irrigation system is not currently metered.

G. EXISTING WATER USAGE

i. CULINARY WATER

Culinary water usage data from 2016 through 2019 was analyzed to determine water usage trends in LaVerkin City. The following table shows the total water deliveries categorized by type for the past 4 years.

Table 5: Total Culinary Water Deliveries by Type

Year	Annual Water Usage Data (1,000 gal)			
	Residential	Commercial	Other	Total
2016	130,945	12,210	13,840	156,995
2017	154,634	14,271	11,520	180,425
2018	148,423	23,227	15,223	186,873
2019	136,960	24,646	17,811	179,417

The culinary water usage data was further broken down to determine the average usage per connection. The following tables present the average yearly, monthly, and daily usage for each type of connection for the past 4 years.

Table 6: Average Usage Per Connection - Residential

Year	Average Residential Usage Per Connection		
	Yearly (gal)	Monthly (gal)	Daily (gal)
2016	94,201	7,850	258
2017	109,008	9,084	299
2018	102,917	8,576	282
2019	92,193	7,683	253

Table 7: Average Usage Per Connection – Commercial

Year	Average commercial Usage Per Connection		
	Yearly (gal)	Monthly (gal)	Daily (gal)
2016	196,930	16,411	540
2017	230,177	19,181	631
2018	374,629	31,219	1,026
2019	376,765	31,397	1,032

Table 8: Average Usage Per Connection - Other

Year	Average Other Usage Per Connection		
	Yearly (gal)	Monthly (gal)	Daily (gal)
2016	1,064,654	88,721	2,917
2017	886,154	73,846	2,428
2018	1,171,000	97,583	3,208
2019	975,151	81,263	2,672

The usage numbers per connection presented above are based on the number of active connections for each year. Usage for residential-owned connections has steadily gone down over the past 4 years, while usage for commercial connections has continued to increase. As shown, the average usage for residential connections in 2019 was 253 gallons per day.

Based on the LaVerkin City 2019 population estimate of 4,573 people, and the 2019 total usage numbers presented previously, the City's total per capita daily potable water usage is 107.5 gpcd (gallons per capita per day). This is significantly lower than the State average of 164.0 gpcd for potable water use. The total residential per capita daily potable water usage is 82.1 gpcd. The State residential average is much higher at 111.0 gpcd.

ii. IRRIGATION WATER

Irrigation water usage data was also analyzed from 2016 to 2019. The following table shows the total irrigation water deliveries in LaVerkin for the past 4 years.

Table 9: Total Irrigation Water Deliveries

Year	Irrigation Usage Data	
	Acre-Feet	1,000 Gal
2016	1,683	548,505
2017	1,857	605,105
2018	1,719	560,193
2019	2,169	706,771

The irrigation water usage data was also broken down to determine the average usage per connection. The following table presents the average yearly, monthly, and daily usage per irrigation connection for the past 3 years. As shown, the average usage for irrigation connections in 2019 was 1,248 gallons per day.

Table 10: Average Usage Per Connection - Irrigation

Year	Average Irrigation Usage Per Connection		
	Yearly (gal)	Monthly (gal)	Daily (gal)
2017	409,963	34,164	1,123
2018	382,907	31,909	1,049
2019	455,687	37,974	1,248

Based on the LaVerkin City 2019 population estimate of 4,573 people, and the 2019 total usage numbers presented previously, the City's total irrigation per capita daily water usage is 423.4 gpcd (gallons per capita per day). This is significantly higher than the State average of 75.0 gpcd. Because the data available for irrigation water connections did not provide a breakdown of residential vs. other connection types, a residential irrigation comparison was not completed. Notably, historical records suggest that the LaVerkin Bench was developed as an agricultural area for the cultivation of orchards, vineyards, and fields. The City is still characterized by large lots and agricultural areas, so the higher-than-State-average irrigation values are to be expected.

H. WATER SOURCE CAPACITY

CULINARY WATER

According to the 2017 LaVerkin City Culinary Water Master Plan, the City has approximately 953 gpm of source capacity. All of these sources are spring flows from the Toquerville, Ash Creek, and Upper Ash Creek Springs. It should be noted that the capacity of the springs exceeds 953 gpm, but the City's water rights limit the source usage by the City.

In addition, through an agreement with WCWCD, the City has access to additional water using the Cottam Well. The pump rate of the Cottam Well is 800 gpm. LaVerkin's existing culinary water source capacity has been summarized in Table 11.

Table 11: Existing Culinary Water Source Capacity

LaVerkin City Culinary Sources	Total Flow	
	CFS	gpm
Upper Ash Creek Springs	0.300	135
Toquerville Springs	0.333	149
Upper Ash Creek Springs	0.491	220
Ash Creek Spring & Upper Ash Creek Spring	1.000	449
Source Total =	2.124	953
Other Available Culinary Sources	Total Flow	
	CFS	gpm
Cottam Well	1.783	800
Source Total =	1.783	800

IRRIGATION WATER

Irrigation water is taken directly from the Virgin River, and the amount is limited by the City's water rights. In 2010, LaVerkin City constructed the Chance Hardy Filter Station which filters the water before it is directed to the irrigation distribution system. The design plans for the filter station indicate a design capacity of 4,000 gpm. LaVerkin's existing irrigation water source capacity has been shown in Table 12.

Table 12: Existing Irrigation Water Source Capacity

LaVerkin City Culinary Sources	Total Flow	
	CFS	gpm
Chance Hardy Filter Station	8.913	4,000
Source Total =	8.913	4,000

I. WATER BUDGET

A water budget can be used to estimate the leakage or slippage of water from a water system. The leakage rate can be determined by comparing the amount of water that comes into a water system, with the amount of water that leaves the system. In order to establish and track a water budget, water metering devices must be present on all water sources feeding the system, and on all points where water leaves the system.

Table 13: Water Budget

Year	Source (ACFT)	Usage (ACFT)	Leakage Rate
2016	637.7	506.68	20.55%
2017	687.42	568.39	17.32%
2018	615.2	576.63	6.27%
2019	591.92	556.81	5.93%

Table 13 shows the City's culinary water budget for the last four years. The estimated overall average leakage rate for the City over the last four years is in excess of 12%. There are many factors besides water leaks which can affect this number. These include inaccurate meter readings, aging (inaccurate) meters, non-metered hydrant flows, fluctuating tank levels, etc.

Fluctuating tank levels affect the water budget more on short period comparisons than on long term comparisons. This is because the volume of water stored in tanks is significant when compared to daily or monthly water usage totals, but its effect is dampened over longer periods (such as annually) when the changes in storage volume are compared to the overall water usage for the longer period. Tank fluctuations can be accounted for by monitoring and tracking water levels in the tanks on the same

schedule as meter readings. It is recommended that the City begin tracking and documenting the water level in their tanks as meters are read to help increase the accuracy of the water budget.

J. CURRENT & FUTURE WATER NEEDS

i. WATER RIGHTS

CURRENT NEEDS

The State of Utah Public Administrative Rules for Public Drinking Water Systems, require that a community should have adequate water rights to supply at minimum, one year's supply of water at the average demand. LaVerkin's historical water usage shows that the average water use for a residential unit is 253 gallons per day (See Section 1.g). This number includes indoor culinary use as well as some outdoor use for customers who do not have access to the City's secondary (irrigation) water system.

By multiplying the average culinary usage in LaVerkin by the number of existing ERUs, the current required amount of water rights can be determined. This calculation is shown in Table 14 below, indicating that the existing required amount of culinary water rights for LaVerkin City is 558 acre-feet. Subtracting this number from the amount of available culinary water rights yields an existing surplus of 1,157 acre-feet.

Table 14: Existing Required Culinary Water Right

Average Demand (Total Use)									
1,968	ERU's X	253	gpd X	1 day X	1 hr	=	346	gpm	
		ERU		24 hr	60 min.				
1,968	ERU's X	253	gpd X	365 day X	1 Acft.	=	558	Acft	
		ERU		1 yr	325,852 gal				
Total Required Water Right							558	Acft	346 gpm
Existing Culinary System Water Right <u>Surplus</u>							1,157	Acft	1,407 gpm

The same process can be followed to determine the current required amount of irrigation water rights. This number has been calculated as shown in Table 15 using the number of existing irrigation connections and the average irrigation usage per connection of 1,248 gallons per day. Subtracting this number from the amount of available irrigation water rights yields an existing surplus of 452 acre-feet.

Table 15: Existing Required Irrigation Water Right

Average Demand (Total Use)						
1,551	Connections X	1,248 gpd X	1 day X	1 hr	=	1,344 gpm
		ERU	24 hr	60 min.		
1,551	Connections X	1,248 gpd X	365 day X	1 Acft.	=	2,168 Acft
		ERU	1 yr	325,852 gal		
Total Required Water Right					2,168 Acft	1,344 gpm
Existing Irrigation System Water Right <u>Surplus</u>					452 Acft	3,579 gpm

FUTURE NEEDS

Based on recent changes in Utah law, it is recommended that future water rights be determined based on 40-year growth projections. Based on current water usage trends and the projected growth patterns outlined in Table 2 of Section 1.d, the projected 40-year required culinary and irrigation water rights calculations are shown in Tables 16 and 17 below.

Table 16: Projected 40-Year Required Culinary Water Right

Average Demand (Total Use)						
3,098	ERU's X	253 gpd X	1 day X	1 hr	=	544 gpm
		ERU	24 hr	60 min.		
3,098	ERU's X	253 gpd X	365 day X	1 Acft.	=	878 Acft
		ERU	1 yr	325,852 gal		
Total Required Water Right					878 Acft	544 gpm
Existing Culinary System Water Right <u>Surplus</u>					836 Acft	1,209 gpm

Subtracting the quantity of projected culinary water rights from the amount of available culinary water rights, yields a surplus for the 40-year projected demand of 836 acre-feet. It should be noted that the City's agreement with WCWCD indicates that the 1,000 acre-feet available through WCWCD is for up to 1,000 new connections in the agreed-upon service area from the date the agreement was made. The City will need to carefully keep track of the number of new connections and water used for these connections to ensure that the agreed upon terms are being followed.

Table 17: Projected 40-Year Required Irrigation Water Right

Average Demand (Total Use)						
2,581	Connections X	1,248	gpd X	1 day X	1 hr	= 2,237 gpm
		ERU		24 hr	60 min.	
2,581	Connections X	1,248	gpd X	365 day X	1 Acft.	= 3,608 Acft
		ERU		1 yr	325,852 gal	
Total Required Water Right					3,608 Acft	2,237 gpm
Existing Irrigation System Water Right Deficit					(988) Acft	2,686 gpm

Subtracting the quantity of projected irrigation water rights from the amount of available irrigation water rights, yields a deficit for the 40-year demand of 988 acre-feet. In order to meet the projected irrigation water right demands, additional irrigation water rights may be needed. However, as the city continues to follow the trend of converting agricultural land to residential, outdoor water usage may decline. With the outdoor water use declining, the projected deficit may decrease over time.

ii. WATER SOURCE CAPACITY

CURRENT NEEDS

The State of Utah Public Administrative Rules for Public Drinking Water Systems require that a community should have adequate water source capacity to supply a peak day demand of equal to twice the average amount of historical usage. LaVerkin's historical water usage shows that the average water use for a residential unit is 253 gallons per day (see Section 1.g). Doubling this amount results in a peak day demand of 506 gallons per day per ERU. This number includes indoor culinary use as well as some outdoor use for customers who do not have access to the City's secondary (irrigation) water system.

Multiplying the peak day culinary usage per ERU by the number of existing ERUs, the existing required culinary water source capacity can be determined. This calculation is shown in Table 18 below, indicating that the existing required culinary water source capacity for LaVerkin City is 692 gpm. Subtracting this number from the available culinary water source capacity yields an existing surplus of 1,062 gpm.

Table 18: Existing Required Culinary Water Source Capacity

Required Indoor/Outdoor Source						
1,968	ERU's X	506	gpd X	1 day X	1 hr	= 692 gpm
		ERU		24 hr	60 min.	
Total Required Source Capacity					692 gpm	
Existing Culinary System Source Capacity Surplus					1,062 gpm	

The same process can be followed to determine the current required irrigation water source capacity. This calculation is shown in Table 19 using the number of existing irrigation connections and the peak day irrigation usage per connection of 2,496 gallons per day (2 times average). Subtracting this number from the available irrigation water source capacity yields an existing surplus of 1,312 gpd.

Table 19: Existing Required Irrigation Water Source Capacity

Required Indoor/Outdoor Source					
1,551	Connections X	2,496	gpd X	1 day X	1 hr
		ERU	24 hr	60 min.	
					= 2,688 gpm
Total Required Source Capacity					2,688 gpm
Existing Irrigation System Source Capacity <u>Surplus</u>					1,312 gpm

FUTURE NEEDS

It is recommended that future water source capacity needs be determined based on 20-year growth projections. Based on current water usage trends and the projected growth patterns outlined in Section 1.d, the projected 20-year required culinary and irrigation water source capacity calculations are shown in Tables 20 and 21 below.

Table 20: Projected 20-Year Required Culinary Water Source Capacity

Required Indoor/Outdoor Source					
2,467	ERU's X	506	gpd X	1 day X	1 hr
		ERU	24 hr	60 min.	
					= 867 gpm
Total Required Source Capacity					867 gpm
Existing Culinary System Source Capacity <u>Surplus</u>					886 gpm

Subtracting the projected culinary water source capacity from the available culinary water source capacity, yields a surplus for the 20-year projected demand of 886 gpm.

Table 21: Projected 20-Year Required Irrigation Water Source Capacity

Required Indoor/Outdoor Source					
2,013	Connections X	2,496	gpd X	1 day X	1 hr
		ERU	24 hr	60 min.	
					= 3,490 gpm
Total Required Source Capacity					3,490 gpm
Existing Irrigation System Source Capacity <u>Surplus</u>					510 gpm

Subtracting the projected irrigation water source capacity from the available irrigation water source capacity, yields a surplus for the 20-year demand of 510 gpm. In order to meet the projected irrigation water source capacity, the City may need to develop additional irrigation water source capacity.

2. WATER CHALLENGES AND GOALS

A. IDENTIFIED PROBLEMS

There are several conservation challenges with LaVerkin City's culinary and secondary water (irrigation) systems that can be addressed by standard conservation measures and goals as recommended by this plan. These challenges include:

1. The irrigation system is not currently metered. This reduces incentive for customers to conserve irrigation water and reduces accountability for those using more than their allotted share. Without accurate meter readings, the City cannot charge customers for the actual amount of water they use.
2. Culinary water meters are on a structured replacement program in order to replace older and at-risk meters on a continuous basis, but funding for the replacements has historically been limited. Older meters have a greater chance of producing inaccurate flow data and decreased revenues from billing. The City does replace old meters as they become aware of problems, and the City regularly considers ways to fund its meter replacement program, but many meters remain beyond their recommended life and may be contributing to the leakage/slippage rate experienced by the City.
3. Based on current usage trends, the City is approaching a shortage of irrigation water rights. Even with a reduction in irrigation water usage, it is anticipated that additional water rights may be required.
4. Citizens typically lack information and understanding of landscaping water requirements and efficient in-home water-use habits and practices. Very few residents know how much water is required to maintain healthy landscaped areas and how to consistently use water efficiently indoors. Most citizens' irrigation and indoor practices are based on convenience rather than plant needs and water supply considerations. Also, some plumbing fixtures in the user's systems are old, outdated, and less efficient than newer models.

Each of these problems can be resolved through implementation of the recommendations outlined in the "Conservation Measures" section of this plan.

B. WATER CONSERVATION GOALS

The following goals have been identified to help monitor and track the success of the various programs and conservation measures being implemented.

Goal 1 – Reduce culinary water usage by 5% by 2025.

This can reduce the average amount of culinary water used by each ERU from 253 gpd to 240 gpd. The per capita average daily culinary water usage can be reduced from 107.5 gpd to 102.4 gpd.

It should be noted that in 2009 the City established a goal to reduce culinary water usage by 10%. The average daily usage per ERU in 2009 was 371 gpd. Since that time the City has experienced a reduction in culinary usage of approximately 31.8%.

Goal 2 – Reduce irrigation water usage by 10% by 2025.

This can reduce the average amount of irrigation water used by each connection from 1,248 gpd to 1,123 gpd. The per capita average daily culinary water usage can be reduced from 423.4 gpd to 381.1 gpd.

Goal 3 – Reduce the average culinary water system leakage/slippage rate to 5% by 2025.

The City can continue to address water leaks and aging infrastructure by undertaking improvement projects to repair/replace those improvements believed to be high contributors of the high leakage/slippage rate.

Goal 4 – Begin irrigation system metering program.

Begin installing meters on some of the irrigation connections believed to belong to the high-water users. Installing meters on all connections may likely be a long-term project due to limited resources for such improvements.

The current City code does not require the installation of meters on the irrigation system, but does allow the City to install meters and enact a rate ordinance if decided by the City Council. The code does require that on subdivisions and planned community developments, "A one-inch (1") setter (70 series copper setter, VB74-10W-44-NL style) and a one-inch (1") meter idler (IDLER-10/34-NL), or equivalent thereof acceptable to the city, shall be installed to each lot."

3. CONSERVATION MEASURES

A. REPLACEMENT OF AGING INFRASTRUCTURE

Where budgets can allow, the City may undertake water improvement projects to eliminate and/or replace existing water infrastructure which is believed to have high leakage problems or contributes otherwise to wasting of water.

- a. The following projects have previously been completed or are ongoing toward this goal:
 - i. In 2010, the City completed the LaVerkin Water Improvement Project and replaced or upgraded approximately 9,400 lineal feet of pipe including an old section of 12-inch water line along State Street believed to be a major contributor to the high slippage rate.
 - ii. In 2014, the City completed the Silver Acres Reconstruction Project which included replacement of 2,400 lineal feet of old leaky water mains and also incorporated 2,200 lineal feet of new irrigation pipelines allowing 42 existing water users to utilize the City's irrigation system for outdoor water usage.
 - iii. The City has completed other minor water line replacement projects targeting high leakage or high maintenance segments of water and irrigation pipelines.
 - iv. In 2018, the City raised its water rates significantly to improve funding for its renewal and replacement projects and to prepare for a significant infrastructure project that can replace key sections of water pipe identified as being old, requiring frequent repair or maintenance, or improving the overall service provided by the system.
 - v. The City is currently considering an update to its irrigation system master plan, which was last completed in 2010.
- b. The City will work toward implementing an irrigation meter program for key irrigation connections.
- c. The City will work toward funding a structured culinary water meter replacement schedule to replace aging and inaccurate water meters.

B. REDUCING WASTE AND OVERWATERING

Where budgets will allow, the City will undertake the following efforts:

- a. Conduct water landscape audits of the following areas:
 - i. City managed landscaping,
 - ii. School district landscaping,
 - iii. Church landscaping, and
 - iv. Individual homes.
- b. Train or offer educational resources to City, school and church landscape caretakers to conduct and implement water auditing techniques.
- c. Initiate community-wide water audit education and implementation procedures.

- d. Provide and/or encourage the use of water-saving fixtures such as low flow shower heads and faucets and low-flush toilets, and leak detecting devices. This could be done through revising plumbing codes or providing fixtures to residents either by making them available to those who request them or requiring all homes to have them.
- e. Require through ordinance or the plumbing code that all newly constructed commercial buildings and residences to install plumbing devices that conserve water.
- f. Work with agriculture users to find ways of preserving farmland irrigation and to develop resources as a buffer for times of drought.

C. REUSE OF TREATED WATER

- a. Cooperate with other local entities to pursue ordinances or policies promoting the treatment of wastewater to be reused locally as appropriate and in conformance with State law. The ordinances or policies should, as a minimum, specify the time for compliance for systems now operating.

D. DUAL WATER SYSTEMS

- a. Require dual water systems in new subdivisions, public buildings with large landscape areas, and all parks and outdoor recreation areas.
- b. Incorporate dual water systems in currently-developed portions of the City when improvement and upgrades are made in those areas.

E. BILLING & CONSERVATION PRICING

- a. Provide an incentive to users to conserve water and not to use culinary water for landscape watering by continuing a tiered pricing schedule.
- b. Incorporate monthly charges based on meter size.
- c. Continue billing for water based on metered water use.

4. CURRENT PRICING STRUCTURE

The City has established the following pricing structures in an effort to encourage water conservation by customers and to provide accountability for high water users.

CULINARY WATER

The culinary water rate structure includes a base rate determined by the size of the customer's water meter and an increasing tiered rate increase as water usage increases. The culinary water rate is shown in Table 22 below:

Table 22: LaVerkin - Culinary Water User Rates

Meter Size	Base Rate	Tiered Rate above Base (per 1,000 gal)	Gallon Range for Tiered Rate Increase
5/8"	\$35.25	\$1.18	0 - 20,000 gallons
		\$1.47	21,000 - 35,000 gallons
		\$1.76	35,001 & over gallons
3/4"	\$50.25	\$1.18	0 - 20,000 gallons
		\$1.47	20,001 - 35,000 gallons
		\$1.76	35,001 & over gallons
1"	\$88.45	\$1.18	0 - 26,000 gallons
		\$1.47	26,001 - 52,000 gallons
		\$1.76	52,001 & over gallons
1-1/2"	\$197.57	\$1.18	0 - 58,000 gallons
		\$1.47	58,001 - 116,000 gallons
		\$1.76	116,001 & over gallons
2"	\$350.34	\$1.18	0 - 102,000 gallons
		\$1.47	102,001 - 204,000 gallons
		\$1.76	204,001 & over gallons
3"	\$786.83	\$1.18	0 - 230,000 gallons
		\$1.47	230,001 - 460,000 gallons
		\$1.76	460,001 & over gallons
4"	\$1,397.91	\$1.18	0 - 410,000 gallons
		\$1.47	410,001 - 820,000 gallons
		\$1.76	820,001 & over gallons
6"	\$3,143.86	\$1.18	0 - 922,000 gallons
		\$1.47	922,001 - 1,844,000 gallons
		\$1.76	1,844,001 & over gallons

IRRIGATION WATER

The irrigation water fee schedule is different for shareholders and lease users. Both connection types use an increasing fee schedule. For shareholders, the increase is based upon the number of shares held. For lease users the increase is based upon the size of the customer's lot. The irrigation water fee schedule is shown in Table 23.

Table 23: LaVerkin - Irrigation Water Fee Schedule

Connection Type	Fee Type	Fee Amount	Billing Term/Cycle
Share Holder	Water Availability/Standby Fee	\$3.82	Per month - 9 months of year
	Contract Holder Assessment Fee	\$50.89	Billed annually in March
	Usage Fee - 1 Share or Less	\$25.45	Billed annually in March
	Usage Fee - More than 1 Share	\$12.72 x number of shares billed semi-annually in March and September.	
Lease User	Lots < 1/2 Acre	\$12.72	Per month - 9 months of year
	Lots 1/2 Acre to < 1 Acre	\$19.08	Per month - 9 months of year
	Lots 1 Acre	\$25.45	Per month - 9 months of year
	Lots > 1 Acre	Fee calculated in 1/2 acre increments, using the round up method. The user will be charged an additional \$12.72 per month per 1/2 acre.	

5. ADDITIONAL CONSERVATION MEASURES

A. PUBLIC EDUCATION

The City has and may continue to take part in a long-term education program to educate the public about the importance of water conservation and how to go about it. The City recognizes that they must be involved in the program for it to be effective. The program may include the following components:

- a. Educational Programs.
 - i. Hold training for teachers that provides ideas and curriculum materials for use in the classroom.
 - ii. Develop assemblies that can be taken to elementary and secondary schools which educate students about water management and conservation.
 - iii. Participate in the yearly water fair in conjunction with WCWCD, the Division of Water Resources, Dixie College and others.
- b. Public Information.
 - i. Provide brochures with vital information about conservation, such as information on peak demand periods and what the household can do to reduce use during those periods.
 - ii. Promote conservation practices and information through the City's quarterly newsletter.
 - iii. Provide informational meetings at timely intervals for the citizens.
 - iv. Work with other entities to provide information at a booth at the County fair.
 - v. Offer public tours of water facilities owned by the City.
- c. Developer & Landscaper Awareness.
 - i. Create a demonstration plot of low water grasses & xeriscape plants that landscapers and developers can observe and duplicate in their work.
 - ii. Encourage use of drought resistant turf.

B. LANDSCAPE DESIGNS & IRRIGATION SYSTEMS

- a. Publish a list of plant species available which are low water users.
- b. Encourage local nurseries and other stores to stock and advertise low water use plants.
- c. Encourage stores that advertise and sell landscape irrigation systems to stock and advertise water efficient products.
- d. As part of an ongoing public information program, establish a water efficient landscape area on or near each elementary school in the City.
- e. Institute a water-conserving landscape awards program. Provide a plaque and picture for the winners as well as publicize their water efficient landscaping to encourage others to follow their example.

C. EMERGENCY CONSERVATION POLICIES & ORDINANCES

- a. Develop and implement an Emergency Conservation Plan and other ordinances and/or policies that encourage or provide for water conservation. The following efforts have previously been taken in this area:
 - i. Adoption of Ordinance 2005-23 which established a local water management plan and incorporated a 4-stage Culinary Water Conservation Management Plan.
 - ii. Adoption of Ordinance 2008-15 which established water availability and standby fees for the City's irrigation system and provides encouragement for residents to connect to and use the irrigation system for outdoor watering, thereby conserving the culinary water supply.
 - iii. Adoption of Ordinance 2008-16 which established a time of day water use ordinance to restrict water usage to the hours of 6:00 p.m. to 10:00 a.m. in order to increase water efficiency and reduce loss through evapotranspiration.
 - iv. Chapter 6, Title 8 of the LaVerkin City Code includes provisions making the wasting of water unlawful and includes penalties for the violation of such wasting.
- b. The City of LaVerkin may continue to update and enforce these and other ordinances relating to water conservation.

D. ADMINISTRATIVE POLICY MEASURES

- a. The existing water systems should be occasionally analyzed under the State of Utah Administrative Rules by completing periodic updates to the existing master plans. Further actions needed to comply to these rules should be explored and completed based on feasibility and practicality.
- b. The City may review and potentially renegotiate the Cottam Well agreement with WCWCD to encourage water conservation. The agreement currently allows 1,000 connections and 1,000 acre-feet from the well. Depending on specific language, the agreement should be renegotiated to hold the 1,000 acre-feet but allow as many connections as can be supported under water conservation measures.

6. EFFECT OF CONSERVATION

To determine potential savings to the City by implementing this plan and by achieving their reduction goals, calculations were performed to compare future water supply needs based on current usage trends vs. future water supply needs based upon meeting the reduction goals established. These calculations were based upon the population and growth projections outlined in Section 1, Table 2, and were performed for both the culinary and irrigation water systems for water rights and water source capacity.

A. CULINARY WATER

The following figures show the culinary water right demands and water source capacity demands vs. available resources over the respective planning periods.

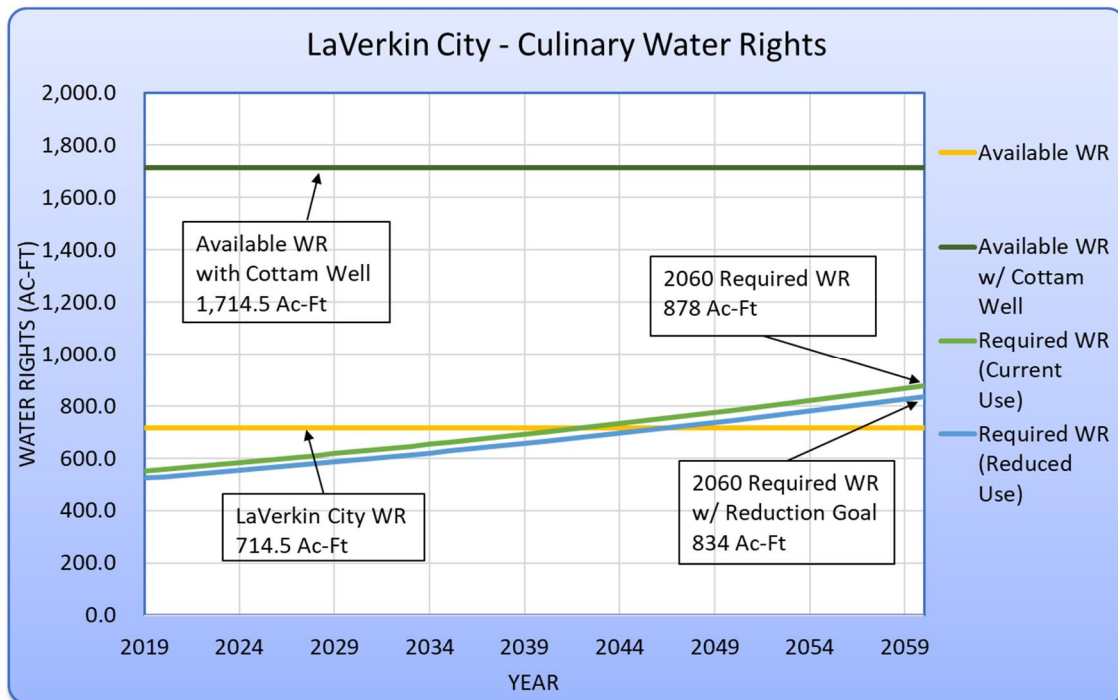


Figure A: Culinary Water Right Demands over the Planning Period

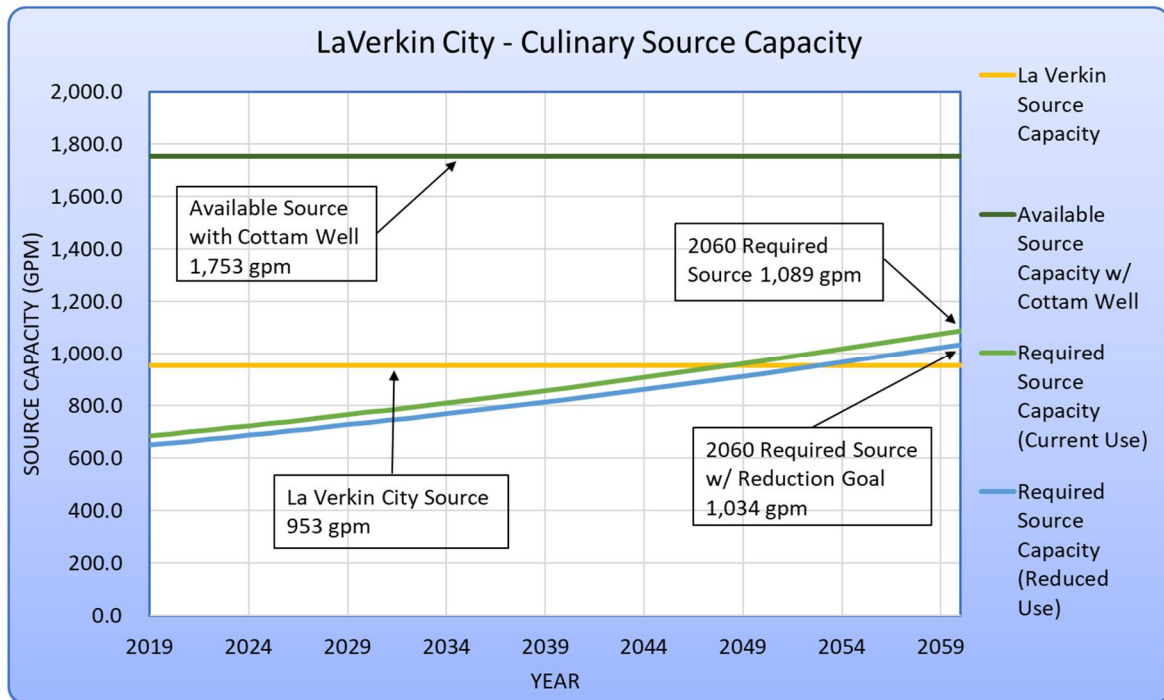


Figure B: Culinary Water Source Capacity Demands over the Planning Period

If the culinary water usage reduction goal is met, then the 2060 water right demand can be reduced by 44 acre-feet and the 2060 source capacity demand can be reduced by 55 gpm.

In both cases, adequate water resources are available to meet the demands, so additional resources may not need to be purchased or constructed. However, in order to meet the demands, the City may need to rely upon water purchased through their agreement with WCWCD.

The agreement with WCWCD stipulates that the City pays a set amount per year for each water connection whether or not the allowable water (15,000 gallons per connection per month) is used. Due to the structure of the agreement, any further reduction to the average daily usage per connection may not result in additional savings to the City.

B. IRRIGATION WATER

The following figures show the irrigation water right demands and water source capacity demands vs. available resources over the respective planning periods. If the irrigation water usage reduction goal is met, then the 2060 water right demand can be reduced by 361 acre-feet and the 2060 source capacity demand can be reduced by 447 gpm. If the irrigation reduction goal is able to be met, then the City may not need additional irrigation water rights until 2042 compared to 2034 if the average usage remains the same. In addition, as the community moves from agricultural to residential the demand for irrigation water rights will diminish.

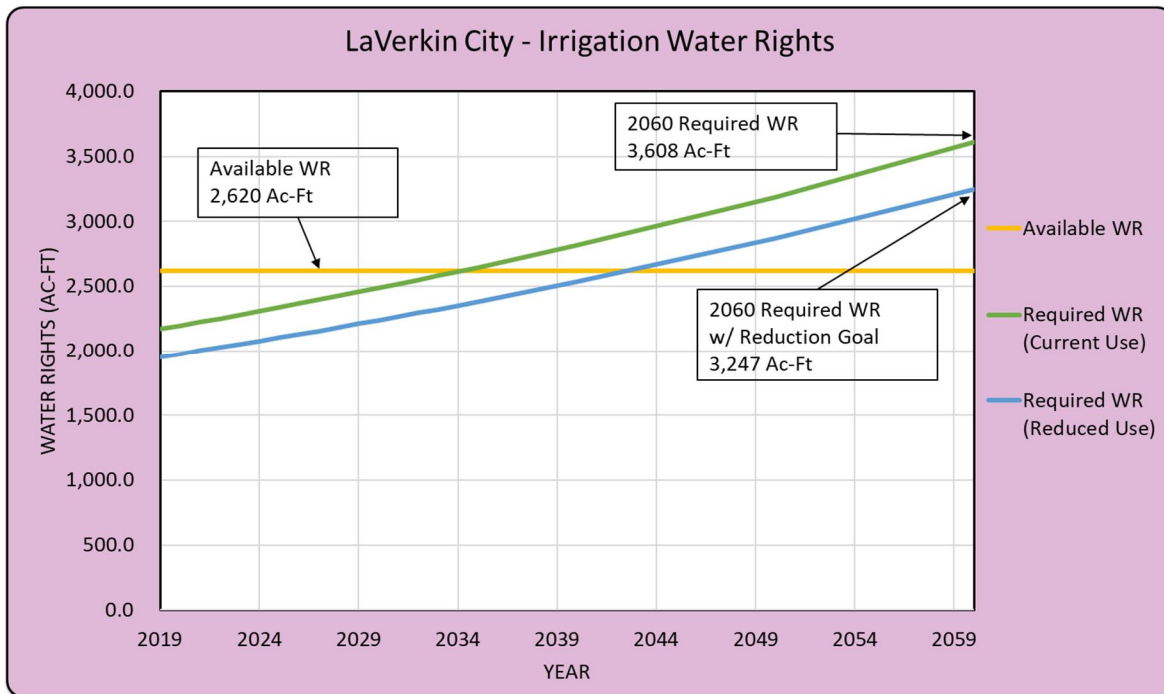


Figure C: Irrigation Water Right Demands over the Planning Period

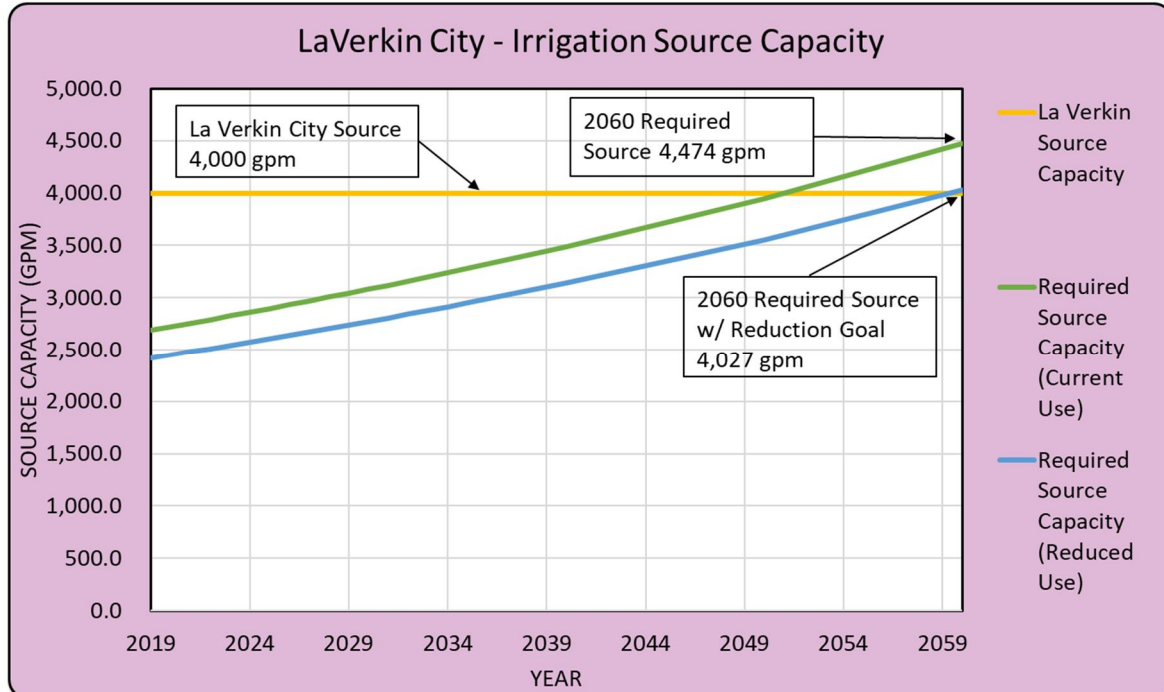


Figure D: Irrigation Water Source Capacity Demands over the Planning Period

7. PLAN IMPLEMENTATION

A. WATER CONSERVATION COORDINATOR

In order to achieve the goals established by this plan, each of the conservation measures and objectives outlined should be assigned with responsibility fixed to the appropriate person or department, and with a plan and timeline set for each objective. It is recommended that a Water Conservation Coordinator be designated within the City and given responsibility to implement the plan and make appropriate assignments. These designations and responsibilities should be documented in future versions of the plan. The plan also needs to be adopted by the City Council through an appropriate resolution, which should be included in Appendix A.

B. UPDATING THE WATER CONSERVATION PLAN

This LaVerkin City Water Conservation Plan should be updated and amended as appropriate by the City and should be used as a tool to assist in meeting future water needs for the community. According to the requirements of the State, it should be updated no less than every 5 years.

C. COMPLIANCE WITH UTAH CODE

Section 73-10-32(2)(a) of the Utah Code states:

Each water conservation plan shall contain:

- (i) a clearly stated overall water use reduction goal and an implementation plan for each of the water conservation measures it chooses to use, including a timeline for action and an evaluation process to measure progress;*
- (ii) a requirement that each water conservancy district and retail water provider devote part of at least one regular meeting every five years of its governing body to a discussion and formal adoption of the water conservation plan, and allow public comment on it;*
- (iii) a requirement that a notification procedure be implemented that includes the delivery of the water conservation plan to the media and to the governing body of each municipality and county served by the water conservancy district or retail water provider; and*
- (iv) a copy of the minutes of the meeting and the notification procedure required in Subsections (2)(a)(ii) and (iii) which shall be added as an appendix to the plan.*

In accordance with these requirements, the City's water use reduction goals are stated in Section 2 of this plan. Implementation measures are identified throughout the plan, but especially in Sections 3, 4, and 5. The timeline for action is within the five-year period before the next update of the City's water

conservation plan. Finally, the evaluation process by which progress is measured is the City's annual review of water use per culinary water ERU and irrigation connection.

Moreover, the City will properly notice, discuss, allow public comment, and formally adopt the water conservation plan at one of its upcoming regular meetings. The minutes of the meeting and the notification procedures required will be subsequently affixed to this plan as Appendix A.

APPENDIX A

NOTICING REQUIREMENTS, MEETING MINUTES, AND RESOLUTION FORMALLY ADOPTING THE WATER CONSERVATION PLAN

RECORD OF ADVERTISEMENT MEDIA

- 1) *Posted in the (4) public areas that we do for all Planning Commission / City council meetings.
(all public meetings)*
- 2) *City web site LaVerkin.org*
- 3) *LaVerkin City Face book page [LaVerkin City / Promising Future – Home / Facebook](#)*
- 4) *E-Mails*

City of La Verkin

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La Verkin City Council Meeting Minutes

Wednesday, November 4, 2020, 6:00 p.m.

Council Chambers, 111 S. Main, La Verkin, Utah

Present: Mayor Richard Hirschi, Council Members: Ray Justice, Chuck Hardy, Micah Gubler, and Kelly Wilson; Staff: Christy Ballard, Chief Ben Lee, Kevin Bennett, Derek Imlay, Tiffany Mower, and Kyle Gubler; Public: Brian Stewart, Diana & John Hoonakker, Mr. & Mrs. Robert Harris, Stephen & DoraLee Bird, Reese Poulson, Jeff Thornberry, Wendy & David Anderson, Denise Poulsen, Jay Rice, Karen Bennett, Curtis Barlow, and Rigo Gutierrez

Councilwoman Patricia Wise participated electronically

A. Called to Order –The invocation/thought and the Pledge of Allegiance were given by Micah Gubler at 6:00 pm.

B. Consent Agenda: (Items on the consent agenda may not require discussion. These items will be a single motion unless removed at the request of the Mayor or City Council.)

1. Declarations of conflict of interest

2. Agenda

Mayor Hirschi requested business item 6 be moved to business item 2, moving the remaining items down one spot.

The motion was made by Councilman Ray Justice to approve the consent agenda with the following changes, move business item number 6 to the number 2 spot, moving business items 2,3,4, and 5 down one spot, second by Councilman Chuck Hardy. Hardy-yes, Justice-yes, Wise-yes, Wilson-yes, Gubler-yes. The motion carried unanimously.

C. Citizen Comment & Request for Future Agenda Items:

No comments were made.

D. Public Hearing:

1. 2020 Water Conservation Plan

Derek explained the State of Utah requires cities to have a water conservation plan and that they update it every five years to avoid a penalty. The plan needs to be submitted by the end of 2020.

Derek briefly highlighted the 2020 Water Conservation Plan. The plan addresses both the culinary and irrigation water systems.

Table 3 on page 4 lists all La Verkin's water sources and water rights.

Cottam Well is one of the sources the City watches very closely. This tank services the northeast side of La Verkin (hotels, Silver Acres, and Zion View Estates). We get 4.45 million gallons a month, and anything over that we must pay extra for. In the summertime, we use the entire amount.

Toquerville Springs is split between La Verkin and Hurricane. When we are unable to get enough water from that source, we pull the rest of our water from Ash Creek Springs which costs the City additional money so we only use it when we have to. Ash Creek Springs is in a ravine, so the water needs to be pumped into the City and that is where the extra charge comes from.

La Verkin may need to purchase additional water in the future to meet the needs of Cottonwood Hollow.

Table 6 on page 5 has the culinary average usage per connection for residential and commercial. Those numbers have decreased over the last four years.

Page 6 talks about the City's per capita usage which is 107.5 gallons per capita per day. The State average is 164.0, so we are significantly lower.

Page 6 & 7 also talk about the average usage per irrigation connection. We are getting closer to our water rights usage. The per capita usage is much higher than the state average. We are an agriculture area, but we still need to work on this and get the numbers down.

Table 13 on page 8 lists the leakage rate. The City has lowered that number significantly over the last 4 years. The State considers a system with 10% and under a healthy system and in 2019 we were at about 6%.

Pages 13 & 14 lists La Verkin City's water challenges and goals. Derek read through those goals.

On page 15 the Plan states the City needs to complete an irrigation system master water plan. The last one was completed in 2010.

Page 21 has a culinary water right chart. The culinary water system is in good shape. The yellow line represents the current available water rights. If we continue trending the way we are currently, we hit our water right usage capacity in 2039. Hopefully, by then we have implemented a lot of the processes to decrease water usage and that should push us out to 2044 before we hit capacity.

Page 23 has an irrigation water rights chart. The yellow line represents the City's water rights and the green line represents when the City will break past the available water rights we have, which is about 2030. This is based on a population increase of 1.25% each year. Cottonwood Hollow is currently working on phase 3 & 4 of that development which could skew these numbers because those lots will all have the capability of an irrigation connection.

Councilman Gubler pointed out once some of the fields get developed the usage will go down.

Derek agreed but mentioned the City does need to start putting money aside to purchase additional water rights as they become available. Increasing our water rights and implementing the goals in this plan should hopefully aid us in extending the life of our water rights.

Kyle asked if Ash Creek Sewer Districts' treatment facility would help with the City's irrigation system.

Derek replied it should, but it has not been included in this Plan since the timeframe fluctuates. The Confluence Park water usage has not been included either.

There is a lot of information in the Water Conservation Plan, he just highlighted the main points he wanted the Council to be aware of.

The public hearing opened at 6:24 pm

No comments were made.

The public hearing closed at 6:25 pm

E. Business:

1. Discussion and possible action to approve Proclamation 2020-04, a proclamation designating October as Domestic Violence Awareness month.

Tiffany Mower is the Victim Service Advocate for our area. She thanked the Council for recognizing October as Domestic Violence Awareness month. In 2019, 32 homicides were domestic violence-related. The numbers have not decreased so far in 2020.

She is a Victim Service Coordinator for this program, but she is also a first responding advocate. That means when law enforcement goes out and comes in contact with individuals who have been involved in domestic violence situations, she can come on scene to do a crisis intervention with the victims. At times she will transfer them to the Dove Center which is Washington County's main shelter.

The Dove Center has served 1240 women and children county-wide, received 1973 hotline calls, 246 individuals were provided with safe shelter and transitional housing and they offer therapy. We do utilize them. Her role as a law enforcement advocate is crises. She does crisis intervention, court orders, and court advocacy but when it comes to therapy, the Dove Center is the first line to get people immediate help. They are a great asset to our community.

Our program area has covered 374 family fights year to date. La Verkin City had 62 of those fights. That number doesn't sound like a lot, but it takes a lot of police manhours to handle each incident and leaves victims in a bad situation.

Councilman Hardy asked if there was anything as a city we could do to help and asked if those numbers included repeat offenders.

Tiffany replied she feels La Verkin City is a very supportive city for victims. Anyone that has gone to the city office has received help promptly. The citizens are very helpful, and the City has amazing support systems, whether that is in the

religious sector or just community groups that are involved. La Verkin City is very on point with helping individuals that need it.

A lot of people think why don't they just leave but it is not that simple, it is a process and often the children are used as a tool.

These numbers do include repeat offenders.

The motion was made by Councilman Ray Justice to approve Proclamation 2020-04, a proclamation designating October as Domestic Violence Awareness month, second by Councilman Kelly Wilson. Wilson-yes, Wise-yes, Justice-yes, Gubler-yes, Hardy-yes. The motion carried unanimously.

Tiffany briefly reported on the forensic soft room La Verkin City was able to furnish from grant funding. It is a massive asset to our community.

2. Presentation and possible discussion regarding several homes in the Overlook Subdivision.

The Mayor turned the time over to John Hoonakker to represent the individuals from the Overlook Subdivision.

John Hoonakker thanked the Council for their time. He lives at 265 North 560 West in the Overlook Subdivision and has had a lot of issues. He asked Bob Harris who lives at 275 North 560 West and Steve Bird who lives at 280 North 560 West to join him.

Mr. Hoonakker explained they are at the meeting to discuss the landslide issue. He has met with John and Derek to discuss the water situation he has on his property. It is like a stream coming out of the hill. They also talked about the irrigation overwatering issue that is coming down 560 West. John explained to them that people have the right to water their land, which he understands. John also showed them a plat of when the City first mapped out the Overlook Subdivision. On that plat, there were two circles, one of which was on his property. It had a graph that indicated the two lots were bad and kept sluffing. He has also heard there are springs on the land. If there are springs on that land, why did the City allow it to be built on? Now the homeowners are having to pay the price.

He wanted to save his home, so he spoke with a local contractor, Derek Hall to fix the back patio that was dropping. There were no cracks in his home at the time.

Three different engineers from his insurance company did an analysis. He gave John a copy of that analysis for future reference. They wanted to save the land and home, so they spent \$15,000 to put blocks in.

He met with John again and asked for a copy of the plat to show Mr. Hall to see if the home could be saved. He was told the plat was missing. Steve and John both said they saw the copy and Bob said he heard about it on the phone during the first meeting with John Postert.

Mr. Hoonakker stated he understands there is an irrigation problem and that there is spring water coming up.

One of the homeowners had their driveway lifted and there was so much water it could be squeezed out. Mayor Hirschi was there and witnessed it along with several other people. This is a serious problem. They have lost their home and the value of the land, no one's going to buy the land.

He asked if he could donate the property to the City and was told "we are not interested in the land and we don't want to take the liability". He is the one that has taken the liability and is burdened with the cost.

He just wants the City to find the water source. There is a major leak. He doesn't know where the water is coming from but above 560 West, they are watering 24 hours a day and it's all coming down between two homes. One of the homeowners dug a test hole and 35 feet down and found water.

He would like the Council to please help them.

He had a choice to make, he could let the property go to weeds and quit paying taxes on it, but they love the City and decided to spend additional money to beautify the land.

There is a water situation that the City needs to get control of.

Bob Harris stated his issues didn't start until March when the irrigation water went back into the system. Once the water came on their back deck started shifting. It settled about a foot in the first 3 months and now it's about 2 feet.

They have not had any issues for the last 8 years. The insurance company said they can't do anything for earth movement, but the earth movement was caused by water. That was denied so he is taking the full brunt of it. He owns the lot next door that is worthless now. He also owns a lot down the street, but he can't sell it because there is such stigma to all of the property.

Earlier this year they asked the City to put dye in the water to make sure it isn't irrigation water, and they were told they didn't know where to put the dye in at. He feels like it doesn't matter where the dye is introduced, if dyed water comes out the bottom then we know that is the source of the issue.

Mr. Harris has taken an \$800,000 loss with no recourse until we get this solved and possibly salvage one of his lots. They need the City to come in and do something.

Steve Bird said there are concerns even on his side. The map that the Mayor gave him shows a slide area that goes out into the street in front of his house and Dave Anderson's house. He does have some future concerns about the area. He is afraid he will lose his house or that it will be devalued if he tries to sell it.

Reese Poulson lives at 295 N 560 W. He is about 30 yards away from the two homes that have been destroyed.

In 18 months, his house has slid 3 inches between the driveway and the garage because of the water coming through. It is not settling; it is slippage on his property. He is faced with the same situation of devaluing his home and the circumstances that this water problem is making happen.

The sign says a proud past. He and his wife have been in La Verkin since 2015. He wants a proud past with a promising future. The other property owners have had a dent placed in their future.

He would like to know if there is some form of city protection or an outreach program similar to FEMA that can help citizens in disastrous situations. He would like to stay in his home and have the water problem solved.

Jay Rice lives at 330 N 560 W. He is on the east side of the street. Mr. Rice said he has complained several times to the City about water running across his sidewalk constantly. It gets slimy and slippery and he is afraid someone is going to fall. The people above him turn the irrigation water on at 7 am and it is still running at 7 am the next morning. He has a video of water pouring out of his hill and coming into his yard. He has a French drain in his backyard, and he has water coming out of that constantly. The hill behind him is sopping wet right now. Losing his house is a scary thought, he is on social security.

There is a spot in his driveway that is gravel with a black pipe that is supposed to be a drain but no water comes out of it, it all comes out of the ground just like a spring. The water goes across his sidewalk making it slippery. He is afraid someone is going to get hurt and sue him.

Another problem he has and has had for the nine years he has lived in the house is that the gutter has the wrong slope. The water stays right in the center where his house is. It turns green and nasty and is not good for his yard.

His biggest concern is the people above him and the amount of irrigation water they use. Is there a way to control the amount of watering they do? The water doesn't need to run 24, 36, or 48 hours.

Everyone on that street is afraid they are going to lose their land. He is afraid the hill is going to come down on his house. Several years ago, there was a water line break that almost flooded his house and washed out a bunch of land. Luckily, he had the French drain and the City responded quickly to shut the water off.

He would like somebody to let them know what can be done about all the water.

Jeff Thornberry lives at 270 N 560 W. He lives directly across from the Hoonakker's lot. It is deeply distressing to look out your window and watch your neighbors' home being dismantled because of a problem that may well be contributed to our neighbors, unknowingly.

He is struck with this situation now where he is looking at his investment in this community and wondering whether this is where he should be. This piece of property that is part of his future is clearly in jeopardy and he is looking around to see what our City is going to do to try and ensure that everything is being done to mitigate, or at least reduce the risk of this continuing to spread. He wants to make sure the City understands that this is our community, and it is suffering here on this street because of something that the property owners can't control. They need to have some kind of support to try and figure out what they can do to stop it and try and help their neighbors that have been harmed by this.

He would also like to commend those homeowners for beautifying the lot even after losing their homes.

If he does decide to sell his property, he must disclose this problem and that will impact home values in the area. It has ramifications that go beyond the sad tragedy of a couple of homes. It could expand and take more.

City, please do your due diligence and see what can be done. Especially hearing that plans are being made for irrigation conservation. Maybe we can find ways to get our other neighbors in the community more aware of what is happening and see what we can do to only use the amount of irrigation water necessary to achieve the goal of feeding livestock and not have it be unnecessarily used or wasted.

Karen Bennett lives at 320 N 560 W and has had the water problem for 15 years. It was not disclosed to them when they purchased the property. The rock wall behind her home is saturated with water. When you walk across the back it's like walking across a mattress, soft. Her husband is 100% disabled. She would like to resolve the water problem for not only just herself but the entire street.

Mayor Hirschi thanked the citizens for coming to the meeting and told them the last thing he wants to see is for someone to lose their home for any reason.

When this issue first began Derek, and his crew began investigating it by taking water samples to try and find the source. The samples did not match our culinary or irrigation water. That's not to say it may be from people overwatering, he is not sure. The line has broken in the past and the City took care of it.

No one that is working for the City now was working for the City back then so as far as we all know the development was done properly.

Mr. Hoonakker reported when James Blackmore installed water lines for Bob Harris the water was pouring out in several places once the digging began. Since then, there is a 4-inch deep crack with water in it. There is nothing the homeowners can do if the City doesn't find the water source.

Derek explained the Overlook Subdivision has three or four different issues going on. The water issues first began in 2005 with Mr. Harris's property and one other location. At that time Mr. Harris put vertical and horizontal piers in his backyard. The water dried up and hasn't been an issue until March of this year. In 2005 the water dried up before the irrigation water was out of the system. This year, we won't know if Mr. Harris' issue is irrigation water until we take the water out of the system.

The irrigation water numbers for 2020 have only slightly increased and with the amount of water coming out on 560 West it would affect the monthly water reads, so he is confident that the problem is not an irrigation line break. However, it may be from other users overwatering.

We have been working with Sunrise Engineering to figure out this issue. The City has taken multiple water samples from 560 West to see if the water properties match either the irrigation or culinary water. They have some thoughts on what may be affecting the properties. It may be overwatering, but he truly believes it is not a break in the City's irrigation line.

The map mentioned is a map the City had done when Mr. Harris began having issues. The company put together a history on the area and at that point, we could see there were some potential problems there, but it was an already existing subdivision with existing homes.

When the soils investigation was done for the houses on the east side of 560 West, they verified that there was water and felt there could be springs on that side. That was why the French drains were put in to draw the water from the backyard to the curb and gutter.

The City has dug test holes on the two large fields above the east side of the subdivision and they have found nothing that brings up the large amount of water that is coming out of the hillside.

The City has done a tremendous amount of testing and we still don't know what is causing the water issue.

Mr. Harris reported his irrigation water has been shut off for 12 years but his irrigation box is wet. He thinks the water is leaking out of the irrigation line, seeping down and coming out the bottom.

In 2005 he spent \$170,000 to shore up the house. It worked and looked very nice until March of this year. In 45 minutes, the back end of his property had started settling down and it has just continued to get worse.

Councilman Gubler mentioned this year has been one of the driest we have had so this being spring water doesn't make sense. It has to be overwatering or a line break.

Derek reported the irrigation water was turned off in that area for a week and there was not a decrease in the amount of water coming out on 560 West.

Councilman Gubler stated he used to live close to the area and when he was putting in a swimming pool, they hit beach sand when they were about 5 feet down. At the time he was told that sand runs all the way to the edge. Perhaps water is hitting that sand and creating a river flow.

Derek said that is the point, we don't know "the where". We don't believe it's in the line but overwatering and saturating could be causing or contributing to the issue.

The City has had several culinary breaks on 560 West over the last month and has not run into anything that has been overly saturated from anything other than the leak they were repairing. There has also not been any street or curb and gutter cracking that would show the road has been impacted by any of this.

Derek's crew took a backhoe and dug down 15 feet on one of the properties and hit a clay layer. He wondered if the water wasn't hitting that layer and coming through. They dug the entire length of the property over to the neighbors and didn't encounter any water.

He has no idea where the water is coming from. He is still working on it, they are continuing to take samples, and the City is still paying Sunrise Engineering to research it.

Kyle mentioned he spoke to the person that owned the property in the '50s and '60s and was told there was water that came off the hill back then. That was well before there was an irrigation system.

Councilman Hardy reported as a teenager he remembers getting his truck stuck in that area on the road below the hill (Confluence Park) because there was always water from that draw. There was never running water but that particular spot on the road was always wet.

Mr. Harris asked why the subdivision was even allowed without recommendations from the engineers on which lots homes could be built on.

He had no idea his home was in a ravine that was filled in with fill dirt.

Derek reported there was no information kept on subdivisions until he was hired and began keeping it.

He explained the subdivision process.

When a building permit is pulled, a soils engineer must verify the soils and the things that must be done to build on the property. If the water is a seasonal thing or in Mr. Harris' case, there were no issues from 2005-2020, the recommendations could be different. The soils engineer tells the city what can and cannot be done on the property. It also is given to the structural engineer and they incorporate the information on how the foundation of the home needs to be built. We don't control that process; we just go by the soils engineer's recommendation. The city takes it from the foundation, up.

The soils engineer paperwork for each home is supposed to be on record so potential home buyers can do their due diligence and find out that information.

While he doesn't know what was or wasn't done when approving the Overlook Subdivision, he can say he has never had a lot labeled as unbuildable as long as the soils engineer recommendations are met.

Mr. Harris said that's one scenario, the other scenario is when they did the subdivision, he knows the City had an engineer verify that the situation should have been acceptable for building lots. If you look at the old maps and pictorials you would see that his lot is in a ravine. He knows there is paperwork on that subdivision and will get Derek a copy of it.

Derek agreed that the lot is in a ravine, he is the one that gave the homeowners the map, but at that point, the homes were already built. He would like to see the subdivision paperwork because the City doesn't have anything.

Kevin mentioned he was a city attorney in Utah County and at that time they had a situation where a developer wanted to develop a property that historically was known to have a high-water table. The city told him the property had a high-water table but the developer had paperwork from a hydrologist and soils engineer completed over several years stating the property was dry. He told the city they either let him move forward with the development or he would sue them for impacting his constitutional right to develop his property.

The subdivision gets developed and two years after the houses are built, they went into a wet cycle and every home had water in the basement.

Water comes and goes, especially in a desert. Several years ago, Death Valley was covered in purple flowers that hadn't been seen in 50 years because they hit the wet cycle.

Once the developer realized the city was right and there was a potential for water issues, the plats for the phases moving forward stated the situation, but until then the city had no right to deny the development.

He doesn't know if that was the situation with the Overlook Subdivision, he was not here when the subdivision was developed, but it could explain why something that happened in 2005 didn't happen again until 2020.

Mr. Hoonakker pointed out they have lost a lot of money and are still trying to do the right thing. It is hard to lose that kind of money and just move on. He appreciates the City employees but the residents on 560 West need help, please do what you can to help them.

Derek said he has been working with the residents and has from the beginning. The City wants to resolve this issue and is doing all we can within our financial abilities. We are relying on the City's engineers to give us some direction. He will keep Mr. Hoonakker and Mr. Harris involved moving forward. At this point, he honestly doesn't even know where to start looking for the problem. Shutting off the irrigation water isn't going to tell us if the issue is from overwatering or a break in the line.

Denise Poulson lives on 560 West. She asked that after tonight, this issue isn't forgotten. The damage is continuing. She doesn't want her home damaged any further. She is willing to come to city council meetings monthly for an update if necessary, so they are not forgotten.

Derek said he cannot guarantee a monthly update. We are currently waiting on the engineers.

Councilman Justice stated he is not an engineer or hydrologist, but he is familiar with artesian wells and springs that come and go. He is from Indiana and they have them all the time. La Verkin had a section of street on 200 North that was perfect and then suddenly it sunk. There is possibly a well or spring in that area, just like on the Overlook. The ebb and flow of the water has to have some kind of impact on this situation. The water could be coming from 200 yards away and making its way to the Overlook through the sand and clay. Until we know exactly where the water is coming from, we can't determine if there is anything the City can even do.

Derek stated the City will continue to move forward with finding a solution to the situation and will keep the men up to date on the project.

Councilman Gubler mentioned to Derek he understands how it is a shot in the dark to try and locate the problem, but we know where it's manifesting. Could we find a spot before the homes, collect it and run it through a pipe out to the cliff? That may be the easiest fix.

Problems in 2005 make sense because that is the year the Virgin River flooded but this year it doesn't make any sense.

Derek agreed that we do know where it's manifesting. He thinks that is a great idea and will have the engineers work on that.

The testing we have done on the water matches more with water further east, not water from the area up to 300 West.

Councilman Hardy wanted Derek to know the Council appreciates him and his crew and feels they are doing a great job.

Councilman Justice asked if there are any records from the previous inspector for the subdivision.

Derek replied he has no paperwork for the Overlook Subdivision. He even went to the County website to review the mylar and there are no specific notations for lot restrictions listed.

Requirements are constantly changing and becoming more and more restrictive. Over the last 21 years that he has been with the City he has seen major jumps in building requirements.

John has spent a lot of time with these two gentlemen this year. We have done water testing and taken the backhoe out and dug. We have shown that the City is trying to figure out what is going on.

The irrigation water numbers are only 15-20-acre feet higher than last year, which makes sense for a dry year. The amount of water coming out on 560 West does not match with the amount of water going through the system if there was a line break.

The City has turned it over to Sunrise Engineering. He will keep the Council updated on what they find.

3. Discussion and possible action to approve the final plat for the Terrana Subdivision, a 3-lot subdivision located at approximately 100 E 270 N.

Kyle reported the Planning Commission approved the final plat unanimously. They do meet all the requirements for a subdivision.

The motion was made by Councilman Micah Gubler to approve the final plat for the Terrana Subdivision, a 3-lot subdivision located at approximately 100 East 270 North, second by Councilman Kelly Wilson. Hardy-yes, Gubler-yes, Justice-yes, Wilson-yes, Wise-yes. Motion carried unanimously.

4. Discussion and possible action to approve Resolution No. R-2020-18; a resolution adopting the La Verkin City Water Conservation Plan, an update to the La Verkin City Water Management and Conservation Plan.

Christy asked that the resolution number be changed to No. 2020-19 when approved.

Councilman Hardy pointed out on page 2, the paragraph under Table 1 states the growth rate for the last 20 years is 1.5% and that the expected growth rate will continue to be consistent with the last 10 years which is 1.25%. Why is the growth rate reduced? Will the lowered growth rate skew the charts and graphs listed in the plan?

We know La Verkin City is going to continue to grow. Derek mentioned earlier the new subdivision, Cottonwood Hollow.

Kevin mentioned the last 10 years includes the great recession.

Councilman Wilson pointed out when you start with small numbers the rate is going to be higher. Once you get a higher population, the growth rate starts to go down. For instance, 1% of 100,000 is different than 1% of 5,000.

Councilman Hardy said he understands that and knows the plan is just a projection, but he is afraid with such a low growth rate La Verkin will hit the limits earlier.

Kyle reminded the Council this plan is updated every 5 years.

Kevin pointed out that growth isn't continuous, especially in an area like La Verkin that is based so much on tourism.

Councilwoman Wise mentioned she feels the growth in La Verkin has been more retirement people which would lower the numbers. She feels with the current trend, within 5 years the growth will lean more towards families.

Councilman Hardy stated he has reviewed the plan quite extensively and is very impressed with it, especially after the answers he received regarding the growth rate.

The motion was made by Councilman Kelly Wilson to approve Resolution No. R-2020-19; a resolution adopting the La Verkin City Water Conservation Plan, an update to the La Verkin City Water Management and Conservation Plan, second by Councilman Ray Justice. Wilson-yes, Wise-yes, Justice-yes, Gubler-yes, Hardy-yes. Motion carried unanimously.

Councilman Hardy said goal #4 talks about metering the irrigation system. He thought the City was trying to get away from doing that.

Kevin explained La Verkin City got a reprieve until a meter is developed that can function with the quality of water we have. At some point, we will have to do it.

Kyle said the City is working toward that by requiring new construction to install a yoke.
The City is technically metering the irrigation water when it comes into our system.

5. **Discussion and possible direction regarding the Memorandum of Understanding between La Verkin City and Gail G. Earl.**

Kyle read through the changes requested by the Earl Family.

They did let Kyle know if the City doesn't make the changes they are requesting, they have the option to sue. He responded that he understands that, but they need to realize if there is a pending lawsuit this portion of the 100 South project would have to be removed to qualify for a loan for the project.

The family thought when the Council agreed to work toward a resolution that they committed to doing it. Kyle told them he felt he was very specific at that meeting that there was no timeline. The City doesn't plan to bid on the 100 South project for a year. They also wanted to add that the City would cover any damage or personal injury that occurred on their personal property until the project is completed.

Councilman Wilson mentioned homeowner's insurance covers damage and personal property.

Kyle explained any changes would require a new Memorandum of Understanding (MOU).

Councilman Wilson is fine with the original MOU and does not want to add anything additional.

Councilman Justice pointed out if the MOU isn't signed before the City begins the 100 South project the Earl portion will be left out and it will be even longer before this issue gets resolved.

Councilman Gubler said he is comfortable with the MOU as written.

Councilman Justice mentioned he doesn't think a judge would side with them after everything the City has done to appease the situation.

Kyle reported the City has just verbally agreed to include the Earl property in the 100 South project. We could decide to do it later. It just makes sense to include it with another project for cost purposes.

Final engineering still needs to be completed for the project. The drawings in the MOU are just preliminary.

Councilman Hardy said if we have another deluge come down the property will get flooded. Could we put sandbags out for them?

Kyle reported water flooding their property was an issue way before the road was ever re-done. He would be careful assisting someone with their personal property issues because then everyone in town will expect help.

Kevin pointed out sandbags will just divert the water somewhere else and possibly cause issues for someone else. There are several people on that street that have had flooding issues.

Councilman Wilson said he remembers as a kid that if it rained really hard the water almost got into his house and that was with the canal stopping a lot of the water.

Councilwoman Wise stated there were several work sessions for this issue. She feels that the Council, Mayor, and City staff worked really hard to find a good resolution for the City and for the Earl's. She stands by what was decided back then. She thinks it's important for the family to understand it's the City's intent to treat them well and that we are doing all we can to move the road project forward.

Kevin mentioned this is a memorandum of understanding, not a contract. An MOU is like a letter of intent. It's a memorandum capturing what we understand we would like to accomplish together.

Kyle will tell the Earls the Council would like to leave the MOU as it is. We intend to get the situation resolved and that we are planning to include it in the 100 South Project. He will also let them know an MOU is not a contract but something we are trying to accomplish together. He will remind them that any pending litigation would stop their portion of the project, not because we are threatening them, but because the City would be unable to get funding. There will also be no timeline for the project.

6. Discussion and direction on the annual La Verkin City Christmas Eve Program.

Kyle explained this program has been happening since 1904 but he can't see how we can move forward with it with the State Covid restrictions.

There were several different ideas on ways to keep social distancing and still have the program.

The Council determined there was no way to keep “Santa” safe as well as our citizens.
The annual La Verkin City Christmas Eve Program was canceled.

F. Mayor & Council Reports:

Wilson-Nothing to report.

Wise-The ZRC is working to get the environmental study for the multi-use trail started.
She thanked the Mayor, Kyle, and Chief for making her electronic participation possible.
She feels that traditions are really important, but the lives of people are more important.

Justice-Nothing to report.

Gubler-He asked Derek to tell the people on the Overlook Subdivision that the Councilmembers are fellow citizens and that they are on their side. They did hear them and will do what they can.
He also thanked the Chief for his report.

Hardy-Mosquito Abatement is slow right now, but they are treating mosquitoes when they find them.

G. Adjourn:

The motion was made by Councilman Ray Justice to adjourn, second by Councilman Kelly Wilson. The motion was carried unanimously at 8:17 pm.

Minutes were done by Christy Ballard.

Date Approved

ATTEST: _____
Christy Ballard
City Recorder

Mayor Richard M. Hirschi

RESOLUTION NO. R-2020- 19

A RESOLUTION OF THE LaVERKIN CITY COUNCIL, ADOPTING THE LaVERKIN CITY WATER CONSERVATION PLAN (June 26, 2020), AN UPDATE TO THE LaVERKIN CITY WATER MANAGEMENT AND CONSERVATION PLAN; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City Council of LaVerkin (“the City Council”) recognizes (a) the vital role of water in the development and sustainability of the community and its residents and businesses, and (b) the limited nature of this precious natural resource; and

WHEREAS, the City of LaVerkin (“the City”)—in an effort to conserve, preserve, enhance, protect, and encourage the efficient use of water—has, in recent years, *inter alia*, (a) adopted the water conservation plan and regulations found at Chapter 6 of Title 8 of the *LaVerkin City Code*; (b) purchased, upgraded, and provided for the filtering of a secondary water system for the community; (c) established time-of-date ordinances to reduce loss through trans- evaporation; (d) enacted ordinances to encourage the use of said secondary system in order preserve and conserve the City’s higher-quality culinary water; (e) obtained and installed a SCADA system to monitor the City’s water and associated facilities; (f) replaced major water conveyance lines to decrease loss through leakage; (g) replaced the old water meters present in a large portion of the community with updated and more-accurate electronic-read water meters; and (h) raised its water rates significantly to improve funding for desired renewal and replacement projects and to prepare for a significant infrastructure project to replace key sections of water pipe identified as being old, requiring frequent repair or maintenance, or improving the overall service provided by the culinary water system; and

WHEREAS, the City continues to operate a culinary water system and a secondary water system; and

WHEREAS, State law requires that the City adopt and update its *Water Conservation Plan* (WCP) no less frequently than every five years; and

WHEREAS, the City’s WCP (previously known as the City’s *Water Management and Conservation Plan*) was last updated in 2010 [January 19, 2010, Res. No. R-2010-03] and 2014 [December 17, 2014, Res. No. R-2014-120; and

WHEREAS, the proposed *LaVerkin City Water Conservation Plan (June 26, 2020)* (“LVC-WCP”) has been prepared, reviewed, and made the subject of a duly-called public hearing [upon reasonable advance notice, as required by Section 73-10-32, *Utah Code Annotated* (2020)] that was held earlier this evening (i.e., November 4, 2020), at which public input was solicited and considered; and

RESOLUTION NO. R-2010-19


WHEREAS, upon its review of the LVC-WCP and upon consideration of the public input received at the aforementioned public hearing, the City Council **declares and affirms** that it:

- (a) understands the need to use water in an efficient manner, in order to allow for future sustained growth of the community and
- (b) encourages the implementation of the goals, methods, programs, and mechanisms identified in the LVC-WCP, in order to further facilitate and promote conservation and efficient use of the City's culinary and secondary water resources.

NOW THEREFORE BE IT RESOLVED by the City Council of LaVerkin, Utah, as follows:

- 1. That the above recitals are incorporated herein as though fully set forth.
- 2. That the *LaVerkin City Water Conservation Plan (June 26, 2020)* ("LVC-WCP"), presented on the 4 day of November, 2020 be and is hereby adopted.
- 3. That the LVC-WCP will (a) be reviewed, and amended as appropriate, no less than every five years, and (b) continue to play a vital role in the future development of the City of LaVerkin and the development and efficient use of its water resources.
- 4. That (a) if any part of this resolution shall be declared invalid, such declaration shall not affect the validity of the remainder of this resolution; (b) all resolutions or policies in conflict herewith are hereby repealed; and (c) this resolution shall take effect immediately upon passage.

PASSED, ADOPTED AND APPROVED this 4 day of November, 2020.



RICHARD L. HIRSCHI, Mayor

ATTEST:



CHRISTY BALLARD, City Recorder