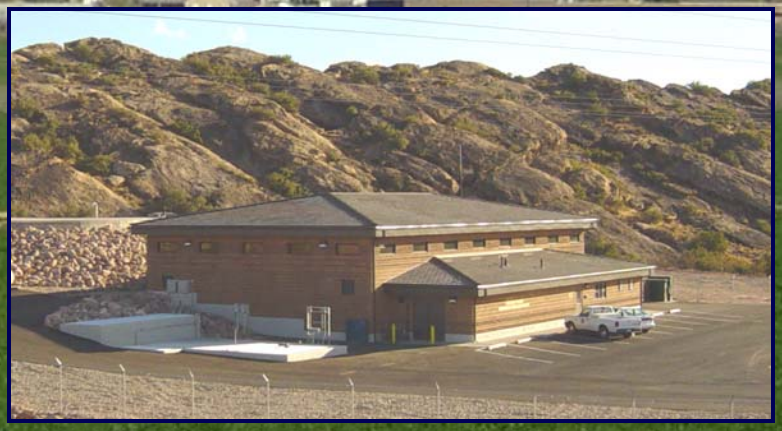
Washington City
Where Dixie Begins

WASHINGTON CITY
CULINARY WATER MASTER PLAN

Including:

Five Point Analysis
Recommended System Improvements
and
Written Analysis for Water User Rate & Impact Fee



PREPARED BY:

SUNRISE ENGINEERING

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September 2010

WASHINGTON CITY, UTAH
CULINARY WATER MASTER PLAN

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INCLUDES:

FIVE POINT ANALYSIS
RECOMMENDED SYSTEM IMPROVEMENTS
AND
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COUNCIL MEMBER ---------- Bill Hudson
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TABLE OF CONTENTS

SECTION

SECTION I
INTRODUCTION

A. PREFACE

In 1993 Sunrise Engineering, Inc. completed a Preliminary Engineering Report for Washington City's Culinary Water System. At that time, the City moved to construct a $5,200,000 water improvements project. The purpose of the project was to address the immediate culinary needs with source capacity, storage capacity, and distribution system. It included a new well, two new 1 million-gallon tanks, pressure zone separations, pressure reducing valve (PRV) stations, and miles of main trunk and distribution piping. The 1993 report identified that even with the improvements the City would most likely be required to undertake additional projects in 1998-99.

In 1999, Sunrise Engineering updated the 1993 Master Plan. To implement the recommendations of the 1999 revision, the City drilled a second Grapevine Well; installed a booster station to bring irrigation water from Quail Reservoir to Coral Canyon; replaced the bladder tank with a 1 million-gallon concrete tank and the 2.3 million-gallon steel tank with a concrete tank of the same size; installed a 12" line from the new 1 million-gallon tank to Green Springs Drive and replaced the 4" line in Telegraph Road with 8" PVC.

The 1st and 2nd Grapevine Wells did not provide enough source capacity to keep up with growth. Because of the apparent need for source capacity and recognizing a far greater than expected growth rate, the City of Washington again asked Sunrise Engineering to update their Culinary Water Master Plan in 2002. The City has since implemented recommendation presented in the 2002 Plan by constructing the Microfiltration Plant, constructing the Washington Dam Booster Pump Station and 2 Million Gallon Tank, installing a new 16" line between the Grapevine Tank and the Red Cliffs 1 Million Gallon Tank, and replacing numerous old and undersized lines in town. The City also moved to adopt a new water user fee structure to reflect increased costs and to promote water conservation.

Several factors again prompted Washington City to review and update their Culinary Water Master Plan. The City's population DOUBLED over a 5 year period with the City issuing over 1,000 building permits in 2004 alone. A new General Plan forecasted significant growth throughout the City and suggested growth in areas that had not been specifically addressed in previous master plans. Also, the regional demand for water resources resulted in a change in the way communities look to meet their culinary water needs. Washington City joined efforts with the Washington County Water Conservancy District and other communities.

Sunrise Engineering has again been contracted to update the plan and bring the Master Plan forward to meet the current conditions. The most notable modifications of this master plan involve:

1. ***Consideration of the recent stabilization in growth and slowed economy.***
2. ***Consideration of the Regional Water Supply Agreement that was recently approved by the City.***
3. ***Update and calibrate the City's water model.***
4. ***Review existing water rates and impact fees.***

B. INTRODUCTION

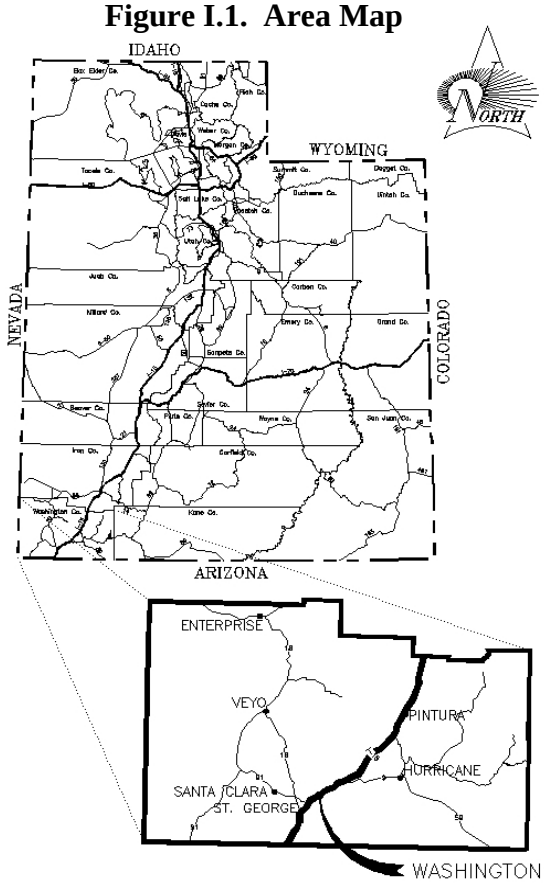
This Culinary Water Master Plan has been prepared for Washington City, located East of St. George, Utah along I-15. Washington City has experienced moderate to high growth rates over the past 20 years with the growth including

a growth explosion between 2004 and 2006, that has now slowed due to a sluggish economy.

The culinary water system has been analyzed under the State of Utah Administrative Rules for Public Drinking Water Systems to determine existing system conditions and needs, and to determine projected system needs as the community grows during the next 20 years. Culinary water system improvements have been recommended. This will also serve as a capital facilities plan for the culinary water system.

Washington City average water rates and impact fees have also been analyzed in support of the recommended system improvements. The recommended culinary water rates and impact fees are fair, and they will allow the City to continue to maintain the level of service that is required of public water systems for the present and over the duration of the 20 year planning period.

Figure I.1. Area Map



SECTION II
SYSTEM USERS ANALYSIS

A. PROJECTED GROWTH RATE

An essential element in the development of a Culinary Water Master Plan is the projection of the City's population growth rate. The population growth rate gives the planner a glimpse of the future demands that may need to be accommodated by the City's culinary water system.

Projecting the number of future culinary water connections with any degree of accuracy can be a very subjective process, especially with the fluctuating growth trends that Washington City has seen in recent years. With this in mind this plan uses several resources including Census figures, water connection data from the City's Billing Summaries, and building permits, to evaluate the growth trends and to provide a projection of how growth will occur in the future. Table II.1 shows the historic growth rate and provides an idea of how the community has grown based on Census counts from 1970 through 2000, and Census estimates from 2001 through 2008.

Table II.1 Washington City Historic Population

Year	Census Population	Growth Rate	
1970	750		
1980	3,092	1970-1980	15.2%
1990	4,198	1980-1990	3.1%
2000	8,186	2000-1990	6.9%
2001	8,815	*2000-2001	7.7%
2002	9,661	*2001-2002	9.6%
2003	10,496	*2002-2003	8.6%
2004	11,558	*2003-2004	10.1%
2005	13,693	*2004-2005	18.5%
2006	15,310	*2005-2006	11.8%
2007	16,614	*2006-2007	8.5%
2008	17,716	*2007-2008	6.6%

**U.S. Bureau of the Census Subcounty Population Estimates*

In addition, Table II.2 shows the growth in residential water ERUs, as defined by Washington City's Rate Table Summary forms, from 1993 to 2008. Table II.3 shows the growth in commercial water ERUs for the same

Table II.2 Residential Connections

Month	Total No. Conn.	Annual Growth Rate	
Aug-93	2,161		
Aug-94	2,457	1993-1994	13.7%
Aug-95	2,549	1994-1995	3.7%
Aug-96	2,761	1995-1996	8.3%
Aug-97	2,931	1996-1997	6.2%
Aug-98	3,064	1997-1998	4.5%
Aug-99	3,156	1998-1999	3.0%
Aug-00	3,390	1999-2000	7.4%
Aug-01	3,865	2000-2001	14.0%
Aug-02	4,962	2001-2002	28.4%
Aug-03	4,583	2002-2003	-7.6%
Aug-04	6,003	2003-2004	31.0%
Aug-05	7,012	2004-2005	16.8%
Aug-06	7,591	2005-2006	8.3%
Aug-07	7,952	2006-2007	4.8%
Aug-08	8,074	2007-2008	1.5%

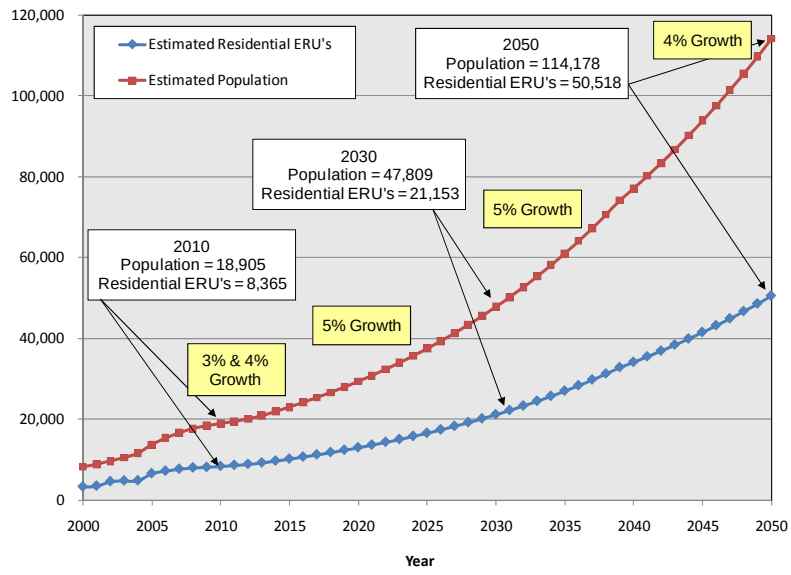
Table II.3 Commercial Units

Month	Total No. Units	Annual Growth Rate	
Aug-93	60		
Aug-94	66	1993-1994	10.0%
Aug-95	70	1994-1995	6.1%
Aug-96	84	1995-1996	20.0%
Aug-97	99	1996-1997	17.9%
Aug-98	116	1997-1998	17.2%
Aug-99	416	1998-1999	258.6%
Aug-00	472	1999-2000	13.5%
Aug-01	428	2000-2001	-9.3%
Aug-02	445	2001-2002	4.0%
Aug-03	669	2002-2003	50.3%
Aug-04	748	2003-2004	11.8%
Aug-05	729	2004-2005	-2.5%
Aug-06	753	2005-2006	3.3%
Aug-07	810	2006-2007	7.6%
Aug-08	841	2007-2008	3.8%

period.

It is expected that the number of new connections per year will increase slightly over the next couple of years after which moderate to high growth will resume. Significant growth during the planning period is expected to be in the Washington Fields, the Landfill Area, South Fields, Long Valley, Green Springs, Coral Canyon, and the area adjacent to milepost 13 on I-15. For the purpose of this Master Plan and to prepare for future culinary water requirements it is assumed that 3% growth will occur over the next three years and 4% the following year; after which the average growth has been assumed to increase to 5%. In the year 2040 it is assumed that the growth rate will drop slightly to 4%. Figure II.1 shows the projected growth for Washington City over the next 40 years.

Figure II.1 Washington City Culinary Water Master Plan Projected Growth



It is important to understand that projected population figures are not the corner stone of this master plan. If the maximum number of system connections projected is reached earlier or later than projected, then future improvements to support growth may either come earlier or later. Impact Fees should not be significantly affected if the actual rate of growth varies from the rate used in the plan.

B. LENGTH OF PLANNING PERIOD

This culinary water master plan uses a 20-year planning period, beginning in fiscal year 2010, which began in July 1 of 2009, and running through fiscal year 2030. Water Rights will be evaluated for 40 years based on new State law. This period will allow an adequate evaluation of the system for potential infrastructure improvements or other needs. Revenue sources should be carefully evaluated each year as the City Council sets budgets and anticipates system requirements.

C. CULINARY WATER CONNECTIONS

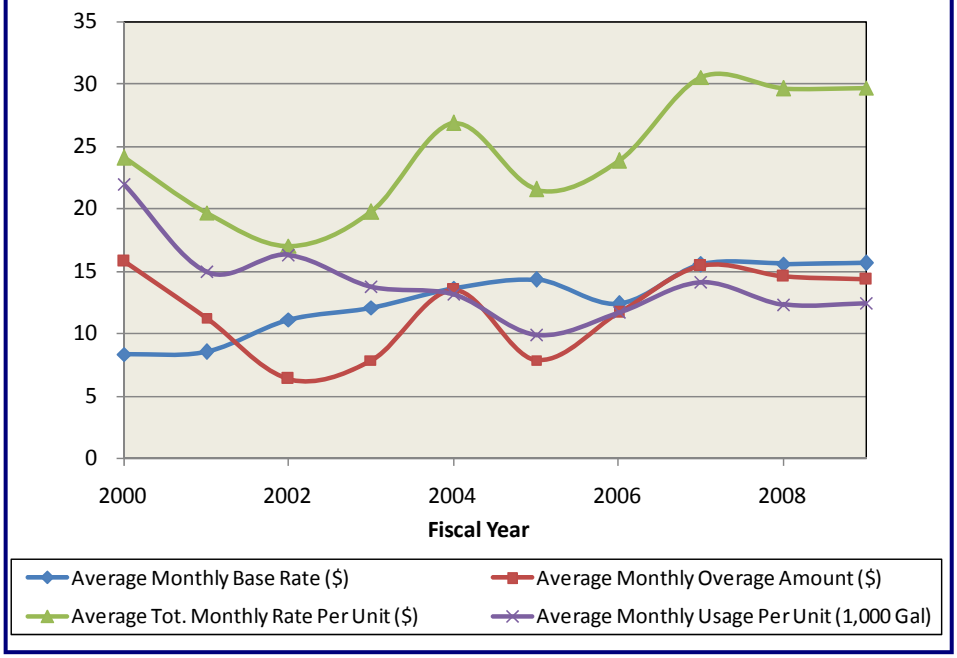
1. Existing Culinary Water Connections

According to Washington City Rate Table Summary data, the average number of existing culinary connections in FY 2009 was 8,949.

The 8,949 connections include 8,121 residential connections, and 828 commercial units.

Figure II.2 shows residential water usage and average monthly rates from 2000 to 2009.

Figure II.2. Residential Water Use



To calculate how much water is used at an average residential connection, the total amount of water used by all Washington City residential customers over the course of a year was determined. Table II.4 on the following page provides historic data from Washington City records from 2006 to 2009. The average daily use per residential connection over the last 4 years (2006-2009) was **413 gal/day**. It appears that with conservation measures being taken the average usage is dropping slightly. For this Master Plan, a value of **425 gal/day** will be used for the average daily flow per residential connection.

In comparison to other communities of similar nature, the daily average use for Washington City appears to be somewhat lower. This is likely due to the many trailer courts, town homes, and other developments with small lots and limited irrigation needs. Also, areas such as Coral Canyon have adopted landscape requirements to minimize outdoor irrigation.

Commercial connections generally require more water than that required by a residential customer. An Equivalent Residential Unit (ERU) represents the additional volume of water required for commercial users above and beyond the amount used by an average residential connection. The ERU value is determined by comparing the average daily use per commercial connection to the average daily use per residential connection. The City presently performs this analysis with individual commercial connections for billing purposes. To calculate the average daily use for commercial connections, the total amount of water used by all commercial users was determined for the same one-year period. In the fiscal year 2009, the total commercial water usage was approximately 215,029,000 gallons, distributed to an average of 304 commercial users.

The average commercial connection in FY 2009 used approximately 4.8 times the amount used by the average residential connection in the same year (405.6 gal/day). Thus, for the purpose of this master plan we will use an ERU

$$Commercial\ \ Use = \frac{215{,}029{,}000\ Gallons}{Year} \times \frac{1\ Year}{365\ Days} \times \frac{1}{304\ Conn.} = 1{,}938\ Gal\ /\ Day\ /\ Conn.$$

Table II.4 Historic Water Usage

RESIDENTIAL (Fiscal Year)	FY 2006	FY 2007	FY 2008	FY 2009
Number of Customers	5,503	5,898	6,241	6,356
Number of Units	7,203	7,660	8,001	8,121
Base/Minimum Amount	$ 1,066,863	$ 1,421,964	$ 1,494,031	$ 1,520,747
Average Monthly Base Rate ($)	$ 12.34	$ 15.47	$ 15.56	$ 15.61
Excess Amount	$ 1,003,418	$ 1,411,586	$ 1,396,527	$ 1,394,219
Average Monthly Overage Amount ($)	$ 11.61	$ 15.36	$ 14.55	$ 14.31
Total Amount	$ 2,057,119	$ 2,802,781	$ 2,841,044	$ 2,892,995
Average Tot. Monthly Rate Per Unit ($)	$ 23.80	$ 30.49	$ 29.59	$ 29.69
Usage	1,005,804	1,291,208	1,178,677	1,202,155
Average Cost Per 1,000 Gallons	$ 2.05	$ 2.17	$ 2.41	$ 2.41
Average Monthly Usage Per Unit (1,000 Gal)	11.6	14.0	12.3	12.3
COMMERCIAL (Fiscal Year)	**FY 2006**	**FY 2007**	**FY 2008**	**FY 2009**
Number of Customers	267	303	304	304
Number of Units	740	805	820	828
Base/Minimum Amount	$ 110,418	$ 233,752	$ 246,510	$ 209,640
Average Monthly Base Rate ($)	$ 12.43	$ 24.20	$ 25.05	$ 21.10
Excess Amount	$ 216,782	$ 342,294	$ 316,589	$ 312,088
Average Monthly Overage Amount ($)	$ 24.41	$ 35.43	$ 32.17	$ 31.41
Total Amount	$ 312,396	$ 569,232	$ 549,947	$ 517,160
Average Tot. Monthly Rate Per Unit ($)	$ 35.18	$ 58.93	$ 55.89	$ 52.05
Usage*	199,711	254,653	215,597	215,029
Average Cost Per 1,000 Gallons	$ 1.56	$ 2.24	$ 2.55	$ 2.41
Average Monthly Usage Per Unit (1,000 Gal)	22.5	26.4	21.9	21.6

value for each commercial connection of 4.8.

Shown below is the estimated number of residential connections and commercial ERU's for FY 2010. The estimated growth rate of 3% was added to the number of connections in FY 2009 to obtain the estimated number of connections in FY 2010.

Current ERU's (FY 2010)

Residential (8,121 X 1.03)	= 8,365
Commercial ERU's (304 X 1.03 X 4.778)	= 1,496
Total ERU's	= 9,861

2. Projected Culinary Water Connections and ERU's

The number of future culinary connections can be calculated using the compound interest formula and inserting the projected growth rate, the existing number of culinary water ERU's, and the 20-year planning period for culinary water improvements.

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

F = Future Population
P = Present Population
i = Historic Growth Rate
N = Years

20-Year projections ERU's can be found in Table II.5. As shown, the total number of culinary water ERU's projected for the end of the 20-year planning period in 2030 is 24,938. The total number of culinary water ERU's projected at the end of 40 years in 2050 is 59,556. For this analysis the commercial growth rate is equivalent to the residential growth rate. Although historic data shows that the growth rate of commercial connections have varied with respect to the residential growth rate, the commercial growth will be assumed to average out over the 20-year planning period. It is recommended that Washington City size all future culinary water related infrastructure improvements for at least 24,938 ERU's.

Table II.5 Growth Projections

Year	Est. Growth Rate	*Estimated Residential ERU's	*Estimated Commercial ERU's	*Estimated Total ERU's	*Estimated Total Conn.	**Estimated Population	New Conn. (i.e. Building Permits)
2006	-	7,203	1,430	8,633	7,943	15,310	659
2007	-	7,660	1,511	9,171	8,465	16,614	522
2008	-	8,001	1,463	9,464	8,821	17,716	356
2009	-	8,121	1,453	9,574	8,949	18,355	128
2010	3.0%	8,365	1,497	9,861	9,217	18,905	268
2011	3.0%	8,616	1,541	10,157	9,494	19,473	277
2012	3.0%	8,874	1,588	10,462	9,779	20,057	285
2013	4.0%	9,229	1,651	10,880	10,170	20,859	391
2014	5.0%	9,690	1,734	11,424	10,678	21,902	508
2015	5.0%	10,175	1,820	11,995	11,212	22,997	534
2016	5.0%	10,684	1,912	12,595	11,773	24,147	561
2017	5.0%	11,218	2,007	13,225	12,362	25,354	589
2018	5.0%	11,779	2,107	13,886	12,980	26,622	618
2019	5.0%	12,368	2,213	14,581	13,629	27,953	649
2020	5.0%	12,986	2,323	15,310	14,310	29,351	681
2021	5.0%	13,635	2,440	16,075	15,026	30,818	716
2022	5.0%	14,317	2,562	16,879	15,777	32,359	751
2023	5.0%	15,033	2,690	17,723	16,566	33,977	789
2024	5.0%	15,785	2,824	18,609	17,394	35,676	828
2025	5.0%	16,574	2,965	19,539	18,264	37,460	870
2026	5.0%	17,403	3,114	20,516	19,177	39,333	913
2027	5.0%	18,273	3,269	21,542	20,136	41,299	959
2028	5.0%	19,186	3,433	22,619	21,143	43,364	1,007
2029	5.0%	20,146	3,604	23,750	22,200	45,533	1,057
2030	5.0%	21,153	3,785	24,938	23,310	47,809	1,110
2031	5.0%	22,211	3,974	26,185	24,475	50,200	1,165
2032	5.0%	23,321	4,173	27,494	25,699	52,710	1,224
2033	5.0%	24,487	4,381	28,869	26,984	55,345	1,285
2034	5.0%	25,712	4,600	30,312	28,333	58,112	1,349
2035	5.0%	26,997	4,830	31,828	29,750	61,018	1,417
2036	5.0%	28,347	5,072	33,419	31,237	64,069	1,487
2037	5.0%	29,764	5,325	35,090	32,799	67,272	1,562
2038	5.0%	31,253	5,592	36,844	34,439	70,636	1,640
2039	5.0%	32,815	5,871	38,687	36,161	74,168	1,722
2040	4.0%	34,128	6,106	40,234	37,608	77,135	1,446
2041	4.0%	35,493	6,350	41,843	39,112	80,220	1,504
2042	4.0%	36,913	6,604	43,517	40,676	83,429	1,564
2043	4.0%	38,389	6,869	45,258	42,303	86,766	1,627
2044	4.0%	39,925	7,143	47,068	43,995	90,236	1,692
2045	4.0%	41,522	7,429	48,951	45,755	93,846	1,760
2046	4.0%	43,183	7,726	50,909	47,586	97,600	1,830
2047	4.0%	44,910	8,035	52,945	49,489	101,504	1,903
2048	4.0%	46,706	8,357	55,063	51,468	105,564	1,980
2049	4.0%	48,575	8,691	57,266	53,527	109,786	2,059
2050	4.0%	50,518	9,039	59,556	55,668	114,178	2,141

* Estimated ERU's and Connections are based on the data from the City's Annual Rate Table Summary for 2006 through 2009.

** Estimated Population is determined by multiplying the estimated residential ERU's by 2.26. 2.26 is the number of people per residential ERU in past years.

SECTION III
WATER RIGHTS ANALYSIS

A. EXISTING WATER RIGHT

The existing Washington City water rights used for culinary water are identified in Table III.1 below. The water rights are listed according to number, source, and flow.

B. EXISTING REQUIRED WATER RIGHT

The State of Utah Administrative Rules for Public Drinking Water Systems, Section R309-510, states that a community should have adequate water right to supply each culinary connection with 400 gallons per day for indoor water use, plus an amount for outdoor use as dictated by irrigated acreage and a consumptive use value obtained from the State Guidelines. The community may substitute historical use data for indoor and outdoor requirements. For planning purposes the Washington City average daily use is assumed to be 425 gallons per ERU as stated in Section II. This amount includes all water usage, indoor and outdoor.

From Table III.1, the grand total amount of water right available in Washington City is 5,708 acre-feet. Based on an average of 425 gallons per day per ERU and 9,861 existing ERU's, the existing required water right is calculated as follows:

Existing required water right:

$$9{,}861\text{ERU's} \times \frac{425\text{gpd}}{\text{ERU}} \times \frac{1\text{day}}{1{,}440\text{min.}} = 2{,}910\text{gpm}$$

$$2{,}910\text{ gpm} \times \frac{1.613\text{ac}-\text{ft}}{\text{gpm}} = 4{,}695\text{ ac}-\text{ft}$$

Table III.1 Washington City Culinary Water Rights

W.R. #	Source	Flow		
		AcFt.	cfs	gpm
81-666	Underground Water, Well	151.4	0.21	93.9
81-1087	Underground Water, Well	535.7	0.74	332.1
a23880 (81-1610, 81-4313)	Underground Water, Well	213.0	0.29	132.0
81-1674	Underground Water, Well	724.0	1.00	448.8
81-1719	Underground Water, Well	434.4	0.60	269.3
81-1747	Underground Water, Well	11.8	0.02	7.3
81-2412	Underground Water, Well	1,737.5	2.40	1,077.1
	Sub-total Wells =	3,807.8	5.26	**2,360.5**
*Sand Hollow Well Field Water (Washington County WCD)		500.0	0.69	310.0
**Quail Creek Water (Washington County WCD)		1,400.0	1.93	867.9
	Grand Total =	**5,707.8**	**7.88**	**3,538.4**

**"Perpetual annual allotment" of water purchased from Washington County Water Conservancy District for an annual fee.*

*** Washington City has 2,000 acre-feet of water reserved at Quail Creek Reservoir each year. Of those 2,000 acre-feet, Coral Canyon uses approximately 600 acre-feet to water its golf course. The remaining reserve of 1,400 acre-feet is available for the City's use.*

The existing water right surplus or deficit is determined by subtracting the existing required water right of 4,695 ac-ft from the grand total available water right of 5,708 ac-ft, which yields a surplus of 1,013 ac-ft.

EXISTING SURPLUS = 1,013 ac-ft

WATER RIGHT
1 ERU = 425 gpd = 0.476 Ac-Ft

EXISTING SURPLUS
1,013 Ac-Ft/0.476 = 2,127 ERUs

C. PROJECTED REQUIRED WATER RIGHT (FY 2030)

The projected required water right at the end of the planning period is calculated by using the same factors, but the projected number of culinary water ERU's in FY 2030 is substituted in the calculations.

Projected required water right (FY 2030):

$$24{,}938\text{ERU's} \times \frac{425\,\text{gpd}}{\text{ERU}} \times \frac{1\,\text{day}}{1{,}440\,\text{min.}} = 7{,}360\,\text{gpm}$$

$$7{,}360\ \text{gpm} \times \frac{1.613\ \text{ac}-\text{ft}}{\text{gpm}} = 11{,}873\ \text{ac}-\text{ft}$$

The projected water right surplus or deficit is determined by subtracting the projected required water right of 11,873 ac-ft from the grand total available water right of 5,708 ac-ft, which yields a shortage of 6,165 ac-ft.

PROJECTED SHORTAGE = (6,165) ac-ft

D. PROJECTED REQUIRED WATER RIGHT (FY 2050)

The projected required water right at the end of the 40-year horizon, as is required to be evaluated by new State law, is calculated by using the same factors, but the projected number of culinary water ERU's in the FY 2050 is substituted in the calculations.

Projected required water right (FY 2050):

$$59{,}556\text{ERU's} \times \frac{425\,\text{gpd}}{\text{ERU}} \times \frac{1\,\text{day}}{1{,}440\,\text{min.}} = 17{,}577\,\text{gpm}$$

$$17{,}577\ \text{gpm} \times \frac{1.613\ \text{ac}-\text{ft}}{\text{gpm}} = 28{,}354\ \text{ac}-\text{ft}$$

The projected water right surplus or deficit is determined by subtracting the projected required water right of 28,354 ac-ft from the grand total available water right of 5,708 ac-ft, which yields a shortage of 22,646 ac-ft.

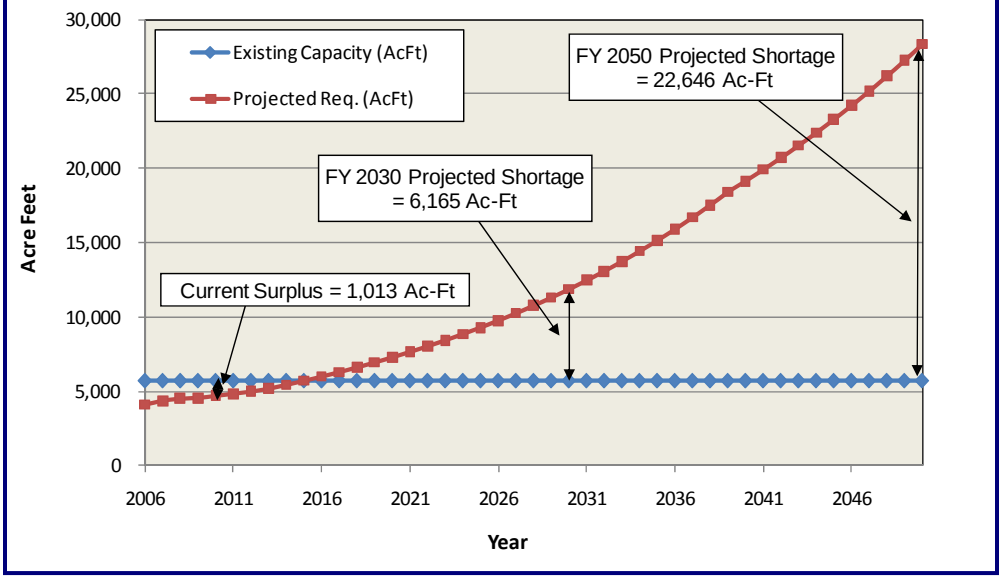
PROJECTED SHORTAGE = (22,646) ac-ft

E. RECOMMENDED WATER RIGHT IMPROVEMENTS

The projections in this analysis show that the City will need to increase the existing water rights by approximately 6,165 ac-ft over the next 20 years and 22,646 ac-ft over the next 40 years if the current usage patterns remain in place and the City continues to provide culinary water for outdoor irrigation. Current water right capacity would be surpassed in the year 2015 (see Appendix B, Five Point Analysis).

Washington City is part of a coordinated effort of neighboring communities and the Washington County Water Conservancy District to combine resource to efficiently develop new water resources. The City has joined the Regional Water Supply Agreement (RWSA) to allow the District to provide water for future growth. It is likely that the District will hold the majority of the water rights for future water source

Figure III.1. Culinary Water Rights
Existing Capacity vs. Projected Requirements



for the Cities and Towns of Washington County.

A recommendation that should be considered by the City is to implement a secondary irrigation system throughout the City. Although secondary water would also require a water right, irrigation water rights should be easier to acquire than culinary water rights.

Water conservation is a reasonable way to reduce the overall required water right as it would reduce the required culinary water rights per ERU; or if secondary water were implemented, the irrigation water rights that would need to be purchased.

In addition, if secondary irrigation is implemented, the City may consider scalping plants in conjunction with their wastewater system improvements to reuse filtered and treated wastewater for irrigation needs.

The City has already implemented a water user rate structure with overage steps to encourage conservation (See Appendices G-I). Included in Appendix H is the Time of Day Watering Ordinance passed by the City which limits landscape irrigation in most cases between the hours of 10:00 P.M. and 8:00 A.M in order to increase irrigation efficiency.

The City should also consider implementing landscape requirements that will reduce irrigation demands and reduce the overall usage. These efforts are required in the RWSA, and will allow the City to serve more people with the same amount of water rights in future years.

The amount of water rights required should be revisited if the City were to ever approve secondary irrigation for outdoor watering. Also, the amount of water rights required should be reviewed periodically to account for possible decrease in average water usage due to water conservation. In general, it is recommended that all water rights be reviewed every five years.

WATER RIGHTS SUMMARY

Existing Surplus (FY 2010)*	**= 1,013 ac-ft**
Projected Shortage FY 2030	**= (6,165) ac-ft**
Projected Shortage FY 2050	**= (22,646) ac-ft**

Recommendations

1. **Continue to encourage water conservation through water rates and education.**
2. **Consider cooperative efforts with Washington County Water Conservancy District to acquire new water rights.**
3. **Consider implementing a pressurized secondary irrigation system to minimize the culinary water right requirement.**
4. **Consider implementing landscape requirements.**
5. **Review water rights at least every 5 years.**

***The City Council approved the Regional Water Supply Agreement, in August of 2006. With this agreement, the Washington County Water Conservancy District agrees to provide all future culinary water to the City. The City will no longer need to acquire new water rights while this agreement is in effect.**

SECTION IV
WATER SOURCE CAPACITY ANALYSIS

A. EXISTING WATER SOURCE CAPACITY

To analyze source capacity, all available culinary water sources are first identified and listed in Table IV.1 below. The flow capacity numbers were acquired from the City and are based on a maximum flow if all of the wells are running at capacity. This means that a given well may be capable of flowing at a higher rate than shown, but with other wells also running at the same time the well will be limited to the given flow rate.

Table IV.1 Washington City Water Sources

	Total Flow	
Wells	**CFS**	**gpm**
No. 2	1.045	469
No. 3	0.290	130
No. 4	1.731	777
No. 5	2.103	944
No. 6	1.693	760
Grapevine Well No. 1	0.305	137
Grapevine Well No. 2	0.267	120
Sub-total Wells =	7.435	**3,337**
Other Sources		
Microfiltration (Quail Lake)	4.679	**2,100**
Sand Hollow Booster Pump	6.684	**3,000**
Grand Total =	18.799	**8,437**

With the Regional Water Supply Agreement (RWSA), the Conservancy District is now responsible for future source improvements for the City.

B. EXISTING REQUIRED WATER SOURCE CAPACITY

The State of Utah Administrative Rules for Public Drinking Water Systems, Section R309-510, states that a community should have an adequate water source capacity to supply a peak demand of 800 gallons per day per connection for indoor use. The regulations also require the source to be capable of meeting peak irrigation demands, where no secondary source of irrigation water is available.

In the State regulations, the peak day demand for source capacity requirement per connection is double the average amount of water required per connection per day. Similarly, this master plan assumes that the peak day demand in Washington City for source capacity is double their average requirement per ERU based on historic use figures. Therefore, the required source capacity per ERU in Washington City is assumed to be 850 gallons per day. The required existing source capacity is calculated below:

Existing required source capacity:

$$9{,}861\ \text{ERU's} \times \frac{850\ \text{gpd}}{\text{ERU}} \times \frac{1\text{day}}{1{,}440\ \text{min.}} = 5{,}821\ \text{gpm}$$

The existing source capacity surplus or deficit is determined by subtracting the existing required source capacity of 5,821 gpm from the total available source capacity of 8,437 gpm, which yields a surplus of 2,616 gpm.

EXISTING SURPLUS = 2,616 gpm

WATER SOURCE
1 ERU = 0.590 gpm

EXISTING SURPLUS
2,616 / 0.590 = 4,432 ERUs

In past years the City was stretched on its water source capacity and was continually on the brink of falling behind during peak summer months. However, the City undertook projects namely the Microfiltration Plant, the incorporation of Well No. 1 for secondary irrigation, and the addition of the Sand Hollow Booster Pump to draw water from the regional Sand Hollow Pipeline. The projects have greatly improved the situation in recent years. Currently all of the water used south of the Virgin River is provided by the RWSA.

C. PROJECTED REQUIRED WATER SOURCE CAPACITY

Projected required water source capacity at the end of the planning period is determined from the same information and calculations explained in Part B, except the projected number of culinary water ERU's is substituted in the calculations for the number of ERU's.

Projected required source capacity (FY 2030):

$$24{,}938\,\text{ERU's} \times \frac{850\,\text{gpd}}{\text{ERU}} \times \frac{1\,\text{day}}{1{,}440\,\text{min.}} = 14{,}720\,\text{gpm}$$

The projected source capacity surplus or deficit is determined by subtracting the projected required source capacity of 14,720 gpm from the total available source capacity of 8,437 gpm, which yields a projected shortage of 6,283 gpm at the end of the 20 year planning period.

PROJECTED SHORTAGE = (6,283) gpm

D. RECOMMENDED WATER SOURCE IMPROVEMENTS

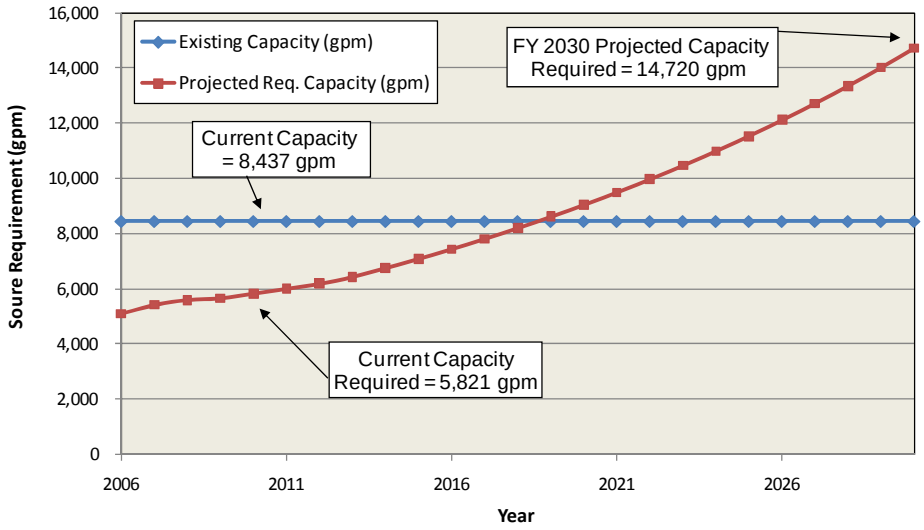
The existing source capacity surplus of 2,616 gpm is projected to be exceeded by the year 2019 if the current usage trend continues. The entire surplus (and then some) is the result of water obtained from Washington County Water Conservancy District through the Microfiltration Plant and the Sand Hollow Booster Pump. At the end of the 20-year planning period the source capacity deficit is projected to be 6,283 gpm at the current usage rate.

Because the City has recently joined an agreement with the Conservancy District and other cities, the District has agreed to provide for future source needs, thus alleviating the City of future source improvements while that agreement is in effect.

While the Conservancy District will be responsible to provide new sources, Washington City should plan on getting the water from the District's pipelines to the various points of use in the City. For instance, the City should connect into the Regional Pipeline at 3650 South and also at Washington Fields Road. The City should also coordinate with the WCWCD to install a 24" pipeline to the City boundary northeast of Coral Canyon along I-15. The City could then connect to the pipeline with a 24" pipeline to the Grapevine tank. Later, the City could continue the pipeline to Washington Parkway just south of I-15. This would allow the City to reduce demands on the Red Cliffs and Grapevine tanks. Also, the City should connect to the Regional Pipeline at Long Valley and near the Landfill to supply water to proposed tanks in those locations.

As stated earlier, Washington City has entered the Regional Water Supply Agreement, thereby passing the responsibility of source development to the Conservancy District. However, the City should keep in mind that they still have many

Figure IV.1. Washington City Source Capacity
Existing Capacity vs. Projected Requirements



options for developing new sources, should they choose to do so. Various options cited from previous master plans are discussed below.

Additional wells could be drilled in the Grapevine Pass Wash area or even in the Mill Creek well field. Grapevine Wells 1 and 2 only produced between 100 gpm and 160 gpm. Despite the low production the wells are still economically feasible at a relatively low cost per 1,000 gallons produced. For this reason the City may choose to drill several wells (with the hope of drilling a good producer) at intervals along the existing access road near the existing Grapevine wells using existing pipelines to transport the water to the City. Even if the wells only produce 100 gpm to 200 gpm, the cost of water would be relatively low.

Additional wells in the Mill Creek drainage may also be an option. However, because of the number of wells located in the area and the volume of water already being drawn from the aquifer, any new wells may detract from the production of existing wells.

In conjunction with the 2006 Culinary Water Master Plan, Sunrise Engineering provided a Secondary Irrigation Master Plan that addresses ways to reduce the culinary water requirement by implementing a pressurized secondary irrigation system. However, the new agreement with the Conservancy District removes many of

the reasons for this type of system. Nevertheless, the implementation of a pressurized secondary irrigation system throughout the City should still be considered.

Sources in the Warm Springs area currently provide approximately 550 gpm of irrigation water to the City. The City has various options for additional sources of water for a secondary irrigation system. By replacing the current flood irrigation methods with a pressurized system, excess irrigation water that would otherwise drain into the Virgin River could be retained to supplement the culinary water system. The City also has additional capacity available from Well No. 1 that is currently providing irrigation water for the City's cemetery and ball fields. In addition, the City could utilize scalping plants in conjunction with their wastewater system improvements and reuse the filtered water for irrigation needs.

To a certain extent, conservation is a very reasonable way to reduce the overall required water source. The City has already implemented a water user rate structure with overage steps to encourage conservation (See Appendices G-I). Included in Appendix H is the Time of Day Watering Ordinance passed by the City which limits landscape irrigation in most cases between the hours of 10:00 P.M. and 8:00 A.M in order to increase irrigation efficiency.

The City should also adopt landscape requirements that will reduce irrigation demands and reduce the overall usage.

WATER SOURCE SUMMARY

Existing Surplus (2010)* = 2,616 gpm
Projected Shortage FY 2030 = (6,283) gpm

Recommendations

1. **Consider cooperative efforts with Washington County Water Conservancy District to acquire new water source capacity.**
2. **Connect into the Regional Pipeline at 3650 South and at Washington Fields Road. Coordinate with the WCWCD to install a 24" pipeline to the City boundary northeast of Coral Canyon along I-15. The City could then connect to the pipeline with a 24" pipeline to the Grapevine tank. Later, the City could continue the pipeline to Washington Parkway just south of I-15. This would allow the City to reduce demands on the Red Cliffs and Grapevine tanks. Also, the City should connect to the Regional Pipeline at Long Valley and near the landfill to supply water to proposed tanks in those locations.**
3. **Consider drilling additional wells in the Grapevine Pass Wash or other areas.**
4. **Consider implementing a pressurized secondary irrigation system which would reduce culinary demand.**
5. **Continue to encourage water conservation through water rates and education.**
6. **Review water source requirements at least every 5 years.**

***The City Council approved the Regional Water Supply Agreement, also known as the Pooling Agreement, in August of 2006. With this agreement, the Washington County Water Conservancy District agrees to provide all future culinary water to the City. The City will no longer have to acquire and develop new sources of water while this agreement is in effect.**

SECTION V
WATER STORAGE CAPACITY ANALYSIS

A. EXISTING WATER STORAGE CAPACITY

Washington City's culinary water storage capacity is identified below.

Table V.1 Washington City Water Storage

Water Storage Unit	Capacity
Red Cliffs 2.3 Million Gallon Tank	2,300,000
Red Cliffs 1 Million Gallon Tank	1,000,000
Grapevine Tank	1,000,000
Warner Ridge Tank	1,000,000
Microfiltration Plant	500,000
Washington Dam Tank	2,000,000
Total =	**7,800,000**

B. EXISTING REQUIRED WATER STORAGE CAPACITY

Water storage capacity requirements are found in the State of Utah Administrative Rules for Public Drinking Water Systems, Section R309-510. These regulations require storage for a community's culinary water system to meet one full day's use requirement for all connections in the community plus the required fire flows for a minimum of two hours.

As shown in previous sections, the historic average use per ERU in Washington City is assumed to be 425 gallons per day. Storage requirements for fire protection vary from community to community. In general, fire flow requirements are set by the local Fire Chief or are based on building size, and type of construction. The statewide minimum fire flow for one and two family dwellings under 3,600 square feet is 1,000 gpm; fire flows of 1,500 gpm or greater are required for all other buildings. The City has indicated that for planning purposes the required fire flow should be 1,500 gpm. Based on the above data Washington City storage capacity is calculated below.

Storage for average usage per ERU:

$$9{,}861 \text{ ERU's} \times \frac{425 \text{ gpd}}{\text{ERU}} = 4{,}190{,}925 \text{ gallons}$$

Storage for fire protection:

$$1{,}500 \text{ gpm} \times \frac{60 \text{ min}}{\text{hour}} \times 2 \text{ hours} = 180{,}000 \text{ gallons}$$

TOTAL EXISTING REQUIRED STORAGE = 4,370,925 gallons

The existing water storage capacity surplus or deficit is determined by subtracting the existing required water storage capacity of 4,370,925 gallons from the total available water storage capacity of 7,800,000 gallons, which yields an existing surplus of 3,429,075 gallons.

EXISTING STORAGE CAPACITY <u>SURPLUS</u> = 3,429,075 gallons

C. PROJECTED REQUIRED WATER STORAGE CAPACITY

Projected required culinary water storage capacity at the end of the planning period is determined from the same factors explained in part B above, but the projected number of culinary water ERU's is inserted into the

calculations.

Projected required storage capacity (FY 2030):

$$24{,}938 \text{ ERU's} \times \frac{425 \text{ gpd}}{\text{ERU}} = 10{,}598{,}650 \text{ gallons}$$

Storage for fire protection:

$$1{,}500 \text{ gpm} \times \frac{60 \text{ min}}{\text{hour}} \times 2 \text{ hours} = 180{,}000 \text{ gallons}$$

TOTAL PROJECTED REQUIRED STORAGE = 10,778,650 gallons

The projected water storage capacity surplus or deficit is determined by subtracting the projected required water storage capacity of 10,778,650 gallons from the total available water storage capacity of 7,800,000 gallons, which yields a projected shortage of 2,978,650 gallons at the end of the planning period.

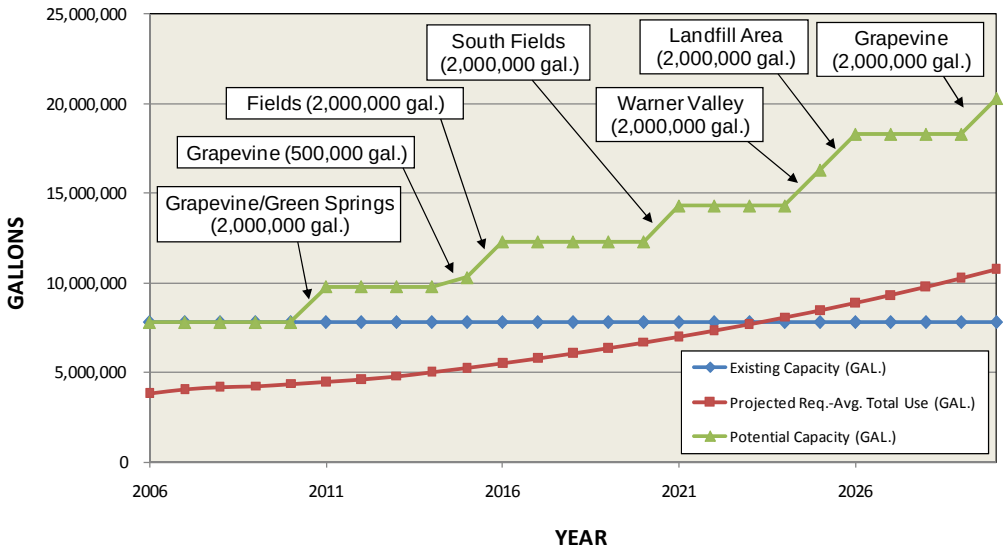
PROJECTED WATER STORAGE CAPACITY <u>SHORTAGE</u> = (2,978,650) gallons

D. RECOMMENDED WATER STORAGE CAPACITY IMPROVEMENTS

The existing required storage capacity calculations yield a surplus storage capacity of 3,429,075 gallons. Based solely on the State requirement for quantity of storage capacity and at the projected growth rate this surplus capacity should last until approximately the year 2024. The projected required storage capacity calculations yield a storage capacity shortage of 2,978,650 gallons at the end of the 20-year planning period if water usage continues at the same rate of consumption.

Additional factors play a role in the addition of new water storage facilities. The most notable factor will be the location of new growth that is expected to occur. As can be seen by the 20-year projections for storage requirements and the recommendations discussed in this section, the design location of these tanks is based more on meeting peak instantaneous flows and fire flows for developing areas than on an immediate need to increase

Figure V.1. Culinary Water Storage
Existing Capacity and Potential Capacity vs. Projected Requirements



existing storage capacity in the City.

For the most immediate needs, the City should consider a new 2 million gallon tank site located in the Grapevine service area near the existing Red Cliffs 1 Million Gallon Tank which would also serve the Green Springs and Downtown service areas. A pad has already been constructed for the tank during a past project. Also, in the next ten years, the City should consider a new 500,000 gallon tank in the Grapevine service area north of I-15 to serve the area near the existing Grapevine Tank, and a 2 million gallon tank in Long Valley (Fields Service Area) in conjunction with development of the Southern Corridor.

In addition to the tanks previously mentioned, during the next 20 years, the City should also plan on new tank sites near the landfill, in the South Fields area, Warner Valley, and another near the Grapevine Tank. These should all be 2 million gallons in size.

Based on the growth densities projected by the City's General Plan at buildout, there will also be a need for additional storage capacity at the specified amounts in the following service areas: 3.7 million gallons in the Grapevine service area, 1 million gallons in the Landfill service area, 500,000 gallons in the Fields service area, and 2.3 million gallons in the Warner Valley service area.

WATER STORAGE SUMMARY

Existing Surplus = 3,429,075 Gallons
Projected Shortage FY 2030 = (2,978,650) Gallons

Recommendations

1. **Recognize the need for new storage facilities in the areas where new growth occurs. Likely locations for future tanks over the next 10 years will be adjacent to the existing 1 million gallon tank in Red Cliffs area, north of I-15 in the Grapevine area near the existing well supply lines, and Long Valley. Additional locations for future tanks in the next 20 years include South Fields south of the existing Warner Ridge tank, the Landfill Area, Warner Valley on Warner Ridge, and Grapevine Pass. The table below summarizes future storage needs.**
2. **Other future storage tank requirements will also be driven by growth in the following areas at buildout:**
   - **i. Grapevine Service Area (3.7 Million Gallons)**
   - **ii. Landfill Service Area (1 Million Gallons)**
   - **v. Fields Service Area (500,000 Gallons)**
   - **vii. Warner Valley Service Area (2.3 million Gallons)**
3. **Consider implementing a pressurized secondary irrigation system which would reduce culinary demand .**
4. **Continue to encourage water conservation through water rates and education.**
5. **Review water storage requirements at least every 5 years**

Future Storage Requirements in Washington City

Service Area	20 Year Growth	Additional Storage at Buildout
Grapevine	4.5 Million Gallons	3.7 Million Gallons
Green Springs		
Downtown		
Landfill	2 Million Gallons	1 Million Gallons
Fields	2 Million Gallons	0.5 Million Gallons
South Fields	2 Million Gallons	-
Warner Valley	2 Million Gallons	2.3 Million Gallons
Total Recommended Additional	**12.5 Million Gallons**	**7.5 Million Gallons**
Capacity After Additional	**20.3 Million Gallons**	**27.8 Million Gallons**
Total Capacity Required	**13.6 Million Gallons**	**27.5 Million Gallons**
Surplus Storage	**6.7 Million Gallons**	**0.3 Million Gallons**

SECTION VI
WATER TREATMENT REQUIREMENTS

A. GENERAL REQUIREMENTS

The State of Utah Administrative Rules for Public Drinking Water Systems, in accordance with the National Safe Drinking Water Act, have adopted "primary" regulations for the protection of public health, and "secondary" regulations related to taste and aesthetics. The regulations recommend that all culinary water sources have provisions for continuous disinfection.

B. EXISTING TREATMENT FACILITIES

Washington City has chlorination facilities to treat all of the City's existing wells to ensure that the culinary water meets minimum requirements. Water from the Mill Creek well field is pumped through the chlorination facilities at the Red Cliffs 1 Million-Gallon and 2.3 Million-Gallon tanks. Water from the Grapevine Wells is pumped into an existing chlorination facility at the Grapevine Tank. The Microfiltration Water Treatment Plant treats water from Quail Creek Reservoir and has a current treatment capacity of approximately 2,100 gpm. The raw water is pre-strained, filtered, and then chlorinated before being pumped into the culinary water system.

C. RECOMMENDED WATER TREATMENT FACILITY IMPROVEMENTS

As previously discussed in this plan, the City has recently joined an agreement in which, in conjunction with development of new sources, the Conservancy District will provide future treatment facilities for the City. If the City were to drill new wells, the City would be required to provide the treatment facilities for the water being pumped.

SECTION VII
WATER DISTRIBUTION SYSTEM ANALYSIS

A. EXISTING DISTRIBUTION SYSTEM ANALYSIS

The State of Utah Administrative Rules for Public Drinking Water Systems, Section R309-510, requires distribution systems to be sized to supply peak day flows with a fire flow, while maintaining a minimum system pressure of 20 psi. The State guidelines specify that a pressure of 30 psi be maintained under peak instantaneous demands. The system is also required to provide 40 psi under peak day demands. As a general guideline, it is recommended that pressures be maintained between 50 and 90 psi during normal system operations. The regulations require a minimum fire flow of 1,000 gpm for residential buildings less than 3,600 square feet and 1,500 gpm for all others, as discussed in Section V. Washington City has identified 1,500 gpm as a goal for all hydrants throughout the city.

The experience of Washington City and other southwest Utah communities has shown that the peak instantaneous flow can be much higher than state guidelines might indicate. The climate and irrigation needs along with public service announcements tend to promote early morning irrigation by the majority of users at the same time. This is accounted for by using a multiplication factor of 1.5 in the calculation to determine the peak instantaneous outdoor demand. As a community grows in size, the peaks and valleys of the demands on a system tend to even out. Table VII.1 is used to estimate peaking factors for Washington City at existing and future demands. The chart estimates peaking factors assuming that current water usage trends continue. New subdivisions should be required to use the peaking factors presented in this master plan in planning the water lines throughout the subdivision.

As stated in the source capacity analysis, peak day flows are equal to twice the average day flow.

Existing Peak Day Demand:

$Q_{Peak\ Day}$ = 2,910 X 2 = **5,820** gpm

Existing Total Peak Day Demand:

$Q_{Total\ Peak\ Day} = Q_{Peak\ Day} + Q_{Fire\ Flow}$
= 5,820 + 1,500 = **7,320 gpm**

Existing Peak Instantaneous Demand:

$Q_{Peak\ Instantaneous\ (Indoor)} = 10.8 \times N^{0.64}$
(N = Number of ERU's)

= 10.8 X (9,861) $^{0.64}$ = **3,886 gpm**

$Q_{Peak\ Instantaneous\ (Outdoor)}$ =1.5 X No. ERU's X 0.10 Irrig. Acres/ERU X Zone 6 Factor

= 1.5 X 9,861 ERU's X 0.10 Acres/ERU X 9.8 gpm/Acre = **14,496 gpm**

$Q_{Peak\ Instantaneous\ (Total)}$ = **18,382 gpm**

The resulting peaking factor is **6.3**, which is determined by dividing the existing peak instantaneous demand by the average day demand.

As discussed under storage requirements in Section V, the City has indicated that the design fire flow is 1,500 gpm. The City's existing system and all projected improvements recommended for the distribution system will be analyzed and designed to a minimum fire flow of 1,500 gpm.

Table VII.1 Distribution System Peaking Factor Analysis-Indoor +Outdoor Use

		Peak Instantaneous Demand			Historic Data		State Guidelines Average	
Year	No. ERU's	Indoor Use (gpm)	Outdoor Use (gpm)	Total Use (gpm)	Average Use (gpm)	Peaking Factor	Average Use (gpm)	Peaking Factor
2002	6,037	2,839	8,874	11,713	1,782	**6.6**	2,897	4.0
2003	5,904	2,799	8,679	11,478	1,742	**6.6**	2,833	4.1
2004	5,979	2,821	8,789	11,611	1,765	**6.6**	2,869	4.0
2005	8,272	3,473	12,160	15,633	2,441	**6.4**	3,969	3.9
2006	8,633	3,569	12,691	16,260	2,548	**6.4**	4,143	3.9
2007	9,171	3,710	13,481	17,191	2,707	**6.4**	4,401	3.9
2008	9,464	3,785	13,912	17,697	2,793	**6.3**	4,542	3.9
2009	9,574	3,813	14,074	17,887	2,826	**6.3**	4,594	3.9
2010	9,861	3,886	14,496	18,382	2,910	**6.3**	4,732	3.9
2011	10,157	3,961	14,931	18,891	2,998	**6.3**	4,874	3.9
2012	10,462	4,036	15,379	19,415	3,088	**6.3**	5,020	3.9
2013	10,880	4,139	15,994	20,132	3,211	**6.3**	5,221	3.9
2014	11,424	4,270	16,793	21,063	3,372	**6.2**	5,482	3.8
2015	11,995	4,405	17,633	22,038	3,540	**6.2**	5,756	3.8
2016	12,595	4,545	18,515	23,060	3,717	**6.2**	6,044	3.8
2017	13,225	4,689	19,441	24,130	3,903	**6.2**	6,346	3.8
2018	13,886	4,838	20,412	25,251	4,098	**6.2**	6,663	3.8
2019	14,581	4,992	21,434	26,426	4,303	**6.1**	6,997	3.8
2020	15,310	5,150	22,506	27,656	4,518	**6.1**	7,347	3.8
2021	16,075	5,313	23,630	28,944	4,744	**6.1**	7,714	3.8
2022	16,879	5,482	24,812	30,294	4,982	**6.1**	8,100	3.7
2023	17,723	5,656	26,053	31,709	5,231	**6.1**	8,505	3.7
2024	18,609	5,835	27,355	33,190	5,492	**6.0**	8,930	3.7
2025	19,539	6,020	28,722	34,742	5,767	**6.0**	9,376	3.7
2026	20,516	6,211	30,159	36,370	6,055	**6.0**	9,845	3.7
2027	21,542	6,408	31,667	38,075	6,358	**6.0**	10,337	3.7
2028	22,619	6,611	33,250	39,861	6,676	**6.0**	10,854	3.7
2029	23,750	6,821	34,913	41,734	7,010	**6.0**	11,397	3.7
2030	24,938	7,037	36,659	43,696	7,360	**5.9**	11,967	3.7

The existing Washington City culinary water distribution system has been modeled, using the computer program H20Net® by MWHSoft. The main network of Washington City's distribution system generally appears to be providing good service to all of the connections. At the existing peak day demand, the model shows that nearly all of the junctions in the system are able to produce the required fire flows. A few hydrants at the higher elevations and at the end of pipes with diameters smaller than 8" produce more than a 1,000 gpm fire flow, but do not meet the City goal of 1,500 gpm. Also, the pressures modeled on the north ends of Highland Parkway and Horizon Parkway are slightly below the 30 psi required during peak instantaneous demand.

B. PROJECTED DISTRIBUTION SYSTEM ANALYSIS

The projected distribution system analysis is performed using the same assumptions as used in the existing system analysis, except that the projected number of connections for year 2030 is inserted into the calculations.

Projected Peak Day Demand (FY 2030):

$Q_{Peak\ Day}$ = 7,360 X 2 = 14,720 gpm

Projected Total Peak Demand:
$Q_{Total\ Peak\ Day} = Q_{Peak\ Day} + Q_{Fire\ Flow}$
= 14,720 + 1,500 = **16,220 gpm**

Projected Peak Instantaneous Demand:

$Q_{Peak\ Instantaneous\ (Indoor)} = 10.8 \times N^{0.64}$
(N = Number of ERU's)
= 10.8 X (24,938) $^{0.64}$ = **7,037 gpm**

$Q_{Peak\ Instantaneous\ (Outdoor)}$ = 1.5 X No. ERU's X 0.10 Irrig. Acres/ERU X Zone 6 Factor
= 1.5 X 24,938 ERU's X 0.10 Acres/ERU X 9.8 gpm/Acre = **36,659 gpm**

$Q_{Peak\ Instantaneous\ (Total)}$ = **43,696 gpm**

The resulting peaking factor is **5.9**, which is determined by dividing the projected peak instantaneous demand by the average day demand.

C. RECOMMENDED DISTRIBUTION SYSTEM IMPROVEMENTS

From the previous water master plans have come several recommendations to enable the distribution to meet state guidelines for minimum system pressure. Of those, the following have already been implemented:

Recently Completed

1. Installed a 16" line from the Warner Valley Booster Pump to the Majestic View Subdivision and installed a 16" line from the line located in Washington Dam Road continuing on to the new tank site south of Washington Dam Road. (**Completed 2004**)
2. Revamped the pressure zones in the Fields to provide higher pressure to developments that have expanded into higher elevations such as: Majestic View, and Rio Virgin subdivisions. (**Completed 2004**)
3. In conjunction with the new I-15 off ramp at mile marker 13, a 16" line was installed to connect the Red Cliffs 1,000,000-Gallon Tank and the Grapevine Tank to create an additional supply line across I-15. SITLA installed a 12" line from the freeway to Telegraph Road. (**Completed 2005**)
4. Constructed a 16" line from the Red Cliffs 2.3 Million-Gallon Tank to increase the capacity of water from the tank to the system. (**Completed 2005**)
5. Expanded the capacity of the supply line from Quail Booster Station to the Microfiltration Plant from 12” to 20” for future treatment expansion and irrigation requirements. (**Completed 2006**)
7. Installed a 16" distribution line that follows the planned path of a future major roadway north of the City and completes a loop between the existing 16" line from the Red Cliffs 2,300,000-Gallon Tank, the exisitng 12” line from the 1,000,000-Gallon Tank, the new development to the north of Green Springs, and the existing line in Fairway Drive. (**Completed 2008**)
6. Replaced old lines in town with mainly 8" PVC C900 and hydrants as needed. Upsized the line in Telegraph St. from 300 East to Washington Parkway to 12”. These improvements were necessary to provide increased flowing capacity by upsizing lines and creating loops. Improvements include those required to meet State regulations and meet fire flow and minimum pressure standards. This project was broken into phases, the names and locations of which are broken down below:
   - Buena Vista - North of I-15 in Green Springs area. **(Completed 2007)**
   - Telegraph North IIA - North of Telegraph St. mainly between 300 West

and Main Street. **(Completed 2008)**

- Telegraph North IIB - North of Telegraph St. mainly between Main Street and 300 East. **(Completed 2008)**
- Telegraph South - South of Telegraph St. mainly between 200 West and 300 East. **Completed 2009)**
- East Side Replacements—East of 300 East between Park View Dr. and Palo Verde Dr. and along Telegrpah St. almost to Washington Parkway. **(Completed 2009)**
- Telegraph & 300 East—300 East from 200 South to Telegraph St. and Telegraph St. from 200 West to 300 East. **(Completed 2009)**

The following improvements are recommended:

The following policies for developers should be implemented as growth occurs:

1. **Require developers to construct water transmission lines the recommended sizes and locations as shown on the map of the water distribution system model for this plan. Particularly, developers should be required to install a 10" line that connects from the pipeline in the intersection of Wiltshire St. and Green Springs Dr. to the pipeline in Georgetown Dr. at approximately the intersection with Potomac Ave. Developers should also be required to install an 8" line from the new pipeline in Buena Vista Boulevard west of the PRV to the East End of Sun Dusk Ln.**
2. **Maintain a policy requiring all new development to install 8" minimum line and to loop their developments back into the City's network, and a secondary irrigation system where potential exists.**
3. **Maintain a policy requiring all new development to perform a fire flow analysis before approval as will most likely be required by new state regulations. If the fire flow analysis**

shows a deficiency, the developer should be required to construct sufficient storage at an appropriate elevation to provide fire protection.

The following additional improvements are anticipated to be needed over the next 10 years, but should be implemented when appropriate:

1. **Construct 16" transmission line from the proposed tank in the grapevine service area at Red Cliffs to the intersection of Wiltshire St. and Green Springs Dr.**
2. **Coordinate with WCWCD to install a 24" pipeline to the City boundary northeast of Coral Canyon along I-15. Construct 24" line from the City boundary to the Grapevine tank.**
3. **Construct 12" transmission line from the proposed 500,000 gallon tank north of I-15 in the Grapevine service area to proposed developments near the existing Grapevine tank. Convert the existing 8"**

supply line from the Grapevine wells into a supply line from the proposed 24" line near Grapevine tank to the proposed 500,000 gallon tank north of I-15 and from the Grapevine wells to the proposed 500,000 gallon tank.

4. Construct 16" transmission line and 12" supply line to and from the proposed tank site in Long Valley. The supply line will supply water to the proposed tank from the future line in the Southern Corridor.
5. Convert the existing 12" distribution line from the Warner Ridge tank to a supply line to the existing Warner Ridge tank. The Warner Ridge tank would be supplied by both of the existing 12" and 10" lines. Construct 16" transmission line from Warner Ridge tank to the point on Warner Valley Rd. where a future transmission line is anticipated from a future tank (South Fields 2MG Tank—20 year recommended improvement).

Construct a 20" line from that point on Warner Valley Rd. to Washington Fields Rd. Construct 16" transmission line from intersection of Warner Valley Road and Washington Fields Road to existing 16" line near Washington Fields Rd.

6. Construct 8" pipeline between Windsor Dr. and Washington Parkway. Pipe should connect below the southern PRV station on Washington Parkway.
7. Construct 16" transmission pipeline from Grapevine tank to the intersection of Highland Parkway and Crown Ave.
8. Construct PRV station at Lion's head Dr.
9. Construct 8" pipeline in Seminole Way from just south of Walkara Cv. To just north of Chinook Dr. Construct 8" pipeline from proposed line in Seminole Way to existing 8" line in Indian Springs Dr. Construct PRV station in proposed line to Indian Springs Dr. Construct PRV station near intersection of Apache Dr. and Riveredge Rd.
10. Connect from WCWCD line near 3650 South to the pipeline and high pressure pipeline at 3650 South. This will require a PRV station to connect to both lines.
11. Connect to the WCWCD line at Washington Fields Rd.

The following improvements are anticipated to be needed over the next 20 years, but should be implemented when appropriate:

1. Construct 20" supply line from the Sand Hollow Regional Pipeline at 3650 South to near the existing Warner Ridge tank. Continue with a 10" supply line to the existing Warner Ridge tank and a 16" supply line to the proposed 2 million gallon South Fields Tank. Construct 16" transmission line from proposed South Fields Tank to proposed 20" transmission line in Warner Valley Rd. (10-yr recommended improvement).
2. Construct a 12" supply line from the proposed South Fields Tank to the

proposed 2 million gallon tank in the Warner Valley Service Area. Construct a 16" transmission line from the proposed 2 million gallon tank in the Warner Valley Service Area to the area in Warner Valley where elevations are such that water can be delivered to new developments at the required pressures.

3. **Construct 16" supply and transmission lines to and from the proposed tank site located near the landfill road. The supply line will supply water to the proposed tank from the Sand Hollow Regional Pipeline.**
4. **Construct 24" transmission line from the 24" line proposed in the 10-year improvements at Grapevine tank to the east of the PRV located near Washington Parkway and I-15.**

With the implementation of the recommended improvements, the majority of the coverage area of the culinary water system will meet the City goal of 1,500 gpm fire flow during peak day demands. However, a few neighborhoods at the highest elevations and at the end of long stretches of 6" lines would not be able to provide a 1,500 gpm fire flow without additional distribution improvements or strategically placed fire protection tanks. The City could look into constructing 8" pipelines to replace the existing 6" pipelines in areas where fire flows of 1,500 gpm cannot be achieved as a result of the smaller pipes. These pipelines include the 6" pipeline in Comanche Cir., the 6" pipeline in Red Ledge Rd., the 6" pipeline just south of Meadow Lane, and the 6" pipeline along the north edge of Canyon Breeze RV Resort.

SECTION VIII
SUMMARY OF RECOMMENDED CULINARY WATER SYSTEM IMPROVEMENTS

A. RECOMMENDED IMPROVEMENTS

Based on the findings from Sections III - VII, showing requirements for growth projected over the next 20 years, it is recommended that the City proceed to implement the following recommended improvements in anticipation of increased system demands due to new growth. After modeling the system for projected flows over the next 20 years, the following summarizes the improvements recommended for the various aspects of the culinary water system.

Water Rights

1. Coordinate with the Conservancy District for future water rights.
2. Consider implementing landscape requirements.
3. Consider implementing a pressurized secondary irrigation system.
4. Continue to encourage water conservation through water rates and education.
5. Review water rights at least every 5 years.

Water Storage Capacity

1. Provide additional storage in areas as new growth occurs. The first tank sites likely to be required will be in the Red Cliffs area and Grapevine area.
2. In the future, as growth occurs, additional tanks will be required in Long Valley, South Fields, Warner Valley, near the landfill, and Grapevine.
3. Review water storage requirements at least every 5 years.

Water Treatment

1. As the City grows, additional treatment facilities will be required. Such treatment will be in conjunction with the WCWCD.
2. If the City were to drill new wells, the City would be required to provide additional treatment facilities.

Water Source Capacity

1. Coordinate with WCWCD for future source requirements.
2. Connect into the Regional Pipeline at 3650 South and at Washington Fields Road. Coordinate with the WCWCD to install a 24" pipeline to the City boundary northeast of Coral Canyon along I-15. The City could then connect to the pipeline with a 24" pipeline to the Grapevine tank. Later, the City could continue the pipeline to Washington Parkway just south of I-15. This would allow the City to reduce demands on the Red Cliffs and Grapevine tanks. Also, the City should connect to the Regional Pipeline at Long Valley and at the Landfill Area to supply water to proposed tanks in those locations.
3. Consider drilling additional wells in the Grapevine Pass Wash or other areas.
4. Consider implementing a pressurized secondary irrigation system.
5. Continue to encourage water conservation through water rates and education.
6. Review water source requirements at least every 5 years.

Distribution System

1. Require developers to install lines at the sizes and locations recommended by the water distribution model.
2. Maintain policies requiring new development to install 8" minimum line and to loop their developments back into the City's network, and to perform a fire flow analysis before approval.
3. Construct 16" transmission line from proposed tank site at Red Cliffs to Green Springs Dr.
4. Construct 24" pipeline from the City boundary near Coral Canyon to the Grapevine tank and later to Washington Parkway near I-15. Later, extend the 24" line to Washington Parkway near I-15.
5. Construct 12" transmission line from proposed 500,000 gallon tank at Grapevine and convert existing supply line from the Grapevine wells to supply water to the proposed tank from near the existing Grapevine tank.
6. Construct 16" transmission line and 12" supply line to and from the proposed tank site in Long Valley.
7. Construct transmission line (16" & 20") from the existing Warner Ridge tank. Convert existing 12" transmission line from the existing Warner Ridge tank to a supply line to the existing Warner Ridge tank. Later, construct 16" transmission line from proposed South Fields tank. Construct a 20" supply line to the proposed South Fields tank and Warner Ridge tank. Also, construct a 12" supply line and 16" transmission line to and from the proposed Warner Valley tank.
8. Construct 16" supply and transmission lines to and from the proposed tank site at the Landfill Area.
9. Complete the other recommended miscellaneous improvements.
10. The City could replace 6" lines with 8" lines in areas not meeting fire flow requirements.

B. ENGINEER'S OPINION OF PROBABLE COST

Engineer's opinions of probable cost for the recommended culinary water improvements are provided in Appendix C. A possible timeline for the projects is found at the bottom of the Opinions of Probable Cost and on Line 118 of the Cashflow Spreadsheet in Appendix D and summarized below in Table VIII.1. Because the impact fee analysis is only evaluated for the 10-year improvements, an opinion of probable cost is not included for the recommended improvements beyond 10 years.

Included in the Opinion of Probable Cost for each project are all anticipated construction costs, a contingency budget, and a budget for all other normal project costs such as survey, administration, engineering, legal services, fiscal costs, rights-of-way, etc. **Please note that the date of the Opinion of Probable Cost is Feb. 2010.**

Table VIII.1 Recommended Improvements Opinion of Probable Cost (Date 08/2006)

Year	Description	Opinion of Probable Cost
Underway	City Water Dept. Yard	$2,000,000
2011	Grapevine/Green Springs Tank & Pipeline	$2,871,000
2014	Connect to WCWCD line along southern edge of I-15	$2,062,000
2015	Grapevine Tank (North of I-15) & Pipeline	$2,030,000
2016	Long Valley Tank & Pipelines	$2,728,000
2017	South Fields Pipelines	$1,375,000
2011-2020	Miscellaneous Improvements	$1,126,700
2021	Warner Valley Tank, Pipelines, & Booster Pump	
2026	Landfill Area Tank & Pipelines	
2028	Grapevine Tank	

Figure VIII.1 shows the location of future projects for the culinary water system.

C. BUILDOUT PROJECTIONS

This master plan is a 20-year plan, designed to consider the projected growth and required demands for the City's culinary water system over the next 20 years. To give an idea of where the system is headed beyond the 20-year plan, we have used the General Plan to estimate what the storage and source capacity requirements will likely be at buildout. Figure VIII.2 shows five general regions of the City and gives an approximation of the source and storage requirements for each region. These boundaries are a combination of geographic areas and current pressure zones for the water system. It should be understood that source and storage is shared between these regions and the figure is only shown to illustrate where growth is expected to occur. While the Conservancy District is responsble to get water to the City, the City is responsible to get the water from the District's pipelines to the various tanks in the City.

Future Projects
Figure VIII.1

NORTH

SCALE
0 2000 4000
HORIZ: 1" =4000'

Grapevine Tank (500,000 gallons) Elevation 3468 (10–yr)

24" Transmission Line (10–Year)

12" Transmission Line (10–yr)

Red Cliffs Tank (2MG) Elevation 3316 (10–yr)

Grapevine Tank (2MG) Elevation 3316 (20–yr)

16" Transmission Line (10–yr)

16" Transmission Line (10–yr)

24" Transmission Line (20–Year)

16" Transmission Lines (20–yr)

PRV Station in Lion's Head Dr. (10–yr)

16" Supply Line (20–yr)

Landfill Area Tank (2MG) Elevation 3034 (20–yr)

8" Distribution Line at Windsor Dr. (10–yr)

PRV Station (10–yr)

8" Distribution Lines (10–yr) Seminole Way & Indian Springs Dr.

PRV Station (10–yr)

Connect to Regional Pipeline at Washington Fields Road (10–yr)

Long Valley Tank (2MG) Elevation 3100 (10–yr)

12" Supply Line (10–yr)

16" Transmission Line (10–yr)

Connect to Regional Pipeline at 3650 South (20–yr)

16" Transmission Line (10–yr)

20" Supply Line (20–yr)

20" Transmission Line (10–yr)

10" Supply Line (20–yr)

16" Transmission Line (20–yr)

16" Transmission Line (10–yr)

South Fields Tank (2MG) Elevation 3038 (20–yr)

12" Supply Line (10–yr)

16" Transmission Line (20–yr)

12" Supply Line (20–yr)

Warner Valley Tank (2MG) Elevation 3300 (20–yr)

LEGEND:

- 10 YR. RECOMMENDED – 8"
- 10 YR. RECOMMENDED – 10"
- 10 YR. RECOMMENDED – 12"
- 10 YR. RECOMMENDED – 16"
- 10 YR. RECOMMENDED – 20"
- 10 YR. RECOMMENDED – 24"
- 20 YR. RECOMMENDED – 8"
- 20 YR. RECOMMENDED – 10"
- 20 YR. RECOMMENDED – 12"
- 20 YR. RECOMMENDED – 16"
- 20 YR. RECOMMENDED – 20"
- 20 YR. RECOMMENDED – 24"

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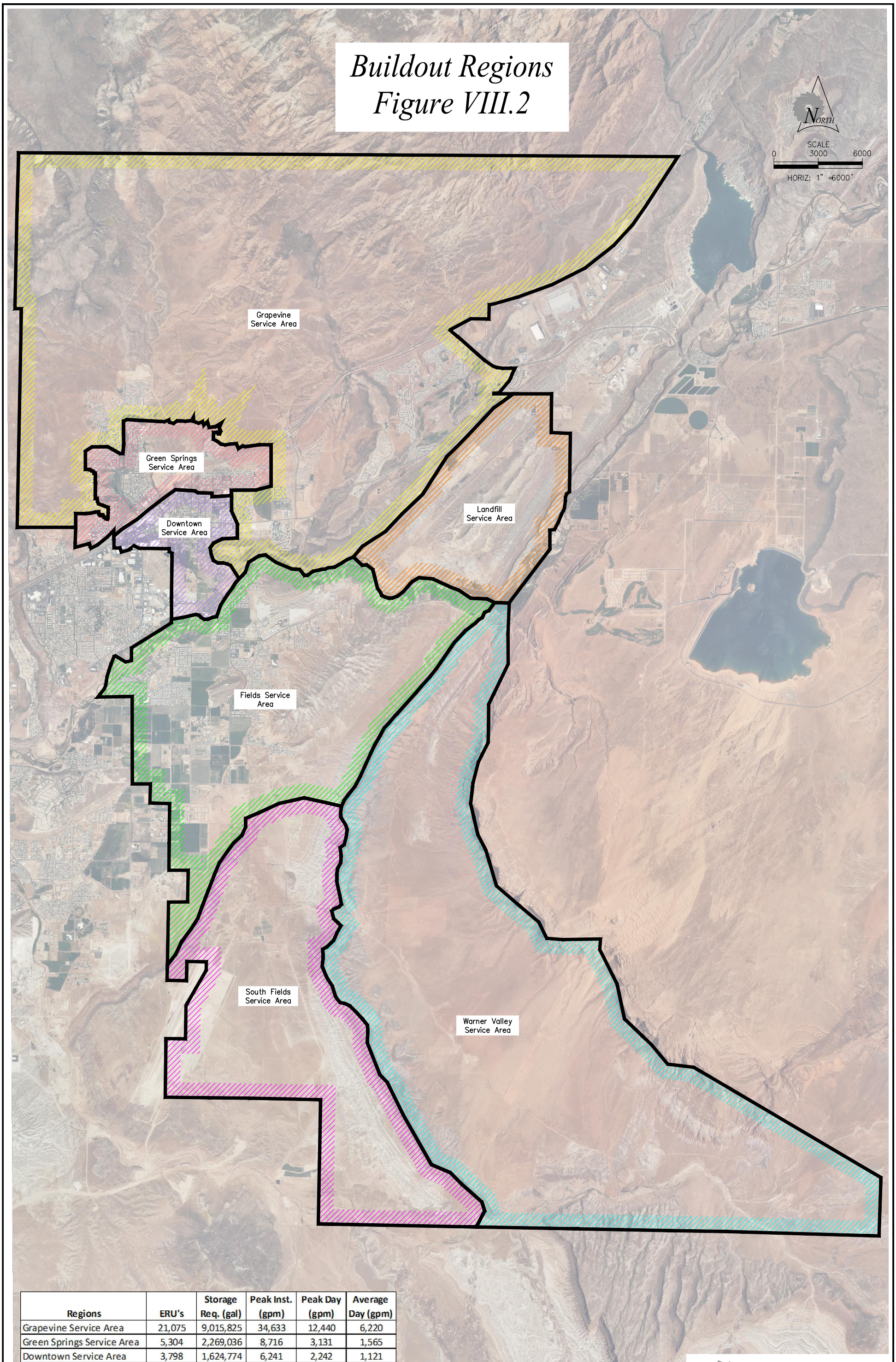
Buildout Regions
Figure VIII.2



Regions	ERU's	Storage Req. (gal)	Peak Inst. (gpm)	Peak Day (gpm)	Average Day (gpm)
Grapevine Service Area	21,075	9,015,825	34,633	12,440	6,220
Green Springs Service Area	5,304	2,269,036	8,716	3,131	1,565
Downtown Service Area	3,798	1,624,774	6,241	2,242	1,121
Landfill Service Area	6,754	2,889,342	11,099	3,987	1,993
Fields Service Area	10,274	4,395,188	16,884	6,065	3,032
South Fields Service Area	7,297	3,121,636	11,991	4,307	2,154
Warner Valley Service Area	9,849	4,213,374	16,185	5,814	2,907
Total:	64,351	27,529,175	105,750	37,985	18,992

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D. COMPLETED PROJECTS

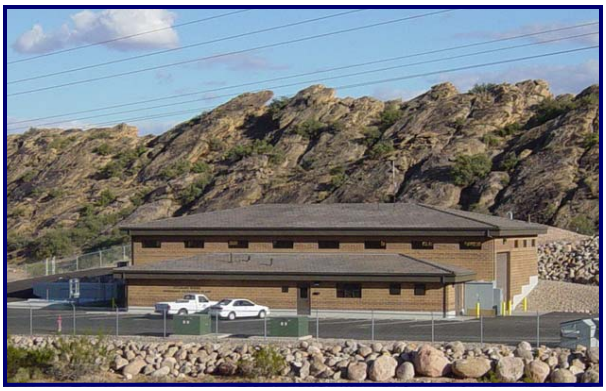
Red Cliffs 1 MG Tank

Southern Transmission Pipeline

Red Cliffs 2.3 MG Tank

Irrigation Pipeline & Booster Pump

Grapevine Well #2



Microfiltration Plant

Washington Dam 2 MG Tank and Pipelines

Sand Hollow Booster Pump Project

Washington Dam 2 MG Tank and Pipelines

Grapevine Loop Replacement Projects

Quail Lake Pipeline

Buena Vista Pipeline Replacements

Telegraph North (Phase IIA) Water Improvements

Telegraph South (Phase III) Water Improvements

Telegraph North (Phase IIB) Water Improvements

East Side Replacements (IV) Water Improvements

Red Cliffs Water Transmission Pipeline

Telegraph & 300 East Streets (V) Water Improvements

SECTION IX
WATER RATE ANALYSIS

A. GENERAL

Generally water rates are a combination of base rates and overage rates. Typically, a base amount of water is provided for the base rate charge. The base rate is charged to all connections in the system whether or not water is used. Overage rates are normally set to encourage water conservation. The City has adopted the rate structure shown in Table IX.1. The overage step structure was established to promote conservation and reward low water users. Also included in Table IX.1 is the drought management plan staging. The rate increases specified for stages 1 through 4 were established to correlate with various degrees of urgency as dictated by drought conditions in order to reduce peak usage by the indicated percentages.

Table IX.1 Existing Water Rate Structure

Base Rate $ 17.50 /ERU
Includes 0 Gallons

Overage Steps		Cost / 1,000 Gallons			
		Stage 1	Stage 2	Stage 3	Stage 4
0	4,999	$ 0.90	$ 0.99	$ 1.13	$ 1.35
5,000	9,999	$ 1.00	$ 1.10	$ 1.25	$ 1.50
10,000	14,999	$ 1.10	$ 1.21	$ 1.38	$ 1.65
15,000	19,999	$ 1.20	$ 1.32	$ 1.50	$ 1.80
20,000	24,999	$ 1.30	$ 1.43	$ 1.63	$ 1.95
25,000	29,999	$ 1.40	$ 1.54	$ 1.75	$ 2.10
30,000	34,999	$ 1.55	$ 1.71	$ 1.94	$ 2.33
35,000	39,999	$ 1.70	$ 1.87	$ 2.13	$ 2.55
40,000	and Over	$ 1.85	$ 2.04	$ 2.31	$ 2.78

Drought Management Plan Staging

Stage	Rate Increase	Description
1	-	Normal usage / Normal rate
2	10%	Reduction goal is 5-10% of peak use
3	25%	Reduction goal is 10-25% of peak use
4	50%	Reduction goal is 25-60% of peak use

B. AVERAGE RATE DETERMINATION FOR FY 2011

Table IX.2 shows a method used to determine the average water rate per billed ERU, which should be divided between all system customers.

As described in Section II an ERU is defined as a residential connection or a commercial connection using 425 gallons per day, including both indoor and outdoor water use. If a commercial connection uses 850 gallons per day it would then consist of 2 ERU's and so on. The average rate analysis uses the number of billed ERU's to determine the average rate per billing ERU. The number of billed ERU's is equivalent to the number of units shown on the City's billing summaries and represents the number of ERU's used by the City for billing purposes.

B.1. FY 2011 ANALYSIS

Table IX.2 uses data from the Cash Flow Projection in Appendix D for FY 2011.

Annual revenues must be sufficient to cover the expenses incurred by the construction, maintenance, and administration of the water system. These expenses include debt service, insurance, utilities, personnel salaries, system maintenance, legal and professional fees, and other miscellaneous items. It is strongly recommended that the water department maintain a water system fund for normal operation, as well as a funded depreciation account to provide the dollars necessary for replacement and

TABLE IX.2 AVERAGE RATE ANALYSIS
WASHINGTON CITY

Feb-10

FY 2010-11 Expenses	%		Fixed	%		Variable		Total
Salaries & Wages	25%	$	148,700	75%	$	446,100	$	594,800.33
Employee Benefits	25%	$	77,455	75%	$	232,366	$	309,821.69
Overtime	0%	$	-	100%	$	12,699	$	12,699.03
Memberships / Subscriptions	0%	$	-	100%	$	1,707	$	1,707.05
Bank Trust Fees	100%	$	22,468	0%	$	-	$	22,468.37
Conference / Travel	0%	$	-	100%	$	12,594	$	12,594.18
Office Supply / Exp / Postage	25%	$	3,329	75%	$	9,987	$	13,316.54
Equipment/Supply/Maintenance	25%	$	6,703	75%	$	20,109	$	26,812.13
Buildings and Grounds	75%	$	21,214	25%	$	7,071	$	28,285.53
Fuel & Oil	0%	$	-	100%	$	33,398	$	33,398.47
Telephone	0%	$	-	100%	$	10,475	$	10,474.92
Utilities	0%	$	-	100%	$	542,331	$	542,330.75
Professional & Technical Services	25%	$	18,775	75%	$	56,325	$	75,100.14
Uncollectable Accounts	100%	$	1,688	0%	$	-	$	1,688.17
Special Department Supplies	25%	$	40,079	75%	$	120,237	$	160,316.53
Cost Alloc. & Lease Payment	75%	$	-	25%	$	-	$	-
Miscellaneous	0%	$	-	100%	$	-	$	-
Equipment Purchase	0%	$	-	100%	$	87,095	$	87,095.40
Special Projects	25%	$	37,292	75%	$	111,875	$	149,166.05
Quail Lake O&M Costs	100%	$	84,000	0%	$	-	$	84,000.00
Quail Lake Water Purchased	50%	$	89,158	50%	$	89,158	$	178,315.83
Sand Hollow Water Purchased	50%	$	250,000	50%	$	250,000	$	500,000.00
Pooling-Cost of Water ($0.65/1,000 gal)	50%	$	-	50%	$	-	$	-
Renewal & Replacement Fund (Funded Depreciation)	50%	$	100,000	50%	$	100,000	$	200,000.00
Depreciation (Unfunded)	100%	$	587,094	0%	$	-	$	587,093.55
EXISTING DEBT SERVICE NOT IMPACT FEE ELIGIBLE								
Water Resources Bonds 1993A & C, 0%	100%	$	111,000	0%	$	-	$	111,000
Rural Development 1993B, 1996, 4.5%	100%	$	55,692	0%	$	-	$	55,692
P&I, RD 3.25% Loan	100%	$	14,681	0%	$	-	$	14,681
Pmt Reserve, RD	100%	$	-	0%	$	-	$	-
P&I, DWB 1.95% Loan	100%	$	-	0%	$	-	$	-
Pmt Reserve, DWB	100%	$	-	0%	$	-	$	-
Sand Hollow Pipeline	100%	$	-	0%	$	-	$	-
P&I, RD 4.25% Loan, Treatment Plant	100%	$	-	0%	$	-	$	-
Pmt Reserve, RD	100%	$	-	0%	$	-	$	-
P&I, DWB 2.59% Loan, Treatment Plant	100%	$	-	0%	$	-	$	-
Pmt Reserve, DWB	100%	$	-	0%	$	-	$	-
Water Revenue Bond 2006	100%	$	210,240	0%	$	-	$	210,240
Payment Reserve	100%	$	21,000	0%	$	-	$	21,000
Water Revenue Bond 2008	100%	$	206,880	0%	$	-	$	206,880
Payment Reserve	100%	$	20,688	0%	$	-	$	20,688
NEW DEBT SERVICE								
Total Expenses:		$	2,128,136		$	2,143,529	$	**4,271,700**

TABLE IX.2 AVERAGE RATE ANALYSIS
WASHINGTON CITY

Feb-10

OTHER INCOME (BESIDES WATER SALES)	%		Fixed	%		Variable		Total
Connection Fees	0%	$	-	100%	$	105,710	$	105,710
Other Revenue (Hydrant Meters, etc.)	0%	$	-	100%	$	192,546	$	192,546
Interest	75%	$	68,176	25%	$	22,725	$	90,901
Total Other Income:		$	68,176		$	320,981	$	389,157
Total Expenses - Total Other Income:		**$**	**2,059,961**		**$**	**1,822,548**	**$**	**3,882,543**
Total Projected System Billed ERU's in FY 2010-11			9,866			9,866		**9,866**
Monthly Cost Per Billed ERU in FY 2010-11		$	17.40		$	15.39	**$**	**32.79**
BASE AND OVERAGE RATE DETERMINATION								
Base Cost (0 Gallons)			$17.40					
Variable Cost (Avg Usage)					$	15.39		
Average Use/Billed ERU (Gal)			13,200					
Cost/1000 Gallons						$1.17		
Base Gallons*			0					
Base Cost						$0.00		
Total Base Rate								**$17.40**
Overage Gallons			13,200					
Overage Cost						$15.39		
Total Overage Rate								**$15.39**
Total Average Monthly Rate/Billed ERU								**$32.79**
WCWCD SURCHARGE								**$1.75**

* 1 Billed ERU uses approximately 13,200 gallons per month.

repair of water department facilities and pipelines. This is reflected in Table IX.2 and the Cash Flow Projection (Lines 51 & 129) in Appendix D.

Currently, the average water rate paid per billed ERU is approximately $32.52 (See the Cashflow Projection in Appendix D, Line 9). This average rate was adjusted in 2006 to account for two factors that presented themselves over the few years preceeding the rate increase. First, the City saw a significant increase in power rates which affected their annual utility bill for water system facilities. Second, the industry saw a considerable increase in the cost of PVC pipe, steel products, concrete products, etc., and construction costs in general as dictated by the market. Table IX.3 shows several rate scenarios based on the current rate structure.

C. BASE AND OVERAGE RATE DETERMINATION

The current base and overage rate structure was implemented to promote conservation and work hand-in-hand with drought management policies. This study will continue to use the same rate structure although the City may consider adjusting the structure to better facilitate rates for both the culinary and secondary water systems.

To determine a base and overage schedule, the expenses of the water system have been separated into fixed and variable expenses (Table IX.2). It is recommended that a base rate should cover the fixed expenses of a system. At the bottom of Table IX.2 is found a possible scenario for determining base and overage rates for Washington City. These rate scenarios simply identify base and overage rates that would satisfy the revenue requirements based on estimated O & M expenses and on projected water usage.

Table IX.3 Example Customer Rate Scenarios

		Existing Rate
Example Customer A:		
Usage (gallons)		7,500
Water Bill	Base	$17.50
	Overage	$7.00
	Total	**$24.50**
Example Customer B:		
Usage (gallons)		15,000
Water Bill	Base	$17.50
	Overage	$15.00
	Total	**$32.50**
Example Customer C:		
Usage (gallons)		30,000
Water Bill	Base	$17.50
	Overage	$34.50
	Total	**$52.00**
Example Customer D:		
Usage (gallons)		55,000
Water Bill	Base	$17.50
	Overage	$78.50
	Total	**$96.00**

Table IX.2 on the previous page suggests that the required average monthly rate for FY 2011 should be $32.79 per billed ERU, a slight increase from the current average water rate. This should be accounted for in the annual rate increase described in the water rate ordinance. Also, the current economic difficulties may have encouraged residents to conserve water effectively decreasing the average water rate. If, in the near future, residents revert to the

previous water use practices, the average water rate could increase as a result of increased usage. This increase could consist of a portion of, if not the entirety of, the slight increase in average water rate required.

D. FUTURE RATES

Beyond the first few years in the future, a proper water rate analysis is not feasible and usage rates are based only according to projected Cash Flow requirements. The water rate analysis for future years should be completed as projects develop. It is anticipated that future rate increases will be necessary as expenses increase due to growth and rises in costs; however, increases in growth should account for a portion of the required additional revenue.

In the event that secondary irrigation is made available within the City, the City would need to develop another rate structure for secondary irrigation water. An alternative that may be considered is to adopt a variation of the established rate structure that would work in conjunction with a secondary irrigation rate schedule. Such a water rate considers what the average residential connection should use each month for indoor use and establishes a maximum amount a residence could use before paying an excess use charge. This would be very fair because a pressurized irrigation system would be available for outdoor irrigation needs. Those who use an amount equal to or less than the established maximum would pay a base rate (such as the one in place for Washington City) plus a fair overage amount based on an established schedule. A user who uses more than the established maximum will pay a premium for any water over the maximum amount. A rate for pressurized irrigation would be set up in a similar fashion.

WATER RATE ANALYSIS SUMMARY

FY 2010 Average Rate = $32.52/ERU/Month
Est. Required FY 2011 Avg. Rate = $32.79/ERU/Month

Recommendations

1. **Continue to review annually the ERU value for commercial connections.**
2. **Water rates and fees should be reviewed by the City Council periodically to ensure that they remain abreast of actual inflation rates and costs.**
3. **Should the Conservancy District decide to provide secondary water, the City should consider possible modifications to the rate structure to compliment a potential secondary irrigation water rate.**

SECTION X
IMPACT FEES

A. IMPACT FEE

It is recommended that an impact fee should be charged to all new connections to the culinary water system. An impact fee that is charged by a community may be used to pay for the debt service associated with surplus capacity built into the system. The surplus capacity in the water system has been designed for growth, and for this reason, impact fees should pay for that portion of the debt service associated with the system surplus capacity. The impact fee should also be used to pay for the cost of improvements to the system that are required to support new growth as new connections are added to the system.

Impact fees may also be used for water rights required by future growth. As stated in Sections III & IV, a large quantity of the City's future water source capacity will come from Washington County Water Conservancy District. Although Washington City is not purchasing the water rights or constructing the source improvements directly, the City will pay indirectly through fees directed to the WCWCD. These fees will be in the form of impact, surcharge, and retail fees. Impact fees will be paid directly to the Conservancy District by developers and builders, while the surcharge and retail fees will be paid by the residents to the City, which then passes the money to the Conservancy District.

B. EXISITNG IMPACT FEES

Table X.1 shows the existing impact fees.

Table X.1 Existing Impact Fee

Connection	Impact Fee
3/4"	$2,121.00
1"	$3,499.00
1 1/2"	$7,911.00
2"	$13,893.00
3"	$31,242.00
4"	$55,507.00
6"	$124,884.00

C. PROPOSED IMPACT FEES

The eligible costs for impact fee calculation are the existing debt service from previous water improvements projects that can be attributed to new growth and the portion of the proposed water improvements project that will be constructed to accommodate new growth. The combined total cost that is due to new growth is divided by the number of new ERU's that will be added to the system during the 10-year period over which impact fees are to be analyzed. Table X.3 on the following page shows that the maximum impact fee that the City may assess each new ERU is **$2,310** per ERU. **The City has elected to continue assessing the current impact fees (see Table X.1).** For a detailed summary of the impact fee analysis, please refer to Appendix E.

The impact fee will go toward projects within the 6 year period of when it is collected as required by the State of Utah.

The impact fee analysis is for new growth only and does not include costs that would raise the existing level of service above the level of service that is supported by existing residents.

TABLE X.3

IMPACT FEE ANALYSIS

WASHINGTON CITY CULINARY WATER MASTER PLAN - FY 2010/2011

	TOTAL		
EXISTING DEBT SERVICE	**Debt to be paid from FY2010/2011 to FY2020/2011**	**Impact Fee % Eligible**	**Impact Fee Eligible**
Water Resources Bonds 1993A & C, 0%	$ 730,000	25%	$ 182,500
Rural Development 1993B, 1996, 4.5%	$ 742,560	25%	$ 185,640
P&I, RD 3.25% Loan, 2000	$ 734,040	80%	$ 587,232
P&I, DWB 1.95% Loan, 2000	$ 645,549	100%	$ 645,549
P&I, RD 4.25% Loan, Treatment Plant	$ 1,249,920	100%	$ 1,249,920
P&I, RD 4.25% Loan, Treatment Plant (Pmt Reserve)	$ 37,498	100%	$ 37,498
P&I, DWB 2.59% Loan, Treatment Plant	$ 442,677	100%	$ 442,677
Water Revenue Bond 2006	$ 2,102,400	0%	$ -
Water Revenue Bond 2006 (Pmt Reserve)	$ 210,000	0%	$ -
Water Revenue Bond 2008	$ 2,068,800	0%	$ -
Water Revenue Bond 2008 (Pmt Reserve)	$ 206,880	0%	$ -
Sand Hollow Regional Pipeline	$ 1,964,400	100%	$1,964,400
Total Cost Due to New Growth (Impact Fee Eligible)			$ 5,295,416
SELF PARTICIPATION FROM IMAPCT FEES FOR PAST PROJECT	**Total Estimated Self Participation**	**Percent Eligible from FY2010/2011 to FY2020/2011**	**Eligible Costs**
MF Plant Expansion, Supply Line, Quail BP Expansion	$ 1,210,000	60%	$ 726,000
2006-2010 Project (In Town Replacement)	$ 1,303,485	73%	$ 952,724
Total Cost in 10 yr period due to New Growth (Impact Fee Eligible)			$ 1,678,724
PROPOSED IMPROVEMENT PROJECTS (FY2011 to FY2021)	**Total Estimated Future Costs**	**Percent Eligible from FY2010/2011 to FY2020/2011**	**Eligible Costs**
Culinary Water Master Plan	$ 30,000	100%	$ 30,000
City Water Dept. New Yard	$ 500,000	100%	$ 500,000
Grapevine/Green Springs Tank and Pipeline	$ 2,871,000	81.7%	$ 2,345,607
Connect to WCWCD line along southern edge of I-15	$ 2,062,000	36.5%	$ 752,630
New Grapevine Tank (North of I-15) and Pipeline	$ 2,030,000	44.0%	$ 893,200
Long Valley Tank and Pipeline	$ 2,728,000	14.4%	$ 392,832
South Fields Pipeline	$ 1,375,000	63.2%	$ 869,000
Miscellaneous Improvements	$ 1,126,700	81.2%	$ 914,880
			$ 6,698,149
% Of New Project Cost Due to New Growth	100%		$ 6,698,149
Interest From New Debt Service			
Impact Fee Eligible Proposed Project Cost			$ 6,698,149
Total Cost Eligible For Impact Fee			**$ 13,672,289**
Projected No. of Culinary ERU's (FY 2010-2011)			10,157
Anticipated No. of ERU's - 10 Year Proj. (FY 2020-2021)			16,075
No. of New ERU's Due to Growth			**5,918**
Maximum Impact Fee = Total Eligible Cost / New ERU's			**$ 2,310** /ERU

D. WCWCD IMPACT FEES

With the City's adoption of the Regional Water Supply Agreement, new development must also pay an impact fee to the Conservancy District for the necessary source and water rights. This impact fee will be paid directly to the Conservancy District by the developer. The City should be aware that the impact fee charged by the City may only cover costs associated with getting the water from the Conservancy District's pipelines to the resident. Examples are storage tanks, transmission and distribution pipelines, and pump stations.

APPENDIX A

GROWTH & USER ANALYSIS

WASHINGTON CITY

Culinary Water Master Plan Update, September 2010

1. POPULATION DATA:

	Population	% Growth
1970 Census Population	750	
1980 Census Population	3,092	15.2%
1990 Census Population	4,198	3.1%
2000 Census Population	8,186	6.9%
U.S. Bureau of the Census Subcounty Population Estimates 2000-2008		
2001 Estimated Population	8,815	7.7%
2002 Estimated Population	9,661	9.6%
2003 Estimated Population	10,496	8.6%
2004 Estimated Population	11,558	10.1%
2005 Estimated Population	13,693	18.5%
2006 Estimated Population	15,310	11.8%
2007 Estimated Population	16,614	8.5%
2008 Estimated Population	17,716	6.6%
Growth rate experienced between 1970 & 1980		15.2%
Growth rate experienced between 1980 & 1990		3.1%
Growth rate experienced between 1970 & 1990		9.0%
Growth rate experienced between 1990 & 2000		6.9%
30-Year Historic Growth Rate (1970-2000)		8.3%

Table II.5 Growth Projections

Year	Est. Growth Rate	*Estimated Residential ERU's	*Estimated Commercial ERU's	*Estimated Total ERU's	*Estimated Total Conn.	**Estimated Population	New Conn. (i.e. Building Permits)
2006	-	7,203	1,430	8,633	7,943	15,310	659
2007	-	7,660	1,511	9,171	8,465	16,614	522
2008	-	8,001	1,463	9,464	8,821	17,716	356
2009	-	8,121	1,453	9,574	8,949	18,355	128
2010	3.0%	8,365	1,497	9,861	9,217	18,905	268
2011	3.0%	8,616	1,541	10,157	9,494	19,473	277
2012	3.0%	8,874	1,588	10,462	9,779	20,057	285
2013	4.0%	9,229	1,651	10,880	10,170	20,859	391
2014	5.0%	9,690	1,734	11,424	10,678	21,902	508
2015	5.0%	10,175	1,820	11,995	11,212	22,997	534
2016	5.0%	10,684	1,912	12,595	11,773	24,147	561
2017	5.0%	11,218	2,007	13,225	12,362	25,354	589
2018	5.0%	11,779	2,107	13,886	12,980	26,622	618
2019	5.0%	12,368	2,213	14,581	13,629	27,953	649
2020	5.0%	12,986	2,323	15,310	14,310	29,351	681
2021	5.0%	13,635	2,440	16,075	15,026	30,818	716
2022	5.0%	14,317	2,562	16,879	15,777	32,359	751
2023	5.0%	15,033	2,690	17,723	16,566	33,977	789
2024	5.0%	15,785	2,824	18,609	17,394	35,676	828
2025	5.0%	16,574	2,965	19,539	18,264	37,460	870
2026	5.0%	17,403	3,114	20,516	19,177	39,333	913
2027	5.0%	18,273	3,269	21,542	20,136	41,299	959
2028	5.0%	19,186	3,433	22,619	21,143	43,364	1,007
2029	5.0%	20,146	3,604	23,750	22,200	45,533	1,057
2030	5.0%	21,153	3,785	24,938	23,310	47,809	1,110
2031	5.0%	22,211	3,974	26,185	24,475	50,200	1,165
2032	5.0%	23,321	4,173	27,494	25,699	52,710	1,224
2033	5.0%	24,487	4,381	28,869	26,984	55,345	1,285
2034	5.0%	25,712	4,600	30,312	28,333	58,112	1,349
2035	5.0%	26,997	4,830	31,828	29,750	61,018	1,417
2036	5.0%	28,347	5,072	33,419	31,237	64,069	1,487
2037	5.0%	29,764	5,325	35,090	32,799	67,272	1,562
2038	5.0%	31,253	5,592	36,844	34,439	70,636	1,640
2039	5.0%	32,815	5,871	38,687	36,161	74,168	1,722
2040	4.0%	34,128	6,106	40,234	37,608	77,135	1,446
2041	4.0%	35,493	6,350	41,843	39,112	80,220	1,504
2042	4.0%	36,913	6,604	43,517	40,676	83,429	1,564
2043	4.0%	38,389	6,869	45,258	42,303	86,766	1,627
2044	4.0%	39,925	7,143	47,068	43,995	90,236	1,692
2045	4.0%	41,522	7,429	48,951	45,755	93,846	1,760
2046	4.0%	43,183	7,726	50,909	47,586	97,600	1,830
2047	4.0%	44,910	8,035	52,945	49,489	101,504	1,903
2048	4.0%	46,706	8,357	55,063	51,468	105,564	1,980
2049	4.0%	48,575	8,691	57,266	53,527	109,786	2,059
2050	4.0%	50,518	9,039	59,556	55,668	114,178	2,141

* Estimated ERU's and Connections are based on the data from the City's Annual Rate Table Summary for 2006 through 2009.

** Estimated Population is determined by multiplying the estimated residential ERU's by 2.26. 2.26 is the number of people per residential ERU in past years.

WASHINGTON CITY

Culinary Water Master Plan Update, September 2010

Fiscal Year	Residential ERU's	% Growth	Commercial Conn.	% Growth	Commercial ERU's	Total ERU's	% Growth
1994	2381		65			2446	
1995	2528	6.2%	70	7.7%		2598	6.2%
1996	2712	7.3%	79	12.9%		2791	7.4%
1997	2899	6.9%	93	17.7%		2992	7.2%
1998	3038	4.8%	110	18.3%		3148	5.2%
1999	-	-	-	-		-	-
2000	3,263	3.6%	435	98.9%	827	4,090	14.0%
2001	3,487	6.9%	465	6.8%	1,579	5,066	23.8%
2002	4,587	31.6%	441	-5.0%	1,450	6,037	19.2%
2003	4,763	3.8%	573	29.8%	1,141	5,904	-2.2%
2004	4,818	1.2%	712	24.3%	1,161	5,979	1.3%
2005	6,560	36.1%	724	1.7%	1,712	8,272	38.3%
2006	7,203	9.8%	740	2.2%	1,430	8633	4.4%
2007	7,660	6.3%	805	8.8%	1,511	9171	6.2%
2008	8,001	4.5%	820	1.9%	1,463	9464	
2009	8,121	1.5%	828	1.0%	1,453	9574	

10.2%	Residential Growth Rate Average 2000-2004	2.5	People Per Residential ERU (FY 2000-Census)
13.1%	Commercial Growth Rate Average 2000-2004	2.1	People Per Residential ERU (FY 2002-Est.)
		2.2	People Per Residential ERU (FY 2003-Est.)
5.5%	Residential Growth Rate Average 2005-2009	2.7-2.8	People Per Household (Mike's memory of Winston & Associates Survey)
3.4%	Commercial Growth Rate Average 2005-2009		
7,746	Average Number of Residential ERU's from 2005-2009		
798	Average Number of Commercial ERU's from 2005-2009		
3.7%	**Overall Average Growth in ERU's from 2005-2009**		
10.7%	**9-Year Water Residential ERU Growth Rate (2000-2009)**		

Billing Usage Summary Tables

MONTH	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	FY 2006
RESIDENTIAL													
Number of Customers	5,250	5,250	5,244	5,323	5,389	5,423	5,460	5,485	5,563	5,612	5,641	5,687	5,444
Number of Units	5,312	5,312	5,305	5,384	5,450	5,484	5,521	5,546	5,624	5,673	5,702	5,748	5,505
Base Amount	$ 71,595.18	$ 71,595.18	$ 71,385.87	$ 72,201.25	$ 73,290.06	$ 73,685.29	$ 74,282.08	$ 74,825.55	$ 75,532.33	$ 76,578.10	$ 77,232.87	$ 77,768.60	$ 889,972.36
Excess Amount	$ 122,950.21	$ 122,950.21	$ 137,947.98	$ 95,280.38	$ 63,995.72	$ 51,552.69	$ 29,912.01	$ 28,818.85	$ 42,630.37	$ 34,914.80	$ 70,332.18	$ 127,731.08	$ 929,016.48
Adjustments	$ 1,908.17	$ 1,908.17	$ (1,372.86)	$ (1,426.18)	$ (1,936.37)	$ (239.09)	$ (1,033.94)	$ (460.91)	$ (411.31)	$ (278.35)	$ (1,172.83)	$ (692.12)	$ (5,207.62)
Total Amount	$ 192,637.22	$ 192,637.22	$ 207,960.99	$ 166,055.45	$ 135,349.41	$ 124,998.89	$ 103,160.15	$ 103,183.49	$ 117,751.39	$ 111,214.55	$ 146,392.22	$ 204,807.56	$ 1,806,148.54
Monthly Base Rate	$ 13.48	$ 13.48	$ 13.46	$ 13.41	$ 13.45	$ 13.44	$ 13.45	$ 13.49	$ 13.43	$ 13.50	$ 13.54	$ 13.53	$ 13.47
Monthly Overage Rate	$ 23.15	$ 23.15	$ 26.00	$ 17.70	$ 11.74	$ 9.40	$ 5.42	$ 5.20	$ 7.58	$ 6.15	$ 12.33	$ 22.22	$ 14.06
Total Monthly Rate Per Unit	$ 36.26	$ 36.26	$ 39.20	$ 30.84	$ 24.83	$ 22.79	$ 18.69	$ 18.61	$ 20.94	$ 19.60	$ 25.67	$ 35.63	$ 27.34
Usage (1,000 gal)	111,503	111,503	123,170	91,475	66,877	56,634	34,955	34,274	48,758	40,448	75,408	117,922	912,927
Average monthly usage per Unit	20.99	20.99	23.22	16.99	12.27	10.33	6.33	6.18	8.67	7.13	13.22	20.52	13.82
RESIDENTIAL MULT. UNITS													
Number of Customers	32	32	32	32	32	32	32	34	32	32	32	32	32
Number of Units	1,025	1,025	1,025	1,025	1,025	1,025	1,018	1,027	1,019	1,019	1,019	1,019	1,023
Base Amount	$ 14,331.48	$ 14,331.48	$ 14,322.00	$ 14,336.00	$ 14,336.00	$ 14,336.00	$ 14,238.00	$ 14,253.10	$ 14,252.00	$ 14,252.00	$ 14,252.00	$ 14,252.00	$ 171,492.06
Excess Amount	$ 6,968.45	$ 6,968.45	$ 11,455.15	$ 8,462.30	$ 5,275.35	$ 3,149.25	$ 2,684.90	$ 2,311.35	$ 2,962.70	$ 2,695.15	$ 2,856.40	$ 6,863.90	$ 62,653.35
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (196.50)	$ (196.50)
Total Amount	$ 21,299.93	$ 21,299.93	$ 25,777.15	$ 22,798.30	$ 19,611.35	$ 17,485.25	$ 16,922.90	$ 16,564.45	$ 17,214.70	$ 16,947.15	$ 17,108.40	$ 20,919.40	$ 233,948.91
Monthly Base Rate	$ 13.98	$ 13.98	$ 13.97	$ 13.99	$ 13.99	$ 13.99	$ 13.99	$ 13.88	$ 13.99	$ 13.99	$ 13.99	$ 13.99	$ 13.98
Monthly Overage Rate	$ 6.80	$ 6.80	$ 11.18	$ 8.26	$ 5.15	$ 3.07	$ 2.64	$ 2.25	$ 2.91	$ 2.64	$ 2.80	$ 6.74	$ 5.11
Total Monthly Rate Per Unit	$ 20.78	$ 20.78	$ 25.15	$ 22.24	$ 19.13	$ 17.06	$ 16.62	$ 16.13	$ 16.89	$ 16.63	$ 16.79	$ 20.53	$ 19.07
Usage (1,000 gal)	8,588	8,588	12,593	9,475	6,831	4,354	3,801	3,505	4,416	3,925	4,204	8,566	78,846
Average monthly usage per Unit	8.38	8.38	12.29	9.24	6.66	4.25	3.73	3.41	4.33	3.85	4.13	8.41	6.43
COMMERCIAL													
Number of Customers	209	209	207	208	209	208	207	211					209
Number of Units	663	663	659	662	663	662	661	665					662
Base Amount	$ 8,866.06	$ 8,866.06	$ 8,848.00	$ 8,848.00	$ 8,854.53	$ 8,835.20	$ 8,832.65	$ 8,914.75					$ 70,865.25
Excess Amount	$ 11,632.70	$ 11,632.70	$ 16,940.73	$ 12,592.66	$ 9,317.43	$ 5,789.95	$ 20,008.65	$ 4,825.35					$ 92,740.17
Adjustments	$ -	$ -	$ -	$ (214.75)	$ -	$ -	$ -	$ (16,345.50)					$ (16,560.25)
Total Amount	$ 20,484.78	$ 20,484.78	$ 25,788.73	$ 21,225.91	$ 18,171.96	$ 14,625.15	$ 28,841.30	$ 2,605.40					$ 152,228.01
Monthly Base Rate	$ 13.37	$ 13.37	$ 13.43	$ 13.37	$ 13.36	$ 13.35	$ 13.36	$ 13.41					$ 8.92
Monthly Overage Rate	$ 17.55	$ 17.55	$ 25.71	$ 19.02	$ 14.05	$ 8.75	$ 30.27	$ 7.26					$ 11.67
Total Monthly Rate Per Unit	$ 30.90	$ 30.90	$ 39.13	$ 32.06	$ 27.41	$ 22.09	$ 43.63	$ 3.92					$ 19.16
Usage (1,000 gal)	$ 12,366.00	$ 12,366.00	$ 15,802.00	$ 12,353.00	$ 9,812.00	$ 6,147.00	$ 13,557.00	$ 5,219.00	5,128	9,958	7,441	16,258	126,407
Average monthly usage per Unit	18.65	18.65	23.98	18.66	14.80	9.29	20.51	7.85					15.91
COMMERCIAL - MULTIPLE UNITS													
Number of Customers	7	7	7	7	7	6	8	8	7	7	7	7	7
Number of Units	26	26	26	26	26	20	27	27	26	26	26	26	26
Base Amount	$ 280.00	$ 280.00	$ 364.00	$ 364.00	$ 364.00	$ 280.00	$ 378.00	$ 369.00	$ 364.00	$ 364.00	$ 364.00	$ 364.00	$ 4,135.00
Excess Amount	$ 280.35	$ 280.35	$ 494.65	$ 374.00	$ 320.05	$ 152.95	$ 657.00	$ 294.40	$ 210.20	$ 549.85	$ 105.95	$ 203.70	$ 3,923.45
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (461.85)	$ -	$ (461.85)
Total Amount	$ 560.35	$ 560.35	$ 858.65	$ 738.00	$ 684.05	$ 432.95	$ 1,035.00	$ 663.40	$ 574.20	$ 913.85	$ 8.10	$ 567.70	$ 7,596.60
Monthly Base Rate	$ 10.77	$ 10.77	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 13.67	$ 14.00	$ 14.00	$ 14.00	$ 14.00	$ 13.43
Monthly Overage Rate	$ 10.78	$ 10.78	$ 19.03	$ 14.38	$ 12.31	$ 7.65	$ 24.33	$ 10.90	$ 8.08	$ 21.15	$ 4.08	$ 7.83	$ 12.74
Total Monthly Rate Per Unit	$ 21.55	$ 21.55	$ 33.03	$ 28.38	$ 26.31	$ 21.65	$ 38.33	$ 24.57	$ 22.08	$ 35.15	$ 0.31	$ 21.83	$ 24.66
Usage (1,000 gal)	355	355	524	415	366	185	528	304	252	379	(140)	233	3,756
Average monthly usage per Unit	13.65	13.65	20.15	15.96	14.08	9.25	19.56	11.26	9.69	14.58	(5.38)	8.96	12.19
DUPLEX - MULTIPLE UNITS													
Number of Customers	21	21	21	21	20	21	20	21	20	22	22	22	21
Number of Units	33	33	33	33	31	32	31	33	31	34	34	35	33
Base Amount	$ 462.00	$ 462.00	$ 462.00	$ 432.39	$ 424.67	$ 434.45	$ 434.00	$ 445.05	$ 434.00	$ 451.73	$ 472.84	$ 483.47	$ 5,398.60
Excess Amount	$ 536.45	$ 536.45	$ 378.60	$ 312.65	$ 246.30	$ 229.85	$ 225.90	$ 167.35	$ 222.80	$ 144.30	$ 502.46	$ 312.07	$ 3,815.18
Adjustments	$ (41.35)	$ (41.35)	$ (41.85)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (124.55)
Total Amount	$ 957.10	$ 957.10	$ 798.75	$ 745.04	$ 670.97	$ 664.30	$ 659.90	$ 612.40	$ 656.80	$ 596.03	$ 975.30	$ 795.54	$ 9,089.23
Monthly Base Rate	$ 14.00	$ 14.00	$ 14.00	$ 13.10	$ 13.70	$ 13.58	$ 14.00	$ 13.49	$ 14.00	$ 13.29	$ 13.91	$ 13.81	$ 13.74
Monthly Overage Rate	$ 16.26	$ 16.26	$ 11.47	$ 9.47	$ 7.95	$ 7.18	$ 7.29	$ 5.07	$ 7.19	$ 4.24	$ 14.78	$ 8.92	$ 9.71
Total Monthly Rate Per Unit	$ 29.00	$ 29.00	$ 24.20	$ 22.58	$ 21.64	$ 20.76	$ 21.29	$ 18.56	$ 21.19	$ 17.53	$ 28.69	$ 22.73	$ 23.13
Usage (1,000 gal)	529	529	364	323	288	271	260	218	268	196	605	362	4,213
Average monthly usage per Unit	16.03	16.03	11.03	9.79	9.29	8.47	8.39	6.61	8.65	5.76	17.79	10.34	10.72
MULTI UNITS USAGE (Res)													
Number of Customers							6	6	6	6	6	7	6
Number of Units							642	642	642	642	642	643	642
Base Amount						$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Excess Amount						$ 490.15	$ 476.80	$ 1,381.95	$ 995.35	$ 1,900.25	$ 2,688.05	$ 7,932.55	
Adjustments						$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Amount						$ 490.15	$ 476.80	$ 1,381.95	$ 995.35	$ 1,900.25	$ 2,688.05	$ 7,932.55	
Monthly Base Rate						$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monthly Overage Rate						$ 0.76	$ 0.74	$ 2.15	$ 1.55	$ 2.96	$ 4.18	$ 1.03	
Total Monthly Rate Per Unit						$ 0.76	$ 0.74	$ 2.15	$ 1.55	$ 2.96	$ 4.18	$ 1.03	
Usage (1,000 gal)						651	630	1,799	1,323	2,122	3,293	9,818	
Average monthly usage per Unit						1.01	0.98	2.80	2.06	3.31	5.12	1.27	
HYDRANT METER USERS													
Number of Customers						42	48	52	54	56	59	52	
Number of Units						42	48	52	54	56	59	52	
Base Amount						$ 4,755.64	$ 5,247.27	$ 6,096.78	$ 6,092.80	$ 6,518.08	$ 6,706.85	$ 35,417.42	
Excess Amount						$ 4,758.30	$ 20,405.59	$ 23,373.24	$ 15,039.70	$ 26,013.81	$ 30,527.60	$ 120,118.24	
Adjustments						$ (120.00)	$ (120.00)	$ (844.90)	$ (889.63)	$ (402.90)	$ (586.50)	$ (2,963.93)	
Total Amount						$ 9,393.94	$ 25,532.86	$ 28,625.12	$ 20,242.87	$ 32,128.99	$ 36,647.95	$ 152,571.73	
Monthly Base Rate						$ 113.23	$ 109.32	$ 117.25	$ 112.83	$ 116.39	$ 113.68	$ 56.94	
Monthly Overage Rate						$ 113.29	$ 425.12	$ 449.49	$ 278.51	$ 464.53	$ 517.42	$ 193.12	
Total Monthly Rate Per Unit						$ 223.67	$ 531.93	$ 550.48	$ 374.87	$ 573.73	$ 621.15	$ 245.29	
Usage (1,000 gal)						2,823	12,100	13,318	8,430	15,181	17,696	69,548	
Average monthly usage per Unit						67.21	252.08	256.12	156.11	271.09	299.93	111.81	

Billing Usage Summary Tables

MONTH	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	**FY 2007**
RESIDENTIAL													
Number of Customers	5,702	5,724	5,716	5,772	5,786	5,803	5,848	5,851	5,894	5,934	5,992	6,052	5,840
Number of Units	5,795	5,896	5,871	5,908	5,922	5,923	5,968	5,971	6,014	6,054	6,112	6,172	5,967
Base Amount	$ 97,580.22	$ 97,983.16	$ 98,125.35	$ 99,517.23	$ 99,276.65	$ 99,794.05	$ 100,127.28	$ 100,427.56	$ 101,253.15	$ 102,042.50	$ 102,679.65	$ 103,701.37	$ 1,202,508.17
Excess Amount	$ 200,042.46	$ 130,261.07	$ 181,585.12	$ 119,037.68	$ 83,950.62	$ 73,226.92	$ 42,455.40	$ 66,467.85	$ 47,073.47	$ 98,753.75	$ 75,958.94	$ 180,444.00	$ 1,299,257.28
Adjustments	$ (197.67)	$ (1,114.69)	$ (1,005.05)	$ (1,699.37)	$ (2,614.21)	$ (481.85)	$ (552.93)	$ (298.28)	$ (20,536.15)	$ (1,224.73)	$ (150.64)	$ (662.85)	$ (30,538.42)
Total Amount	$ 297,425.01	$ 227,129.54	$ 278,705.42	$ 216,855.54	$ 180,613.06	$ 172,539.12	$ 142,029.75	$ 166,597.13	$ 127,790.47	$ 199,571.52	$ 178,487.95	$ 283,482.52	$ 2,471,227.03
Monthly Base Rate	$ 16.84	$ 16.62	$ 16.71	$ 16.84	$ 16.76	$ 16.85	$ 16.78	$ 16.82	$ 16.84	$ 16.86	$ 16.80	$ 16.80	$ 16.79
Monthly Overage Rate	$ 34.52	$ 22.09	$ 30.93	$ 20.15	$ 14.18	$ 12.36	$ 7.11	$ 11.13	$ 7.83	$ 16.31	$ 12.43	$ 29.24	$ 18.14
Total Monthly Rate Per Unit	$ 51.32	$ 38.52	$ 47.47	$ 36.71	$ 30.50	$ 29.13	$ 23.80	$ 27.90	$ 21.25	$ 32.97	$ 29.20	$ 45.93	$ 34.51
Usage (1,000 gal)	248,326	108,874	141,391	99,628	75,051	62,104	43,297	56,283	35,023	87,435	69,709	142,434	1,169,555
Average monthly usage per Unit	42.85	18.47	24.08	16.86	12.67	10.49	7.25	9.43	5.82	14.44	11.41	23.08	16.33
RESIDENTIAL MULT. UNITS													
Number of Customers	32	32	32	32	32	32	32	32	32	32	32	32	32
Number of Units	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019
Base Amount	$ 16,970.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 212,935.00
Excess Amount	$ 3,574.50	$ 10,511.25	$ 8,850.20	$ 7,099.55	$ 6,015.50	$ 2,947.55	$ 2,671.10	$ 3,326.30	$ 2,485.05	$ 4,712.05	$ 5,738.55	$ 7,779.85	$ 65,711.45
Adjustments	$ -	$ -	$ -	$ -	$ -	$ (134.40)	$ -	$ -	$ -	$ -	$ -	$ (77.60)	$ (212.00)
Total Amount	$ 20,544.50	$ 28,326.25	$ 26,665.20	$ 24,914.55	$ 23,830.50	$ 20,628.15	$ 20,486.10	$ 21,141.30	$ 20,300.05	$ 22,527.05	$ 23,553.55	$ 25,517.25	$ 278,434.45
Monthly Base Rate	$ 16.65	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.41
Monthly Overage Rate	$ 3.51	$ 10.32	$ 8.69	$ 6.97	$ 5.90	$ 2.89	$ 2.62	$ 3.26	$ 2.44	$ 4.62	$ 5.63	$ 7.63	$ 5.37
Total Monthly Rate Per Unit	$ 20.16	$ 27.80	$ 26.17	$ 24.45	$ 23.39	$ 20.24	$ 20.10	$ 20.75	$ 19.92	$ 22.11	$ 23.11	$ 25.04	$ 22.77
Usage (1,000 gal)	7,661	10,712	9,251	7,707	6,924	3,269	3,393	4,154	3,049	5,297	6,758	8,269	76,444
Average monthly usage per Unit	7.52	10.51	9.08	7.56	6.79	3.21	3.33	4.08	2.99	5.20	6.63	8.11	6.25
COMMERCIAL													
Number of Customers		210	230	231	232	236	236	237	240	237	236	235	233
Number of Units		663	684	720	721	725	725	728	731	726	725	725	716
Base Amount		$ 11,133.26	$ 11,490.82	$ 12,145.00	$ 12,162.50	$ 12,232.50	$ 12,232.50	$ 12,240.01	$ 12,216.46	$ 12,232.50	$ 12,198.06	$ 12,182.34	$ 132,465.95
Excess Amount		$ 21,274.30	$ 21,381.45	$ 21,063.45	$ 16,066.43	$ 14,694.05	$ 7,790.65	$ 7,372.68	$ 6,257.03	$ 12,477.00	$ 9,534.35	$ 21,166.95	$ 159,078.34
Adjustments		$ -	$ -	$ -	$ (147.00)	$ -	$ -	$ (17.50)	$ (612.60)	$ -	$ (1,391.10)	$ -	$ (2,168.20)
Total Amount		$ 32,407.56	$ 32,872.27	$ 33,208.45	$ 28,081.93	$ 26,926.55	$ 20,023.15	$ 19,595.19	$ 17,860.89	$ 24,709.50	$ 20,341.31	$ 33,349.29	$ 289,376.09
Monthly Base Rate		$ 16.79	$ 16.80	$ 16.87	$ 16.87	$ 16.87	$ 16.87	$ 16.81	$ 16.71	$ 16.85	$ 16.82	$ 16.80	$ 15.42
Monthly Overage Rate		$ 32.09	$ 31.26	$ 29.25	$ 22.28	$ 20.27	$ 10.75	$ 10.13	$ 8.56	$ 17.19	$ 13.15	$ 29.20	$ 18.52
Total Monthly Rate Per Unit		$ 48.88	$ 48.06	$ 46.12	$ 38.95	$ 37.14	$ 27.62	$ 26.92	$ 24.43	$ 34.04	$ 28.06	$ 46.00	$ 33.69
Usage (1,000 gal)	21,695	16,534	16,828	16,574	12,997	10,211	5,577	6,119	5,297	10,287	7,687	16,795	146,601
Average monthly usage per Unit		24.94	24.60	23.02	18.03	14.08	7.69	8.41	7.25	14.17	10.60	23.17	17.07
COMMERCIAL - MULTIPLE UNITS													
Number of Customers	8	7	7	7	7	7	7	7	7	7	7	7	7
Number of Units	30	26	26	26	26	26	26	26	26	26	26	26	26
Base Amount	$ 460.36	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 5,465.36
Excess Amount	$ 237.75	$ 242.45	$ 297.75	$ 197.10	$ 176.60	$ 187.50	$ 127.60	$ 96.90	$ 91.70	$ 152.70	$ 131.90	$ 352.80	$ 2,292.75
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Amount	$ 698.11	$ 697.45	$ 752.75	$ 652.10	$ 631.60	$ 642.50	$ 582.60	$ 551.90	$ 546.70	$ 607.70	$ 586.90	$ 807.80	$ 7,758.11
Monthly Base Rate	$ 15.35	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.30
Monthly Overage Rate	$ 7.93	$ 9.33	$ 11.45	$ 7.58	$ 6.79	$ 7.21	$ 4.91	$ 3.73	$ 3.53	$ 5.87	$ 5.07	$ 13.57	$ 7.26
Total Monthly Rate Per Unit	$ 23.27	$ 26.83	$ 28.95	$ 25.08	$ 24.29	$ 24.71	$ 22.41	$ 21.23	$ 21.03	$ 23.37	$ 22.57	$ 31.07	$ 24.55
Usage (1,000 gal)	363	237	281	200	180	185	137	107	101	162	143	321	2,417
Average monthly usage per Unit	12.10	9.12	10.81	7.69	6.92	7.12	5.27	4.12	3.88	6.23	5.50	12.35	7.65
DUPLEX - MULTIPLE UNITS													
Number of Customers	21	21	20	20	20	20	20	20	21	20	20	20	20
Number of Units	33	33	32	31	31	31	31	31	31	30	30	30	31
Base Amount	$ 566.75	$ 577.50	$ 560.00	$ 542.50	$ 542.50	$ 542.50	$ 542.50	$ 542.50	$ 529.17	$ 525.00	$ 525.00	$ 525.00	$ 6,520.92
Excess Amount	$ 347.05	$ 307.95	$ 313.42	$ 588.40	$ 340.95	$ 209.45	$ 267.75	$ 267.80	$ 251.10	$ 306.55	$ 252.25	$ 565.45	$ 4,018.12
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (18.40)	$ -	$ -	$ (18.40)
Total Amount	$ 913.80	$ 885.45	$ 873.42	$ 1,130.90	$ 883.45	$ 751.95	$ 810.25	$ 810.30	$ 780.27	$ 813.15	$ 777.25	$ 1,090.45	$ 10,520.64
Monthly Base Rate	$ 17.17	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.07	$ 17.50	$ 17.50	$ 17.50	$ 17.44
Monthly Overage Rate	$ 10.52	$ 9.33	$ 9.79	$ 18.98	$ 11.00	$ 6.76	$ 8.64	$ 8.64	$ 8.10	$ 10.22	$ 8.41	$ 18.85	$ 10.74
Total Monthly Rate Per Unit	$ 27.69	$ 26.83	$ 27.29	$ 36.48	$ 28.50	$ 24.26	$ 26.14	$ 26.14	$ 25.17	$ 27.11	$ 25.91	$ 36.35	$ 28.13
Usage (1,000 gal)	476	303	306	481	324	208	258	261	236	273	240	475	3,841
Average monthly usage per Unit	14.42	9.18	9.56	15.52	10.45	6.71	8.32	8.42	7.61	9.10	8.00	15.83	10.27
MULTI UNITS USAGE (Res)													
Number of Customers	7	7	6	6	6	6	6	6	6	6	6	6	6
Number of Units	643	643	642	642	642	642	642	642	642	642	642	642	642
Base Amount	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Excess Amount	$ 7,412.00	$ 9,630.50	$ 5,696.10	$ 3,652.30	$ 2,263.60	$ 685.40	$ 492.60	$ 849.60	$ 954.90	$ 3,965.30	$ 2,993.70	$ 4,002.80	$ 42,598.80
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Amount	$ 7,412.00	$ 9,630.50	$ 5,696.10	$ 3,652.30	$ 2,263.60	$ 685.40	$ 492.60	$ 849.60	$ 954.90	$ 3,965.30	$ 2,993.70	$ 4,002.80	$ 42,598.80
Monthly Base Rate	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monthly Overage Rate	$ 11.53	$ 14.98	$ 8.87	$ 5.69	$ 3.53	$ 1.07	$ 0.77	$ 1.32	$ 1.49	$ 6.18	$ 4.66	$ 6.23	$ 5.53
Total Monthly Rate Per Unit	$ 11.53	$ 14.98	$ 8.87	$ 5.69	$ 3.53	$ 1.07	$ 0.77	$ 1.32	$ 1.49	$ 6.18	$ 4.66	$ 6.23	$ 5.53
Usage (1,000 gal)	6,886	8,159	5,579	3,756	2,427	757	542	936	1,058	4,091	3,158	4,019	41,368
Average monthly usage per Unit	10.71	12.69	8.69	5.85	3.78	1.18	0.84	1.46	1.65	6.37	4.92	6.26	5.37
HYDRANT METER USERS													
Number of Customers	60	64	63	67	65	66	65	60	58	60	64	68	63
Number of Units	60	64	63	67	65	66	65	60	58	60	64	68	63
Base Amount	$ 6,745.97	$ 7,470.98	$ 7,425.50	$ 7,738.07	$ 7,564.00	$ 7,618.06	$ 7,130.52	$ 8,555.23	$ 8,401.85	$ 8,690.00	$ 9,189.70	$ 9,290.70	$ 95,820.58
Excess Amount	$ 27,264.60	$ 29,336.87	$ 33,098.40	$ 13,119.65	$ 8,045.40	$ 5,445.43	$ 2,453.10	$ 11,104.16	$ 12,041.65	$ 13,764.00	$ 15,288.92	$ 9,960.70	$ 180,922.88
Adjustments	$ (120.00)	$ -	$ -	$ (120.00)	$ -	$ (454.20)	$ (180.00)	$ (3.87)	$ (2,623.20)	$ (60.00)	$ (1,084.25)	$ -	$ (4,645.52)
Total Amount	$ 33,890.57	$ 36,807.85	$ 40,523.90	$ 20,737.72	$ 15,609.40	$ 12,609.29	$ 9,403.62	$ 19,655.52	$ 17,820.30	$ 22,394.00	$ 23,394.37	$ 19,251.40	$ 272,097.94
Monthly Base Rate	$ 112.43	$ 116.73	$ 117.87	$ 115.49	$ 116.37	$ 115.43	$ 109.70	$ 142.59	$ 144.86	$ 144.83	$ 143.59	$ 136.63	$ 126.08
Monthly Overage Rate	$ 454.41	$ 458.39	$ 525.37	$ 195.82	$ 123.78	$ 82.51	$ 37.74	$ 185.07	$ 207.61	$ 229.40	$ 238.89	$ 146.48	$ 238.06
Total Monthly Rate Per Unit	$ 564.84	$ 575.12	$ 643.24	$ 309.52	$ 240.14	$ 191.05	$ 144.67	$ 327.59	$ 307.25	$ 373.23	$ 365.54	$ 283.11	$ 358.02
Usage (1,000 gal)	16,051	17,216	19,527	7,952	4,782	3,292	1,475	6,063	7,461	7,440	8,832	5,544	105,635
Average monthly usage per Unit	267.52	269.00	309.95	118.69	73.57	49.88	22.69	101.05	128.64	124.00	138.00	81.53	138.99

Billing Usage Summary Tables

MONTH	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	**FY 2008**
RESIDENTIAL													
Number of Customers	6,065	6,141	6,130	6,174	6,207	6,183	6,185	6,166	6,232	6,263	6,238	6,232	6,185
Number of Units	6,185	6,261	6,250	6,294	6,334	6,310	6,312	6,293	6,375	6,400	6,375	6,369	6,313
Base Amount	$ 104,197.88	$ 105,323.04	$ 105,629.70	$ 106,046.23	$ 106,170.74	$ 106,374.26	$ 106,450.28	$ 106,238.39	$ 106,903.92	$ 106,944.04	$ 107,184.76	$ 107,306.11	$ 1,274,769.35
Excess Amount	$ 182,066.93	$ 161,085.65	$ 192,020.67	$ 124,897.91	$ 103,950.42	$ 91,621.96	$ 36,889.99	$ 41,919.67	$ 39,619.62	$ 67,914.44	$ 131,410.32	$ 115,002.63	$ 1,288,400.21
Adjustments	$ (972.72)	$ (595.34)	$ (2,404.52)	$ (845.58)	$ (19,410.42)	$ (2,259.00)	$ (18,823.94)	$ (97.35)	$ (247.11)	$ (2,416.16)	$ 61.71	$ (295.05)	$ (48,305.48)
Total Amount	$ 285,292.09	$ 265,813.35	$ 295,245.85	$ 230,098.56	$ 190,710.74	$ 195,737.22	$ 124,516.33	$ 148,060.71	$ 146,276.43	$ 172,442.32	$ 238,656.79	$ 222,013.69	$ 2,514,864.08
Monthly Base Rate	$ 16.85	$ 16.82	$ 16.90	$ 16.85	$ 16.76	$ 16.86	$ 16.86	$ 16.88	$ 16.77	$ 16.71	$ 16.81	$ 16.85	$ 16.83
Monthly Overage Rate	$ 29.44	$ 25.73	$ 30.72	$ 19.84	$ 16.41	$ 14.52	$ 5.84	$ 6.66	$ 6.21	$ 10.61	$ 20.61	$ 18.06	$ 17.01
Total Monthly Rate Per Unit	$ 46.13	$ 42.46	$ 47.24	$ 36.56	$ 30.11	$ 31.02	$ 19.73	$ 23.53	$ 22.95	$ 26.94	$ 37.44	$ 34.86	$ 33.20
Usage (1,000 gal)	142,911	127,662	149,094	104,972	80,319	76,694	27,510	41,873	39,349	63,067	111,173	98,770	1,063,394
Average monthly usage per Unit	23.11	20.39	23.86	16.68	12.68	12.15	4.36	6.65	6.17	9.85	17.44	15.51	14.04
RESIDENTIAL MULT. UNITS													
Number of Customers	32	32	32	32	31	31	31	30	30	30	30	30	31
Number of Units	1,019	1,019	1,019	1,019	1,018	1,018	1,018	1,017	1,017	1,017	1,017	1,017	1,018
Base Amount	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,815.00	$ 17,797.50	$ 17,797.50	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 213,535.00
Excess Amount	$ 9,427.45	$ 9,041.95	$ 12,225.75	$ 7,468.60	$ 6,625.40	$ 4,239.00	$ 2,076.60	$ 3,086.90	$ 2,725.40	$ 3,696.00	$ 5,064.95	$ 5,537.75	$ 71,215.75
Adjustments	$ -	$ -	$ -	$ -	$ -	$ (1,133.80)	$ (75.10)	$ -	$ -	$ -	$ -	$ -	$ (1,208.90)
Total Amount	$ 27,242.45	$ 26,856.95	$ 30,040.75	$ 25,283.60	$ 24,422.90	$ 20,902.70	$ 19,781.50	$ 20,866.90	$ 20,505.40	$ 21,476.00	$ 22,844.95	$ 23,317.75	$ 283,541.85
Monthly Base Rate	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.47	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48
Monthly Overage Rate	$ 9.25	$ 8.87	$ 12.00	$ 7.33	$ 6.51	$ 4.16	$ 2.04	$ 3.04	$ 2.68	$ 3.63	$ 4.98	$ 5.45	$ 5.83
Total Monthly Rate Per Unit	$ 26.73	$ 26.36	$ 29.48	$ 24.81	$ 23.99	$ 20.53	$ 19.43	$ 20.52	$ 20.16	$ 21.12	$ 22.46	$ 22.93	$ 23.21
Usage (1,000 gal)	9,632	9,455	12,139	7,927	7,370	3,934	2,757	4,028	3,715	4,502	5,946	6,145	77,550
Average monthly usage per Unit	9.45	9.28	11.91	7.78	7.24	3.86	2.71	3.96	3.65	4.43	5.85	6.04	6.35
COMMERCIAL													
Number of Customers	236	235	235	235	237	239	240	241	243	259	261	262	244
Number of Units	725	723	723	723	730	732	740	741	743	765	769	768	740
Base Amount	$ 12,169.95	$ 12,163.63	$ 12,178.35	$ 12,145.00	$ 12,297.83	$ 12,302.83	$ 12,461.69	$ 12,475.69	$ 12,512.50	$ 12,915.00	$ 12,893.55	$ 12,985.00	$ 149,501.02
Excess Amount	$ 31,456.10	$ 32,237.85	$ 31,759.98	$ 21,865.45	$ 15,797.45	$ 12,401.15	$ 8,671.01	$ 7,431.05	$ 6,729.00	$ 10,319.70	$ 19,015.41	$ 24,521.75	$ 222,205.90
Adjustments	$ (365.90)	$ (35.20)	$ (890.50)	$ (3,541.25)	$ -	$ (25.10)	$ (38.00)	$ (53.70)	$ -	$ (127.45)	$ (905.75)	$ -	$ (5,982.85)
Total Amount	$ 43,260.15	$ 44,366.28	$ 43,047.83	$ 30,469.20	$ 28,095.28	$ 24,678.88	$ 21,094.70	$ 19,853.04	$ 19,241.50	$ 23,107.25	$ 31,003.21	$ 37,506.75	$ 365,724.07
Monthly Base Rate	$ 16.79	$ 16.82	$ 16.84	$ 16.80	$ 16.85	$ 16.81	$ 16.84	$ 16.84	$ 16.84	$ 16.88	$ 16.77	$ 16.91	$ 16.83
Monthly Overage Rate	$ 43.39	$ 44.59	$ 43.93	$ 30.24	$ 21.64	$ 16.94	$ 11.72	$ 10.03	$ 9.06	$ 13.49	$ 24.73	$ 31.93	$ 25.02
Total Monthly Rate Per Unit	$ 59.67	$ 61.36	$ 59.54	$ 42.14	$ 38.49	$ 33.71	$ 28.51	$ 26.79	$ 25.90	$ 30.21	$ 40.32	$ 48.84	$ 41.18
Usage (1,000 gal)	22,412	23,134	22,636	14,616	12,851	10,023	6,158	5,934	5,314	8,273	14,477	18,367	164,195
Average monthly usage per Unit	30.91	32.00	31.31	20.22	17.60	13.69	8.32	8.01	7.15	10.81	18.83	23.92	18.49
COMMERCIAL - MULTIPLE UNITS													
Number of Customers	8	8	8	8	8	8	7	7	7	7	7	7	8
Number of Units	27	27	27	27	27	27	26	26	26	26	26	26	27
Base Amount	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 5,460.00
Excess Amount	$ 408.40	$ 357.00	$ 342.35	$ 214.40	$ 196.40	$ 127.50	$ 109.30	$ 127.70	$ 96.80	$ 119.70	$ 173.10	$ 130.00	$ 2,402.65
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Amount	$ 863.40	$ 812.00	$ 797.35	$ 669.40	$ 651.40	$ 582.60	$ 564.30	$ 582.70	$ 551.80	$ 574.70	$ 628.10	$ 585.00	$ 7,862.75
Monthly Base Rate	$ 16.85	$ 16.85	$ 16.85	$ 16.85	$ 16.85	$ 16.85	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.17
Monthly Overage Rate	$ 15.13	$ 13.22	$ 12.68	$ 7.94	$ 7.27	$ 4.72	$ 4.20	$ 4.91	$ 3.72	$ 4.60	$ 6.66	$ 5.00	$ 7.56
Total Monthly Rate Per Unit	$ 31.98	$ 30.07	$ 29.53	$ 24.79	$ 24.13	$ 21.58	$ 21.70	$ 22.41	$ 21.22	$ 22.10	$ 24.16	$ 22.50	$ 24.73
Usage (1,000 gal)	355	320	324	209	206	140	119	136	105	127	185	138	2,364
Average monthly usage per Unit	13.15	11.85	12.00	7.74	7.63	5.19	4.58	5.23	4.04	4.88	7.12	5.31	7.43
DUPLEX - MULTIPLE UNITS													
Number of Customers	20	20	19	19	19	19	19	19	19	19	19	19	19
Number of Units	30	30	27	27	27	27	27	27	27	27	27	27	28
Base Amount	$ 525.00	$ 476.89	$ 472.50	$ 472.50	$ 472.50	$ 472.50	$ 472.50	$ 472.50	$ 472.50	$ 472.50	$ 472.50	$ 472.50	$ 5,726.89
Excess Amount	$ 475.15	$ 402.50	$ 482.85	$ 270.25	$ 357.30	$ 262.70	$ 207.50	$ 235.85	$ 184.30	$ 245.75	$ 405.75	$ 283.50	$ 3,813.40
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Amount	$ 1,000.15	$ 879.39	$ 955.35	$ 742.75	$ 829.80	$ 735.20	$ 680.00	$ 708.35	$ 656.80	$ 718.25	$ 878.25	$ 756.00	$ 9,540.29
Monthly Base Rate	$ 17.50	$ 15.90	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.35
Monthly Overage Rate	$ 15.84	$ 13.42	$ 17.88	$ 10.01	$ 13.23	$ 9.73	$ 7.69	$ 8.74	$ 6.83	$ 9.10	$ 15.03	$ 10.50	$ 11.56
Total Monthly Rate Per Unit	$ 33.34	$ 29.31	$ 35.38	$ 27.51	$ 30.73	$ 27.23	$ 25.19	$ 26.24	$ 24.33	$ 26.60	$ 32.53	$ 28.00	$ 28.91
Usage (1,000 gal)	423	369	430	262	321	261	211	237	190	245	377	278	3,604
Average monthly usage per Unit	14.10	12.30	15.93	9.70	11.89	9.67	7.81	8.78	7.04	9.07	13.96	10.30	10.92
MULTI UNITS USAGE (Res)													
Number of Customers	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Units	642	642	642	642	642	642	642	642	642	642	642	642	642
Base Amount	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Excess Amount	$ 4,526.80	$ 6,087.40	$ 5,853.50	$ 2,611.30	$ 2,440.30	$ 1,419.10	$ 383.00	$ 738.90	$ 756.50	$ 1,432.60	$ 2,534.50	$ 4,313.50	$ 33,097.40
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Amount	$ 4,526.80	$ 6,087.40	$ 5,853.50	$ 2,611.30	$ 2,440.30	$ 1,419.10	$ 383.00	$ 738.90	$ 756.50	$ 1,432.60	$ 2,534.50	$ 4,313.50	$ 33,097.40
Monthly Base Rate	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monthly Overage Rate	$ 7.05	$ 9.48	$ 9.12	$ 4.07	$ 3.80	$ 2.21	$ 0.60	$ 1.15	$ 1.18	$ 2.23	$ 3.95	$ 6.72	$ 4.30
Total Monthly Rate Per Unit	$ 7.05	$ 9.48	$ 9.12	$ 4.07	$ 3.80	$ 2.21	$ 0.60	$ 1.15	$ 1.18	$ 2.23	$ 3.95	$ 6.72	$ 4.30
Usage (1,000 gal)	4,535	6,029	5,769	2,791	2,640	1,556	423	801	819	1,584	2,678	4,504	34,129
Average monthly usage per Unit	7.06	9.39	8.99	4.35	4.11	2.42	0.66	1.25	1.28	2.47	4.17	7.02	4.43
HYDRANT METER USERS													
Number of Customers	64	60	61	57	55	55	51	49	46	46	44	48	53
Number of Units	64	60	61	57	55	55	51	49	46	46	44	48	53
Base Amount	$ 9,234.82	$ 8,808.30	$ 8,584.17	$ 8,265.51	$ 7,898.50	$ 8,010.19	$ 7,392.12	$ 6,965.06	$ 6,701.61	$ 6,574.80	$ 6,407.73	$ 6,706.32	$ 91,549.13
Excess Amount	$ 18,072.22	$ 14,393.00	$ 10,062.15	$ 15,429.63	$ 5,326.15	$ 2,792.86	$ 7,253.85	$ 4,199.50	$ 1,718.65	$ 4,213.60	$ 6,609.34	$ 1,909.79	$ 91,980.74
Adjustments	$ -	$ -	$ (241.65)	$ (318.20)	$ -	$ -	$ -	$ (6,610.05)	$ -	$ -	$ -	$ -	$ (7,169.90)
Total Amount	$ 27,307.04	$ 23,201.30	$ 18,404.67	$ 23,376.94	$ 13,224.65	$ 10,803.05	$ 14,645.97	$ 4,554.51	$ 8,420.26	$ 10,788.40	$ 13,017.07	$ 8,616.11	$ 176,359.97
Monthly Base Rate	$ 144.29	$ 146.81	$ 140.72	$ 145.01	$ 143.61	$ 145.64	$ 144.94	$ 142.14	$ 145.69	$ 142.93	$ 145.63	$ 139.72	$ 143.95
Monthly Overage Rate	$ 282.38	$ 239.88	$ 164.95	$ 270.70	$ 96.84	$ 50.78	$ 142.23	$ 85.70	$ 37.36	$ 91.60	$ 150.21	$ 39.79	$ 144.62
Total Monthly Rate Per Unit	$ 426.67	$ 386.69	$ 301.72	$ 410.12	$ 240.45	$ 196.42	$ 287.18	$ 92.95	$ 183.05	$ 234.53	$ 295.84	$ 179.50	$ 277.30
Usage (1,000 gal)	9,846	7,781	5,454	8,300	2,889	1,573	3,983	1,293	929	2,364	3,623	1,003	49,038
Average monthly usage per Unit	153.84	129.68	89.41	145.61	52.53	28.60	78.10	26.39	20.20	51.39	82.34	20.90	77.10

Billing Usage Summary Tables

MONTH	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	FY 2009
RESIDENTIAL													
Number of Customers	6,238	6,250	6,291	6,297	6,292	6,313	6,267	6,267	6,315	6,333	6,352	6,380	6,300
Number of Units	6,375	6,387	6,428	6,418	6,429	6,450	6,390	6,404	6,452	6,470	6,488	6,512	6,434
Base Amount	$ 107,649.89	$ 107,810.28	$ 108,294.47	$ 108,235.87	$ 108,703.98	$ 108,509.68	$ 107,947.18	$ 108,298.84	$ 108,570.97	$ 109,162.71	$ 109,274.05	$ 109,838.09	$ 1,302,296.01
Excess Amount	$ 197,613.41	$ 170,026.42	$ 166,935.53	$ 137,415.72	$ 116,764.73	$ 53,914.42	$ 48,269.97	$ 34,891.60	$ 35,437.79	$ 78,445.97	$ 112,961.57	$ 143,111.12	$ 1,295,788.25
Adjustments	$ (264.15)	$ (1,151.14)	$ (869.04)	$ (2,387.37)	$ (742.10)	$ (6,276.35)	$ (1,089.93)	$ (787.51)	$ (953.33)	$ (99.95)	$ (1,988.84)	$ 93.84	$ (16,515.87)
Total Amount	$ 304,999.15	$ 276,685.56	$ 274,360.96	$ 243,264.22	$ 224,726.61	$ 156,147.75	$ 155,127.22	$ 142,402.93	$ 143,055.43	$ 187,508.73	$ 220,246.78	$ 253,043.05	$ 2,581,568.39
Monthly Base Rate	$ 16.89	$ 16.88	$ 16.85	$ 16.86	$ 16.91	$ 16.82	$ 16.89	$ 16.91	$ 16.83	$ 16.87	$ 16.84	$ 16.87	$ 16.87
Monthly Overage Rate	$ 31.00	$ 26.62	$ 25.97	$ 21.41	$ 18.16	$ 8.36	$ 7.55	$ 5.45	$ 5.49	$ 12.12	$ 17.41	$ 21.98	$ 16.78
Total Monthly Rate Per Unit	$ 47.84	$ 43.32	$ 42.68	$ 37.90	$ 34.96	$ 24.21	$ 24.28	$ 22.24	$ 22.17	$ 28.98	$ 33.95	$ 38.86	$ 33.44
Usage (1,000 gal)	154,239	135,472	134,227	115,801	99,561	49,225	47,188	35,118	35,982	73,034	98,792	119,684	1,098,323
Average monthly usage per Unit	24.19	21.21	20.88	18.04	15.49	7.63	7.38	5.48	5.58	11.29	15.23	18.38	14.23
RESIDENTIAL MULT. UNITS													
Number of Customers	30	30	30	30	30	30	30	30	30	46	48	47	34
Number of Units	1,017	1,017	1,017	1,017	1,017	1,017	1,017	1,017	1,017	1,039	1,042	1,041	1,023
Base Amount	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 17,780.00	$ 18,165.00	$ 18,204.06	$ 18,200.00	$ 214,589.06
Excess Amount	$ 5,676.50	$ 12,909.85	$ 6,464.65	$ 6,150.70	$ 4,397.05	$ 3,098.75	$ 3,001.60	$ 2,728.80	$ 2,550.90	$ 3,877.10	$ 4,374.50	$ 5,574.80	$ 60,805.20
Adjustments	$ -	$ -	$ (5,280.35)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (173.60)	$ -	$ (5,453.95)
Total Amount	$ 23,456.50	$ 30,689.85	$ 18,964.30	$ 23,930.70	$ 22,177.05	$ 20,878.75	$ 20,781.60	$ 20,508.80	$ 20,330.90	$ 22,042.10	$ 22,404.96	$ 23,774.80	$ 269,940.31
Monthly Base Rate	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.48	$ 17.47	$ 17.48	$ 17.48
Monthly Overage Rate	$ 5.58	$ 12.69	$ 6.36	$ 6.05	$ 4.32	$ 3.05	$ 2.95	$ 2.68	$ 2.51	$ 3.73	$ 4.20	$ 5.36	$ 4.95
Total Monthly Rate Per Unit	$ 23.06	$ 30.18	$ 18.65	$ 23.53	$ 21.81	$ 20.53	$ 20.43	$ 20.17	$ 19.99	$ 21.21	$ 21.50	$ 22.84	$ 21.99
Usage (1,000 gal)	6,297	11,272	4,084	6,826	5,115	3,774	3,854	3,655	3,597	4,510	5,035	6,256	64,275
Average monthly usage per Unit	6.19	11.08	4.02	6.71	5.03	3.71	3.79	3.59	3.54	4.34	4.83	6.01	5.24
COMMERCIAL													
Number of Customers	265	265	263	264	263	262	266	272	273	275	275	276	268
Number of Units	773	771	769	770	769	766	772	776	777	777	778	779	773
Base Amount	$ 13,020.22	$ 12,998.99	$ 12,970.79	$ 12,985.00	$ 12,950.00	$ 12,950.00	$ 12,976.53	$ 13,048.34	$ 13,053.52	$ 13,052.50	$ 13,135.06	$ 13,139.58	$ 156,280.53
Excess Amount	$ 45,593.80	$ 44,884.05	$ 36,791.95	$ 33,171.35	$ 21,024.65	$ 11,588.20	$ 11,140.37	$ 7,473.55	$ 5,552.00	$ 14,587.73	$ 19,321.95	$ 30,412.85	$ 281,542.45
Adjustments	$ -	$ -	$ (220.75)	$ (1,337.05)	$ (321.15)	$ (31.20)	$ (4.50)	$ (39.40)	$ (448.35)	$ -	$ -	$ -	$ (2,402.40)
Total Amount	$ 58,614.02	$ 57,883.04	$ 49,541.99	$ 44,819.30	$ 33,653.50	$ 24,507.00	$ 24,112.40	$ 20,482.49	$ 18,157.17	$ 27,640.23	$ 32,457.01	$ 43,552.43	$ 435,420.58
Monthly Base Rate	$ 16.84	$ 16.86	$ 16.87	$ 16.86	$ 16.84	$ 16.91	$ 16.81	$ 16.81	$ 16.80	$ 16.80	$ 16.88	$ 16.87	$ 16.85
Monthly Overage Rate	$ 58.98	$ 58.22	$ 47.84	$ 43.08	$ 27.34	$ 15.13	$ 14.43	$ 9.63	$ 7.15	$ 18.77	$ 24.84	$ 39.04	$ 30.35
Total Monthly Rate Per Unit	$ 75.83	$ 75.08	$ 64.42	$ 58.21	$ 43.76	$ 31.99	$ 31.23	$ 26.39	$ 23.37	$ 35.57	$ 41.72	$ 55.91	$ 46.94
Usage (1,000 gal)	29,816	30,065	24,908	23,321	15,612	8,970	8,040	5,291	3,967	10,897	14,370	21,353	196,610
Average monthly usage per Unit	38.57	38.99	32.39	30.29	20.30	11.71	10.41	6.82	5.11	14.02	18.47	27.41	21.19
COMMERCIAL - MULTIPLE UNITS													
Number of Customers	7	7	7	7	7	7	7	7	7	7	7	7	7
Number of Units	26	26	26	26	26	26	26	26	26	26	26	26	26
Base Amount	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 455.00	$ 5,460.00
Excess Amount	$ 208.20	$ 231.30	$ 172.50	$ 194.50	$ 189.10	$ 151.80	$ 144.20	$ 123.90	$ 110.40	$ 120.00	$ 142.50	$ 171.00	$ 1,959.40
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (31.80)	$ -	$ -	$ -	$ -	$ (31.80)
Total Amount	$ 663.20	$ 686.30	$ 627.50	$ 649.50	$ 644.10	$ 606.80	$ 599.20	$ 547.10	$ 565.40	$ 575.00	$ 597.50	$ 626.00	$ 7,387.60
Monthly Base Rate	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50
Monthly Overage Rate	$ 8.01	$ 8.90	$ 6.63	$ 7.48	$ 7.27	$ 5.84	$ 5.55	$ 4.77	$ 4.25	$ 4.62	$ 5.48	$ 6.58	$ 6.28
Total Monthly Rate Per Unit	$ 25.51	$ 26.40	$ 24.13	$ 24.98	$ 24.77	$ 23.34	$ 23.05	$ 21.04	$ 21.75	$ 22.12	$ 22.98	$ 24.08	$ 23.68
Usage (1,000 gal)	216	236	183	200	197	155	150	104	118	126	146	174	2,005
Average monthly usage per Unit	8.31	9.08	7.04	7.69	7.58	5.96	5.77	4.00	4.54	4.85	5.62	6.69	6.43
DUPLEX - MULTIPLE UNITS													
Number of Customers	18	19	18	17	17	17	17	17	17	1			16
Number of Units	26	28	26	24	24	24	24	24	24	1			23
Base Amount	$ 455.00	$ 459.73	$ 425.83	$ 420.00	$ 420.00	$ 420.00	$ 420.00	$ 420.00	$ 410.68	$ 10.50			$ 3,861.74
Excess Amount	$ 388.60	$ 319.20	$ 285.60	$ 268.40	$ 235.10	$ 122.30	$ 168.40	$ 133.50	$ 97.40	$ -			$ 2,018.50
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (0.90)	$ -	$ -			$ (0.90)
Total Amount	$ 843.60	$ 778.93	$ 711.43	$ 688.40	$ 655.10	$ 542.30	$ 588.40	$ 552.60	$ 508.08	$ 10.50			$ 5,879.34
Monthly Base Rate	$ 17.50	$ 16.42	$ 16.38	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.50	$ 17.11	$ 10.50			$ 14.30
Monthly Overage Rate	$ 14.95	$ 11.40	$ 10.98	$ 11.18	$ 9.80	$ 5.10	$ 7.02	$ 5.56	$ 4.06	$ -			$ 7.48
Total Monthly Rate Per Unit	$ 32.45	$ 27.82	$ 27.36	$ 28.68	$ 27.30	$ 22.60	$ 24.52	$ 23.03	$ 21.17	$ 10.50			$ 21.78
Usage (1,000 gal)	342	280	260	254	235	130	173	139	114	0			1,927
Average monthly usage per Unit	13.15	10.00	10.00	10.58	9.79	5.42	7.21	5.79	4.75	0.00			7.14
MULTI UNITS USAGE (Res)													
Number of Customers	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Units	642	642	642	642	642	642	642	642	642	642	642	642	642
Base Amount	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Excess Amount	$ 4,526.30	$ 6,633.10	$ 5,005.40	$ 4,898.20	$ 3,124.20	$ 1,013.30	$ 759.10	$ 887.70	$ 576.30	$ 1,764.10	$ 2,828.00	$ 3,591.60	$ 35,607.30
Adjustments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Amount	$ 4,526.30	$ 6,633.10	$ 5,005.40	$ 4,898.20	$ 3,124.20	$ 1,013.30	$ 759.10	$ 887.70	$ 576.30	$ 1,764.10	$ 2,828.00	$ 3,591.60	$ 35,607.30
Monthly Base Rate	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Monthly Overage Rate	$ 7.05	$ 10.33	$ 7.80	$ 7.63	$ 4.87	$ 1.58	$ 1.18	$ 1.38	$ 0.90	$ 2.75	$ 4.40	$ 5.59	$ 4.62
Total Monthly Rate Per Unit	$ 7.05	$ 10.33	$ 7.80	$ 7.63	$ 4.87	$ 1.58	$ 1.18	$ 1.38	$ 0.90	$ 2.75	$ 4.40	$ 5.59	$ 4.62
Usage (1,000 gal)	5,206	6,583	5,133	5,030	3,299	1,124	833	981	636	1,943	3,052	3,810	37,630
Average monthly usage per Unit	8.11	10.25	8.00	7.83	5.14	1.75	1.30	1.53	0.99	3.03	4.75	5.93	4.88
HYDRANT METER USERS													
Number of Customers	46	44	43	37	29	26	22	17	20	20	20	22	29
Number of Units	46	44	43	37	29	26	22	17	20	20	20	22	29
Base Amount	$ 6,714.56	$ 6,366.17	$ 6,093.50	$ 4,918.98	$ 3,647.20	$ 3,608.68	$ 2,680.65	$ 2,550.00	$ 2,600.80	$ 2,711.10	$ 2,908.06	$ 3,100.00	$ 47,899.70
Excess Amount	$ 5,206.04	$ 5,723.90	$ 3,738.75	$ 1,877.17	$ 1,542.90	$ 906.50	$ 188.70	$ 199.80	$ 1,245.05	$ 490.55	$ 1,242.20	$ 6,224.25	$ 28,585.81
Adjustments	$ -	$ (333.15)	$ (1,888.85)	$ -	$ (46.97)	$ -	$ -	$ -	$ -	$ -	$ -	$ 135.00	$ (2,133.97)
Total Amount	$ 11,920.60	$ 11,756.92	$ 7,943.40	$ 6,796.15	$ 5,143.13	$ 4,515.18	$ 2,869.35	$ 2,749.80	$ 3,845.85	$ 3,201.65	$ 4,150.26	$ 9,459.25	$ 74,351.54
Monthly Base Rate	$ 145.97	$ 144.69	$ 141.71	$ 132.95	$ 125.77	$ 138.80	$ 121.85	$ 150.00	$ 130.04	$ 135.56	$ 145.40	$ 140.91	$ 138.44
Monthly Overage Rate	$ 113.17	$ 130.09	$ 86.95	$ 50.73	$ 53.20	$ 34.87	$ 8.58	$ 11.75	$ 62.25	$ 24.53	$ 62.11	$ 282.92	$ 82.62
Total Monthly Rate Per Unit	$ 259.14	$ 267.20	$ 184.73	$ 183.68	$ 177.35	$ 173.66	$ 130.43	$ 161.75	$ 192.29	$ 160.08	$ 207.51	$ 429.97	$ 214.89
Usage (1,000 gal)	2,910	3,036	2,529	1,215	834	547	102	108	724	309	695	3,405	16,414
Average monthly usage per Unit	63.26	69.00	58.81	32.84	28.76	21.04	4.64	6.35	36.20	15.45	34.75	154.77	47.44

Billing Usage Summary Tables

MONTH	FY 2006	FY 2007	FY 2008	FY 2009
RESIDENTIAL				
Number of Customers	5,444	5,840	6,185	6,300
Number of Units	5,505	5,967	6,313	6,434
Base Amount	$ 889,972.36	$ 1,202,508.17	$ 1,274,769.35	$ 1,302,296.01
Excess Amount	$ 929,016.48	$ 1,299,257.28	$ 1,288,400.21	$ 1,295,788.25
Adjustments	$ (5,207.62)	$ (30,538.42)	$ (48,305.48)	$ (16,515.87)
Total Amount	$ 1,806,148.54	$ 2,471,227.03	$ 2,514,864.08	$ 2,581,568.39
Monthly Base Rate	$ 13.47	$ 16.79	$ 16.83	$ 16.87
Monthly Overage Rate	$ 14.06	$ 18.14	$ 17.01	$ 16.78
Total Monthly Rate Per Unit	$ 27.34	$ 34.51	$ 33.20	$ 33.44
Usage (1,000 gal)	912,927	1,169,555	1,063,394	1,098,323
Average monthly usage per Unit	13.82	16.33	14.04	14.23
RESIDENTIAL MULT. UNITS				
Number of Customers	32	32	31	34
Number of Units	1,023	1,019	1,018	1,023
Base Amount	$ 171,492.06	$ 212,935.00	$ 213,535.00	$ 214,589.06
Excess Amount	$ 62,653.35	$ 65,711.45	$ 71,215.75	$ 60,805.20
Adjustments	$ (196.50)	$ (212.00)	$ (1,208.90)	$ (5,453.95)
Total Amount	$ 233,948.91	$ 278,434.45	$ 283,541.85	$ 269,940.31
Monthly Base Rate	$ 13.98	$ 17.41	$ 17.48	$ 17.48
Monthly Overage Rate	$ 5.11	$ 5.37	$ 5.83	$ 4.95
Total Monthly Rate Per Unit	$ 19.07	$ 22.77	$ 23.21	$ 21.99
Usage (1,000 gal)	78,846	76,444	77,550	64,275
Average monthly usage per Unit	6.43	6.25	6.35	5.24
COMMERCIAL				
Number of Customers	209	233	244	268
Number of Units	662	716	740	773
Base Amount	$ 70,865.25	$ 132,465.95	$ 149,501.02	$ 156,280.53
Excess Amount	$ 92,740.17	$ 159,078.34	$ 222,205.90	$ 281,542.45
Adjustments	$ (16,560.25)	$ (2,168.20)	$ (5,982.85)	$ (2,402.40)
Total Amount	$ 152,228.01	$ 289,376.09	$ 365,724.07	$ 435,420.58
Monthly Base Rate	$ 8.92	$ 15.42	$ 16.83	$ 16.85
Monthly Overage Rate	$ 11.67	$ 18.52	$ 25.02	$ 30.35
Total Monthly Rate Per Unit	$ 19.16	$ 33.69	$ 41.18	$ 46.94
Usage (1,000 gal)	$ 126,407.00	146,601	164,195	196,610
Average monthly usage per Unit	15.91	17.07	18.49	21.19
COMMERCIAL - MULTIPLE UNITS				
Number of Customers	7	7	8	7
Number of Units	26	26	27	26
Base Amount	$ 4,135.00	$ 5,465.36	$ 5,460.00	$ 5,460.00
Excess Amount	$ 3,923.45	$ 2,292.75	$ 2,402.65	$ 1,959.40
Adjustments	$ (461.85)	$ -	$ -	$ (31.80)
Total Amount	$ 7,596.60	$ 7,758.11	$ 7,862.75	$ 7,387.60
Monthly Base Rate	$ 13.43	$ 17.30	$ 17.17	$ 17.50
Monthly Overage Rate	$ 12.74	$ 7.26	$ 7.56	$ 6.28
Total Monthly Rate Per Unit	$ 24.66	$ 24.55	$ 24.73	$ 23.68
Usage (1,000 gal)	3,756	2,417	2,364	2,005
Average monthly usage per Unit	12.19	7.65	7.43	6.43
DUPLEX - MULTIPLE UNITS				
Number of Customers	21	20	19	16
Number of Units	33	31	28	23
Base Amount	$ 5,398.60	$ 6,520.92	$ 5,726.89	$ 3,861.74
Excess Amount	$ 3,815.18	$ 4,018.12	$ 3,813.40	$ 2,018.50
Adjustments	$ (124.55)	$ (18.40)	$ -	$ (0.90)
Total Amount	$ 9,089.23	$ 10,520.64	$ 9,540.29	$ 5,879.34
Monthly Base Rate	$ 13.74	$ 17.44	$ 17.35	$ 14.30
Monthly Overage Rate	$ 9.71	$ 10.74	$ 11.56	$ 7.48
Total Monthly Rate Per Unit	$ 23.13	$ 28.13	$ 28.91	$ 21.78
Usage (1,000 gal)	4,213	3,841	3,604	1,927
Average monthly usage per Unit	10.72	10.27	10.92	7.14
MULTI UNITS USAGE (Res)				
Number of Customers	6	6	6	6
Number of Units	642	642	642	642
Base Amount	$ -	$ -	$ -	$ -
Excess Amount	$ 7,932.55	$ 42,598.80	$ 33,097.40	$ 35,607.30
Adjustments	$ -	$ -	$ -	$ -
Total Amount	$ 7,932.55	$ 42,598.80	$ 33,097.40	$ 35,607.30
Monthly Base Rate	$ -	$ -	$ -	$ -
Monthly Overage Rate	$ 1.03	$ 5.53	$ 4.30	$ 4.62
Total Monthly Rate Per Unit	$ 1.03	$ 5.53	$ 4.30	$ 4.62
Usage (1,000 gal)	9,818	41,368	34,129	37,630
Average monthly usage per Unit	1.27	5.37	4.43	4.88
HYDRANT METER USERS				
Number of Customers	52	63	53	29
Number of Units	52	63	53	29
Base Amount	$ 35,417.42	$ 95,820.58	$ 91,549.13	$ 47,899.70
Excess Amount	$ 120,118.24	$ 180,922.88	$ 91,980.74	$ 28,585.81
Adjustments	$ (2,963.93)	$ (4,645.52)	$ (7,169.90)	$ (2,133.97)
Total Amount	$ 152,571.73	$ 272,097.94	$ 176,359.97	$ 74,351.54
Monthly Base Rate	$ 56.94	$ 126.08	$ 143.95	$ 138.44
Monthly Overage Rate	$ 193.12	$ 238.06	$ 144.62	$ 82.62
Total Monthly Rate Per Unit	$ 245.29	$ 358.02	$ 277.30	$ 214.89
Usage (1,000 gal)	69,548	105,635	49,038	16,414
Average monthly usage per Unit	111.81	138.99	77.10	47.44

RESIDENTIAL (Fiscal Year)	FY 2006	FY 2007	FY 2008	FY 2009
Number of Customers	5,503	5,898	6,241	6,356
Number of Units	7,203	7,660	8,001	8,121
Base/Minimum Amount	$ 1,066,863	$ 1,421,964	$ 1,494,031	$ 1,520,747
Average Monthly Base Rate ($)	$ 12.34	$ 15.47	$ 15.56	$ 15.61
Excess Amount	$ 1,003,418	$ 1,411,586	$ 1,396,527	$ 1,394,219
Average Monthly Overage Amount ($)	$ 11.61	$ 15.36	$ 14.55	$ 14.31
Total Amount	$ 2,057,119	$ 2,802,781	$ 2,841,044	$ 2,892,995
Average Tot. Monthly Rate Per Unit ($)	$ 23.80	$ 30.49	$ 29.59	$ 29.69
Usage	1,005,804	1,291,208	1,178,677	1,202,155
Average Cost Per 1,000 Gallons	$ 2.05	$ 2.17	$ 2.41	$ 2.41
Average Monthly Usage Per Unit (1,000 Gal)	11.6	14.0	12.3	12.3
COMMERCIAL (Fiscal Year)	**FY 2006**	**FY 2007**	**FY 2008**	**FY 2009**
Number of Customers	267	303	304	304
Number of Units	740	805	820	828
Base/Minimum Amount	$ 110,418	$ 233,752	$ 246,510	$ 209,640
Average Monthly Base Rate ($)	$ 12.43	$ 24.20	$ 25.05	$ 21.10
Excess Amount	$ 216,782	$ 342,294	$ 316,589	$ 312,088
Average Monthly Overage Amount ($)	$ 24.41	$ 35.43	$ 32.17	$ 31.41
Total Amount	$ 312,396	$ 569,232	$ 549,947	$ 517,160
Average Tot. Monthly Rate Per Unit ($)	$ 35.18	$ 58.93	$ 55.89	$ 52.05
Usage*	199,711	254,653	215,597	215,029
Average Cost Per 1,000 Gallons	$ 1.56	$ 2.24	$ 2.55	$ 2.41
Average Monthly Usage Per Unit (1,000 Gal)	22.5	26.4	21.9	21.6
No. of Commercial ERU's	1,430	1,511	1,463	1,453
Total Usage (1,000 gallons)	1,205,515	1,545,861	1,394,274	1,417,184
Average Daily Usage Per ERU (gal/day)	383	462	404	406

APPENDIX B

FIVE POINT ANALYSIS

WASHINGTON CITY
CULINARY WATER RIGHT REQUIREMENT

2. Culinary Water Right Data:

A.

W.R. #	Source	Flow AcFt.	Flow cfs	Flow gpm
81-666	Underground Water, Well	151.4	0.21	93.9
81-1087	Underground Water, Well	535.7	0.74	332.1
a23880 (81-1610, 81-431	Underground Water, Well	213.0	0.29	132.0
81-1674	Underground Water, Well	724.0	1.00	448.8
81-1719	Underground Water, Well	434.4	0.60	269.3
81-1747	Underground Water, Well	11.8	0.02	7.3
81-2412	Underground Water, Well	1,737.5	2.40	1,077.1
	Sub-total Wells =	3,807.8	5.26	**2,360.5**
*Sand Hollow Well Field Water (Washington County WCD)		500	0.69	310.0
*Quail Creek Water (Washington County WCD)		1,400	1.93	867.9
	Grand Total =	**5,708**	**7.88**	**3,538.4**

**"Perpetual annual allotment" of water purchased from Washington County Water Conservancy District for an annual fee.*

*** Washington City has 2,000 acre-feet of water reserved at Quail Creek Reservoir each year. Of those 2,000 acre-feet, Coral Canyon uses approximately 600 acre-feet to water its golf course. The remaining reserve of 1,400 acre-feet is available for the City's use.*

B.

Average Water Use Using Washington City's Historic Average Consumption	425	gpd/ERU	(Total Indoor/Outdoor)

C. Current & Projected Required Water Right (2010-2050):

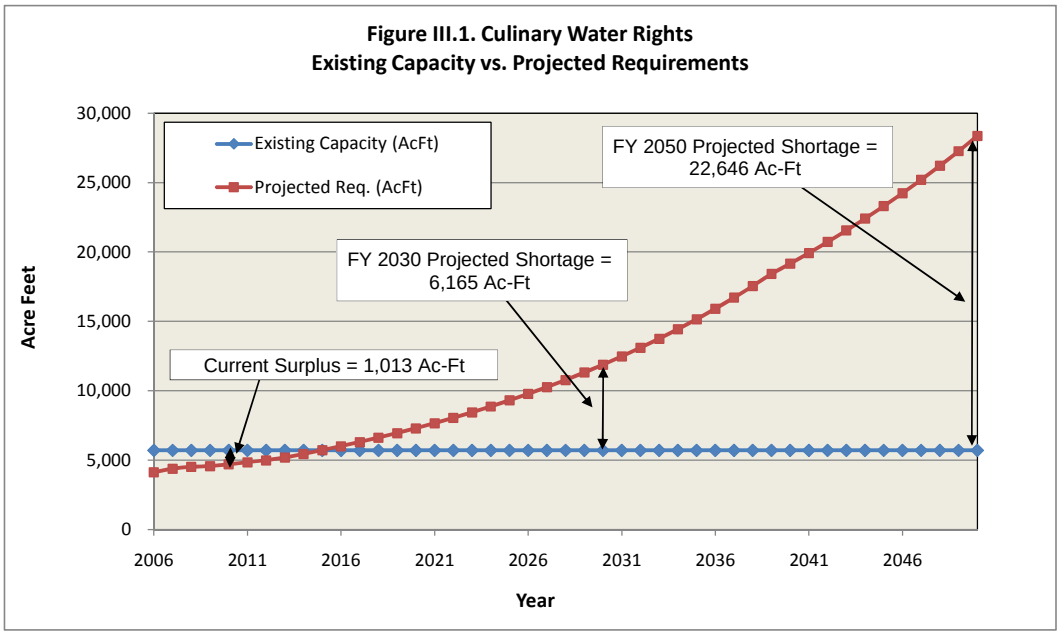
Average Water Right Req. Based on INDOOR & OUTDOOR Water Use	Year 2010	Year 2030	Year 2050	
Existing ERU's	9,861	24,938	59,556	ERU's
Average Water Use (Indoor + Outdoor)	425	425	425	gpd/ERU
Required Water Right (Indoor + Outdoor)	2,910	7,360	17,577	gpm
	4,695	11,873	28,354	Ac-Ft
Culinary System Water Right Surplus/(Deficit)	628	(3,822)	(14,039)	gpm
	1,013	(6,165)	(22,646)	Ac-Ft
Number of ERU's that can be added	2,127	-	-	ERU's

WASHINGTON CITY
CULINARY WATER RIGHT REQUIREMENT

Water Right Data			Water Right Req. Based on Total Water Use				Water Right Req. Based on Indoor Water Use			
Year	No. ERU's	Existing Capacity (gpm)	*Projected Capacity (gpm)	Avg. Total Use- Projected Req. (gpm)	Existing Capacity (AcFt)	Projected Req. (AcFt)	*Projected Capacity (gpm)	Avg. Indoor Use- Projected Req. (gpm)	Existing Capacity (AcFt)	Projected Req. (AcFt)
2006	8,633	3,538		2,548	5,707.8	4,110		1,565	5,707.8	2,524
2007	9,171	3,538		2,707	5,707.8	4,366		1,662	5,707.8	2,681
2008	9,464	3,538		2,793	5,707.8	4,506		1,715	5,707.8	2,767
2009	9,574	3,538	3,538	2,826	5,707.8	4,558	3,538	1,735	5,707.8	2,799
2010	9,861	3,538	3,623	2,910	5,707.8	4,695	3,586	1,787	5,707.8	2,883
2011	10,157	3,538	3,710	2,998	5,707.8	4,836	3,634	1,841	5,707.8	2,970
2012	10,462	3,538	3,800	3,088	5,707.8	4,981	3,684	1,896	5,707.8	3,059
2013	10,880	3,538	3,924	3,211	5,707.8	5,180	3,753	1,972	5,707.8	3,181
2014	11,424	3,538	4,084	3,372	5,707.8	5,439	3,843	2,071	5,707.8	3,340
2015	11,995	3,538	4,253	3,540	5,707.8	5,711	3,937	2,174	5,707.8	3,507
2016	12,595	3,538	4,430	3,717	5,707.8	5,997	4,036	2,283	5,707.8	3,683
2017	13,225	3,538	4,616	3,903	5,707.8	6,296	4,139	2,397	5,707.8	3,867
2018	13,886	3,538	4,811	4,098	5,707.8	6,611	4,248	2,517	5,707.8	4,060
2019	14,581	3,538	5,016	4,303	5,707.8	6,942	4,362	2,643	5,707.8	4,263
2020	15,310	3,538	5,231	4,518	5,707.8	7,289	4,482	2,775	5,707.8	4,476
2021	16,075	3,538	5,457	4,744	5,707.8	7,653	4,608	2,914	5,707.8	4,700
2022	16,879	3,538	5,694	4,982	5,707.8	8,036	4,741	3,059	5,707.8	4,935
2023	17,723	3,538	5,943	5,231	5,707.8	8,438	4,880	3,212	5,707.8	5,182
2024	18,609	3,538	6,205	5,492	5,707.8	8,860	5,025	3,373	5,707.8	5,441
2025	19,539	3,538	6,480	5,767	5,707.8	9,303	5,178	3,542	5,707.8	5,713
2026	20,516	3,538	6,768	6,055	5,707.8	9,768	5,339	3,719	5,707.8	5,999
2027	21,542	3,538	7,071	6,358	5,707.8	10,256	5,508	3,905	5,707.8	6,298
2028	22,619	3,538	7,389	6,676	5,707.8	10,769	5,685	4,100	5,707.8	6,613
2029	23,750	3,538	7,722	7,010	5,707.8	11,307	5,872	4,305	5,707.8	6,944
2030	24,938	3,538	8,073	7,360	5,707.8	11,873	6,067	4,520	5,707.8	7,291
2031	26,185	3,538	8,441	7,728	5,707.8	12,466	6,272	4,746	5,707.8	7,656
2032	27,494	3,538	8,827	8,114	5,707.8	13,090	6,488	4,983	5,707.8	8,039
2033	28,869	3,538	9,233	8,520	5,707.8	13,744	6,714	5,232	5,707.8	8,441
2034	30,312	3,538	9,659	8,946	5,707.8	14,431	6,951	5,494	5,707.8	8,863
2035	31,828	3,538	10,106	9,394	5,707.8	15,153	7,201	5,769	5,707.8	9,306
2036	33,419	3,538	10,576	9,863	5,707.8	15,911	7,463	6,057	5,707.8	9,771
2037	35,090	3,538	11,069	10,356	5,707.8	16,706	7,738	6,360	5,707.8	10,259
2038	36,844	3,538	11,587	10,874	5,707.8	17,541	8,027	6,678	5,707.8	10,772
2039	38,687	3,538	12,131	11,418	5,707.8	18,418	8,330	7,012	5,707.8	11,311
2040	40,234	3,538	12,587	11,875	5,707.8	19,155	8,584	7,292	5,707.8	11,764
2041	41,843	3,538	13,062	12,350	5,707.8	19,921	8,849	7,584	5,707.8	12,234
2042	43,517	3,538	13,556	12,844	5,707.8	20,718	9,125	7,887	5,707.8	12,723
2043	45,258	3,538	14,070	13,357	5,707.8	21,547	9,411	8,203	5,707.8	13,232
2044	47,068	3,538	14,604	13,892	5,707.8	22,409	9,709	8,531	5,707.8	13,762
2045	48,951	3,538	15,160	14,447	5,707.8	23,305	10,019	8,872	5,707.8	14,312
2046	50,909	3,538	15,738	15,025	5,707.8	24,237	10,341	9,227	5,707.8	14,885
2047	52,945	3,538	16,339	15,626	5,707.8	25,207	10,677	9,596	5,707.8	15,480
2048	55,063	3,538	16,964	16,251	5,707.8	26,215	11,025	9,980	5,707.8	16,099
2049	57,266	3,538	17,614	16,901	5,707.8	27,264	11,388	10,379	5,707.8	16,743
2050	59,556	3,538	18,290	17,577	5,707.8	28,354	11,765	10,795	5,707.8	17,413

** Projections based on assumption that water right impact fee will be maintained.*

WASHINGTON CITY
CULINARY WATER RIGHT REQUIREMENT



WASHINGTON CITY
CULINARY WATER SOURCE REQUIREMENT

3. Water Source Capacity:

A.

Wells	Total Flow CFS	gpm
No. 2	1.045	469
No. 3	0.290	130
No. 4	1.731	777
No. 5	2.103	944
No. 6	1.693	760
Grapevine Well No. 1	0.305	137
Grapevine Well No. 2	0.267	120
Sub-total Wells =	7.435	**3,337**
Microfiltration (Quail Lake)	4.679	**2,100**
Sand Hollow Booster Pump	6.684	**3,000**
Grand Total =	18.799	**8,437**

B. **Historic Peak Day Demand Using Washington City's Historic Average Consumption Times 2** 850 gpd/ERU (Total Indoor/Outdoor)

C. Current & Projected Required Water Source (2010-2030):

Average Source Req. Based on INDOOR & OUTDOOR Water Use	Year 2010	Year 2030	
Existing ERU's	9,861	24,938	ERU's
Average Water Use (Indoor + Outdoor)	850	850	gpd/ERU
Required Water Source (Indoor + Outdoor)	5,821	14,720	gpm
Existing Culinary System Water Right Surplus/(Deficit)	2,616	(6,283)	gpm
Number of ERU's that can be added	4,432	-	ERU's

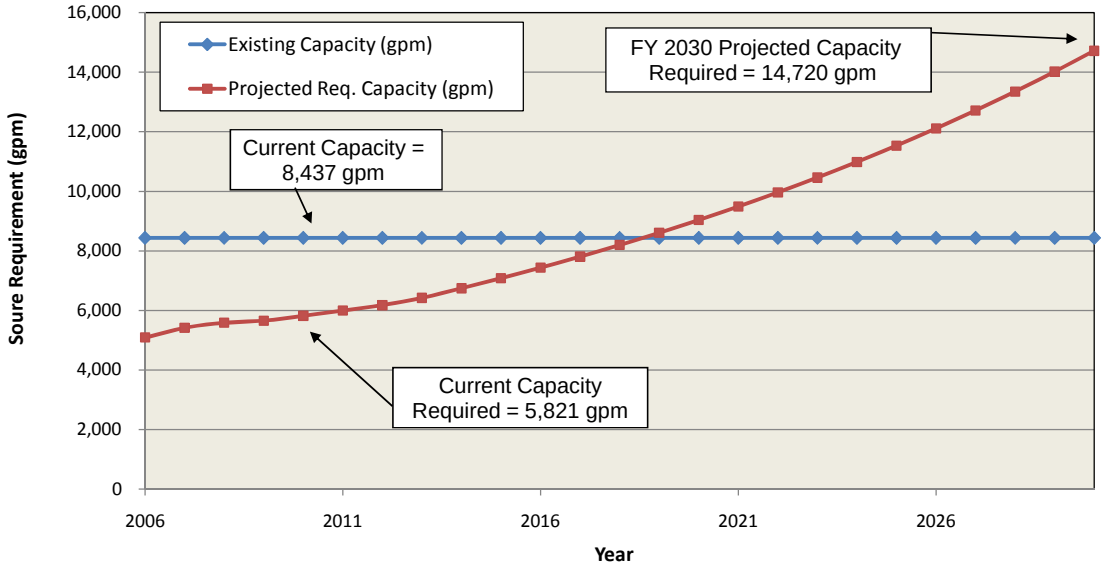
WASHINGTON CITY

CULINARY WATER SOURCE REQUIREMENT

Year	No. ERU's	Existing Capacity (gpm)	Projected Req. Capacity (gpm)	Projected Req.- Avg. Indoor Use (gpm)
2001	5,066	8,437	2,990	1,836
2002	6,037	8,437	3,563	2,188
2003	5,904	8,437	3,485	2,140
2004	5,979	8,437	3,529	2,167
2005	8,272	8,437	4,883	2,998
2006	8,633	8,437	5,096	3,129
2007	9,171	8,437	5,413	3,324
2008	9,464	8,437	5,586	3,431
2009	9,574	8,437	5,651	3,471
2010	9,861	8,437	5,821	3,575
2011	10,157	8,437	5,995	3,682
2012	10,462	8,437	6,175	3,792
2013	10,880	8,437	6,422	3,944
2014	11,424	8,437	6,743	4,141
2015	11,995	8,437	7,081	4,348
2016	12,595	8,437	7,435	4,566
2017	13,225	8,437	7,806	4,794
2018	13,886	8,437	8,197	5,034
2019	14,581	8,437	8,607	5,285
2020	15,310	8,437	9,037	5,550
2021	16,075	8,437	9,489	5,827
2022	16,879	8,437	9,963	6,119
2023	17,723	8,437	10,461	6,425
2024	18,609	8,437	10,984	6,746
2025	19,539	8,437	11,534	7,083
2026	20,516	8,437	12,110	7,437
2027	21,542	8,437	12,716	7,809
2028	22,619	8,437	13,352	8,199
2029	23,750	8,437	14,019	8,609
2030	24,938	8,437	14,720	9,040

WASHINGTON CITY
CULINARY WATER SOURCE REQUIREMENT

Figure IV.1. Washington City Source Capacity
Existing Capacity vs. Projected Requirements



WASHINGTON CITY
CULINARY WATER STORAGE REQUIREMENT

4. Water Storage Capacity:

A. Existing Storage Capacity:

2.3 Million Gallon Pink Tank	2,300,000	gal.
1 Million Gallon Concrete Tank	1,000,000	gal.
Grapevine Tank	1,000,000	gal.
Warner Ridge Tank	1,000,000	gal.
Microfiltration Plant	500,000	gal.
Washington Dam Tank	2,000,000	gal.
Total Existing Capacity	**7,800,000**	**gal.**

B. Average Water Use Using Washington City's Historic Average Consumption 425 gpd/ERU (Total Indoor/Outdoor)

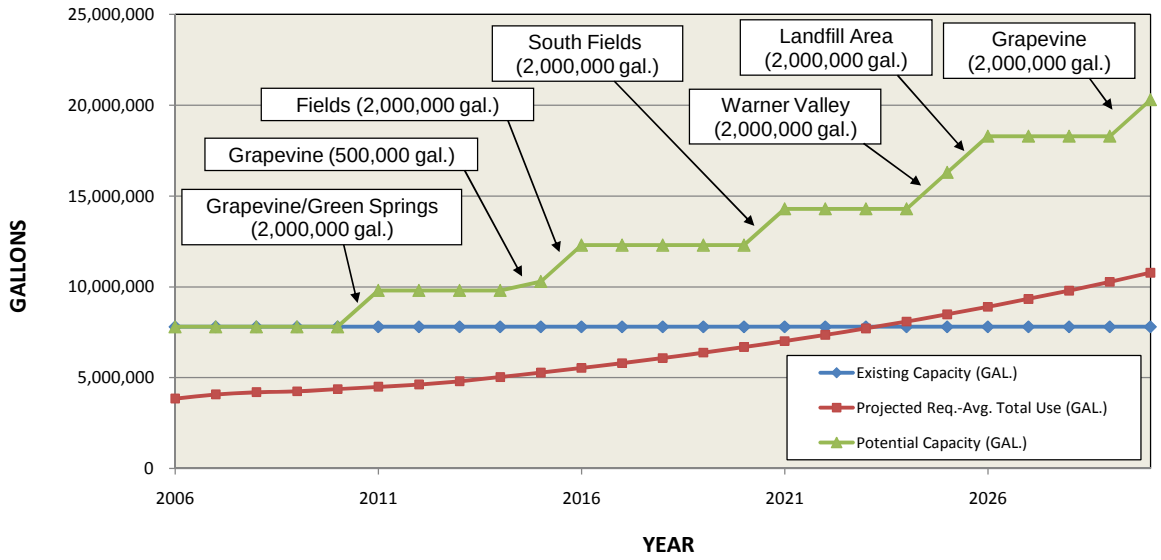
C. Current & Projected Required Water Storage (2010-2030):

Avg. Storage Req. Based on INDOOR & OUTDOOR Water Use	**Year 2010**	**Year 2030**	
Existing ERU's	9,861	24,938	ERU's
Average Water Use (Indoor + Outdoor)	425	425	gpd/ERU
Water Storage for Average Usage (Indoor + Outdoor)	4,190,925	10,598,650	gal
Required Storage for Fire Protection (1,500 gpm for 2 hours)	180,000	180,000	gal
Total Required Water Storage (Indoor + Outdoor)	4,370,925	10,778,650	gal
Existing Culinary System Water Right Surplus/(Deficit)	3,429,075	(2,978,650)	gal

Year	No. ERU's	Existing Capacity (GAL.)	Projected Req.-Avg. Total Use (GAL.)	Projected Req.-Avg. Indoor Use (GAL.)	Proposed Project	Added Storage (GAL.)	Potential Capacity (GAL.)
2006	8,633	7,800,000	3,849,025	2,433,213			7,800,000
2007	9,171	7,800,000	4,077,675	2,573,631			7,800,000
2008	9,464	7,800,000	4,202,200	2,650,104			7,800,000
2009	9,574	7,800,000	4,248,950	2,678,814			7,800,000
2010	9,861	7,800,000	4,371,019	2,753,778			7,800,000
2011	10,157	7,800,000	4,496,749	2,830,992	Grapevine/G.S.	2,000,000	9,800,000
2012	10,462	7,800,000	4,626,252	2,910,522			9,800,000
2013	10,880	7,800,000	4,804,102	3,019,742			9,800,000
2014	11,424	7,800,000	5,035,307	3,161,730			9,800,000
2015	11,995	7,800,000	5,278,072	3,310,816	Grapevine	500,000	10,300,000
2016	12,595	7,800,000	5,532,976	3,467,357	Fields	2,000,000	12,300,000
2017	13,225	7,800,000	5,800,624	3,631,725			12,300,000
2018	13,886	7,800,000	6,081,656	3,804,311			12,300,000
2019	14,581	7,800,000	6,376,738	3,985,526			12,300,000
2020	15,310	7,800,000	6,686,575	4,175,803			12,300,000
2021	16,075	7,800,000	7,011,904	4,375,593	South Fields	2,000,000	14,300,000
2022	16,879	7,800,000	7,353,499	4,585,372			14,300,000
2023	17,723	7,800,000	7,712,174	4,805,641			14,300,000
2024	18,609	7,800,000	8,088,783	5,036,923			14,300,000
2025	19,539	7,800,000	8,484,222	5,279,769	Warner Valley	2,000,000	16,300,000
2026	20,516	7,800,000	8,899,433	5,534,758	Landfill Area	2,000,000	18,300,000
2027	21,542	7,800,000	9,335,405	5,802,496			18,300,000
2028	22,619	7,800,000	9,793,175	6,083,620			18,300,000
2029	23,750	7,800,000	10,273,834	6,378,801			18,300,000
2030	24,938	7,800,000	10,778,526	6,688,742	Grapevine	2,000,000	20,300,000

WASHINGTON CITY
CULINARY WATER STORAGE REQUIREMENT

Figure V.1. Culinary Water Storage
Existing Capacity and Potential Capacity vs. Projected Requirements



WASHINGTON CITY
STORAGE TANK ANALYSIS

Region	Basin	Basin Area (sq. ft.)	Basin Area (acres)	% of Basin	Region Area (acres)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Grapevine Service Area					6688	**4626**	**4756**	**4889**	**5076**	**5257**	**5452**	**5659**	**5880**	**6114**	**6226**	**6355**	**6503**
	R-1	46621371.5	1070	71%		886	918	950	992	1031	1073	1117	1163	1212	1257	1306	1357
	R-2	19702602.2	452	36%		457	479	501	529	548	568	590	613	637	665	695	727
	R-3	32882075.5	755	56%		531	572	614	662	719	776	836	898	961	1000	1041	1085
	R-4	12632326.8	290	40%		390	402	413	429	438	449	460	473	486	492	499	507
	R-5	88140151.1	2023	98%		981	1028	1075	1134	1190	1249	1311	1376	1444	1448	1458	1471
	R-6	82243536.5	1888	100%		1380	1357	1336	1328	1331	1337	1346	1359	1374	1351	1333	1319
	R-7	9100991.2	209	14%		0	0	0	0	0	0	0	0	0	12	24	36
Green Springs Service Area					1382	**1218**	**1277**	**1337**	**1412**	**1479**	**1548**	**1622**	**1699**	**1780**	**1846**	**1917**	**1993**
	R-1	17667366.4	406	27%		336	348	360	376	391	406	423	441	459	476	495	514
	R-2	19180019.7	440	35%		445	466	488	515	533	553	574	597	620	648	677	708
	R-3	16522454.8	379	28%		267	288	308	333	361	390	420	451	483	502	523	545
	R-4	4756298.3	109	15%		147	151	156	162	165	169	173	178	183	185	188	191
	R-5	2083830	48	2%		23	24	25	27	28	30	31	33	34	34	34	35
Downtown Service Area					935	**968**	**1010**	**1053**	**1106**	**1149**	**1194**	**1243**	**1294**	**1348**	**1389**	**1433**	**1481**
	R-1	1407122.5	32	2%		27	28	29	30	31	32	34	35	37	38	39	41
	R-2	15168786.4	348	28%		352	369	386	407	422	437	454	472	491	512	535	560
	R-3	9817559.9	225	17%		158	171	183	198	215	232	250	268	287	299	311	324
	R-4	13087952.5	300	41%		404	416	428	445	454	465	477	490	504	509	517	526
	R-16	1253082.3	29	2%		27	27	27	27	27	28	29	30	30	30	30	31
Landfill Service Area					2742	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**168**	**334**	**498**
	R-7	57662499.8	1324	86%		0	0	0	0	0	0	0	0	0	78	155	231
	R-8	61799223.5	1419	100%		0	0	0	0	0	0	0	0	0	90	179	267
Fields Service Area					7139	**3049**	**3034**	**3023**	**3044**	**3163**	**3290**	**3425**	**3568**	**3719**	**3800**	**3893**	**3997**
	R-4	1102972.5	25	3%		34	35	36	37	38	39	40	41	42	43	44	44
	R-10	48533494	1114	100%		0	0	0	0	23	46	69	93	116	127	138	149
	R-11	32102675.9	737	100%		78	87	95	105	115	125	135	146	157	170	183	197
	R-15	156550161.6	3594	100%		1367	1359	1353	1361	1409	1461	1516	1575	1638	1697	1762	1830
	R-16	72699522.3	1669	98%		1570	1553	1539	1541	1578	1619	1664	1713	1765	1763	1767	1777
South Fields Service Area					6292	**0**	**80**	**160**	**242**	**376**	**511**	**647**	**785**	**925**	**1017**	**1111**	**1206**
	R-14	146479467.9	3363	100%		0	42	84	127	188	248	310	372	435	476	519	562
	R-19	44311586.7	1017	100%		0	4	8	13	19	25	31	37	43	59	75	91
	R-20	17467607.6	401	100%		0	8	17	25	28	31	35	38	41	49	58	66
	R-21	20627946.2	474	100%		0	4	8	13	16	19	22	26	29	32	34	37
	R-22	11965428.7	275	100%		0	11	21	32	56	81	106	131	156	165	174	184
	R-23	33217888.7	763	100%		0	11	21	32	69	107	144	182	221	236	251	267
Warner Valley Servie Area					14475	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**134**	**266**	**397**
	R-9	115248878.4	2646	100%		0	0	0	0	0	0	0	0	0	68	134	200
	R-12	99371475.3	2281	100%		0	0	0	0	0	0	0	0	0	18	36	53
	R-13	145939651.3	3350	100%		0	0	0	0	0	0	0	0	0	28	56	84
	R-17	243256082.7	5584	100%		0	0	0	0	0	0	0	0	0	18	36	53
	R-18	26723924.4	613	100%		0	0	0	0	0	0	0	0	0	2	4	7

WASHINGTON CITY
STORAGE TANK ANALYSIS

Region	Basin	Basin Area (sq. ft.)	Basin Area (acres)	% of Basin	Region Area (acres)	2022	2023	2024	2025	2026	2027	2028	2029	2030	Buildout
Grapevine Service Area					6688	**6667**	**6848**	**7044**	**7257**	**7485**	**7729**	**7990**	**8390**	**8809**	**21075**
	R-1	46621371.5	1070	71%		1412	1471	1532	1598	1667	1740	1817	1907	2003	2578
	R-2	19702602.2	452	36%		761	796	833	872	913	956	1002	1052	1105	2406
	R-3	32882075.5	755	56%		1131	1180	1232	1286	1344	1405	1469	1542	1619	2913
	R-4	12632326.8	290	40%		517	528	541	554	569	585	602	632	664	912
	R-5	88140151.1	2023	98%		1489	1511	1535	1564	1595	1630	1668	1751	1839	7500
	R-6	82243536.5	1888	100%		1309	1302	1298	1297	1299	1302	1308	1373	1442	4461
	R-7	9100991.2	209	14%		48	61	73	85	98	111	125	131	138	305
Green Springs Service Area					1382	**2074**	**2159**	**2250**	**2346**	**2448**	**2555**	**2668**	**2802**	**2942**	**5304**
	R-1	17667366.4	406	27%		535	557	581	605	632	659	688	723	759	977
	R-2	19180019.7	440	35%		740	775	811	849	889	931	975	1024	1075	2342
	R-3	16522454.8	379	28%		568	593	619	646	675	706	738	775	814	1464
	R-4	4756298.3	109	15%		195	199	204	209	214	220	227	238	250	343
	R-5	2083830	48	2%		35	36	36	37	38	39	39	41	43	177
Downtown Service Area					935	**1532**	**1588**	**1647**	**1710**	**1777**	**1848**	**1923**	**2019**	**2120**	**3798**
	R-1	1407122.5	32	2%		43	44	46	48	50	53	55	58	60	78
	R-2	15168786.4	348	28%		586	613	641	671	703	736	771	810	851	1853
	R-3	9817559.9	225	17%		338	352	368	384	401	419	439	461	484	870
	R-4	13087952.5	300	41%		536	547	560	574	590	606	624	655	688	945
	R-16	1253082.3	29	2%		31	31	32	32	33	33	34	36	37	53
Landfill Service Area					2742	**662**	**828**	**996**	**1166**	**1341**	**1520**	**1705**	**1791**	**1880**	**6754**
	R-7	57662499.8	1324	86%		307	384	461	540	621	705	790	830	871	1935
	R-8	61799223.5	1419	100%		355	444	534	626	720	816	915	961	1009	4819
Fields Service Area					7139	**4110**	**4234**	**4367**	**4511**	**4664**	**4828**	**5002**	**5252**	**5515**	**10274**
	R-4	1102972.5	25	3%		45	46	47	48	50	51	53	55	58	80
	R-10	48533494	1114	100%		160	172	184	196	209	223	237	249	262	1504
	R-11	32102675.9	737	100%		211	225	240	256	272	289	307	322	338	746
	R-15	156550161.6	3594	100%		1904	1982	2064	2151	2244	2341	2444	2566	2694	4864
	R-16	72699522.3	1669	98%		1791	1809	1832	1859	1890	1924	1962	2060	2163	3081
South Fields Service Area					6292	**1305**	**1406**	**1511**	**1619**	**1732**	**1849**	**1971**	**2070**	**2173**	**7297**
	R-14	146479467.9	3363	100%		606	652	699	748	799	852	908	953	1001	4565
	R-19	44311586.7	1017	100%		107	123	140	157	174	192	210	221	232	555
	R-20	17467607.6	401	100%		75	83	92	101	111	120	130	137	144	365
	R-21	20627946.2	474	100%		40	43	46	49	52	56	59	62	65	168
	R-22	11965428.7	275	100%		194	205	216	227	240	252	266	279	293	618
	R-23	33217888.7	763	100%		283	300	318	337	356	377	398	418	439	1026
Warner Valley Servie Area					14475	**528**	**660**	**794**	**930**	**1069**	**1212**	**1360**	**1428**	**1499**	**9849**
	R-9	115248878.4	2646	100%		266	332	399	467	537	609	684	718	754	3228
	R-12	99371475.3	2281	100%		71	89	107	125	144	163	183	192	202	993
	R-13	145939651.3	3350	100%		112	139	168	196	226	256	287	302	317	3922
	R-17	243256082.7	5584	100%		71	89	107	125	144	163	183	192	202	1637
	R-18	26723924.4	613	100%		9	11	13	16	18	20	23	24	25	69

WASHINGTON CITY
CULINARY WATER DISTRIBUTION REQUIREMENT

5. Water Distribution:

A. Existing Distribution Requirement:
Peak Instantaneous Demand:

Peaking Factor = 6.3

Existing Design Peak Instantaneous Demand

6.3 X 2,910 gpm = **18,382 gpm**

Existing Design Peak Day Demand **5,821 gpm**

Fire Flow = 1,500 gpm

Existing Design Fire Flow = **7,321 gpm**

B. Distribution Requirement for projected 20 year growth:
Peak Instantaneous Demand:

Peaking Factor = 5.9

Projected Design Peak Instantaneous Demand

5.9 X 7,360 gpm = **43,696 gpm**

Projected Design Peak Day Demand **14,720 gpm**

Fire Flow = 1,500 gpm

Projected Design Fire Flow = **16,220 gpm**

WASHINGTON CITY
CULINARY WATER DISTRIBUTION REQUIREMENT

State Guidelines For Distribution System Sizing

Peak Instantaneous Demand

Assume :	0.1	Irrigated Acre / ERU
Zone 6 :	9.8	GPM / Irrigated Acre
Factor :	1.5	X Zone 6 Outdoor Use Factor Due to Limited Watering Hours

Average Day Demand

Indoor Use:	400	gpd/ERU
Assume :	0.1	Irrigated Acre / ERU
Zone 6 :	3.26	Acft. / Irrigated Acre
Factor :	1	X Outdoor Use Factor

		Peak Instantaneous Demand			Historic Data		State Guidelines Average	
Year	No. ERU's	Indoor Use (gpm)	Outdoor Use (gpm)	Total Use (gpm)	Average Use (gpm)	Peaking Factor	Average Use (gpm)	Peaking Factor
2002	6,037	2,839	8,874	11,713	1,782	**6.6**	2,897	4.0
2003	5,904	2,799	8,679	11,478	1,742	**6.6**	2,833	4.1
2004	5,979	2,821	8,789	11,611	1,765	**6.6**	2,869	4.0
2005	8,272	3,473	12,160	15,633	2,441	**6.4**	3,969	3.9
2006	8,633	3,569	12,691	16,260	2,548	**6.4**	4,143	3.9
2007	9,171	3,710	13,481	17,191	2,707	**6.4**	4,401	3.9
2008	9,464	3,785	13,912	17,697	2,793	**6.3**	4,542	3.9
2009	9,574	3,813	14,074	17,887	2,826	**6.3**	4,594	3.9
2010	9,861	3,886	14,496	18,382	2,910	**6.3**	4,732	3.9
2011	10,157	3,961	14,931	18,891	2,998	**6.3**	4,874	3.9
2012	10,462	4,036	15,379	19,415	3,088	**6.3**	5,020	3.9
2013	10,880	4,139	15,994	20,132	3,211	**6.3**	5,221	3.9
2014	11,424	4,270	16,793	21,063	3,372	**6.2**	5,482	3.8
2015	11,995	4,405	17,633	22,038	3,540	**6.2**	5,756	3.8
2016	12,595	4,545	18,515	23,060	3,717	**6.2**	6,044	3.8
2017	13,225	4,689	19,441	24,130	3,903	**6.2**	6,346	3.8
2018	13,886	4,838	20,412	25,251	4,098	**6.2**	6,663	3.8
2019	14,581	4,992	21,434	26,426	4,303	**6.1**	6,997	3.8
2020	15,310	5,150	22,506	27,656	4,518	**6.1**	7,347	3.8
2021	16,075	5,313	23,630	28,944	4,744	**6.1**	7,714	3.8
2022	16,879	5,482	24,812	30,294	4,982	**6.1**	8,100	3.7
2023	17,723	5,656	26,053	31,709	5,231	**6.1**	8,505	3.7
2024	18,609	5,835	27,355	33,190	5,492	**6.0**	8,930	3.7
2025	19,539	6,020	28,722	34,742	5,767	**6.0**	9,376	3.7
2026	20,516	6,211	30,159	36,370	6,055	**6.0**	9,845	3.7
2027	21,542	6,408	31,667	38,075	6,358	**6.0**	10,337	3.7
2028	22,619	6,611	33,250	39,861	6,676	**6.0**	10,854	3.7
2029	23,750	6,821	34,913	41,734	7,010	**6.0**	11,397	3.7
2030	24,938	7,037	36,659	43,696	7,360	**5.9**	11,967	3.7

APPENDIX C

ENGINEER'S OPINION OF PROBABLE COST

S U N R I S E E N G I N E E R I N G I N C.
11 North 300 West, Washington, Utah 84780
Tel: (435) 652-8450

Engineer's Opinion of Probable Cost

WASHINGTON CITY WATER IMPROVEMENTS 28-Jan-10
Additional Projects (10-Year) DWS/sbh

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST
Grapevine/Green Springs Tank and Pipeline					
1	Mobilization	1	LS	$ 119,000.00	$119,000
2	16" Pipe, Fittings, Tracer Wire, Bedding, Backfill,& Installation	6,850	LN.FT.	$ 45.00	$308,250
3	16" Butterfly Valve Assembly	10	EACH	$ 4,100.00	$41,000
4	12" Gate Valve Assembly	1	EACH	$ 2,400.00	$2,400
5	Solid Rock Excavation	700	CU.YD.	$ 21.00	$14,700
6	Bituminous Surface Course (3" Thickness)	9,300	SQ. FT.	$ 3.00	$27,900
7	Untreated Base Course (6" Depth)	34,250	SQ. FT.	$ 1.00	$34,250
8	Earthwork 2,000,000 Gallon Storage Tank	1	LS	$ 110,000.00	$110,000
9	Construct 2,000,000 Gallon Storage Tank	1	LS	$ 1,300,000.00	$1,300,000
10	Tank Appurtenances	1	LS	$ 90,000.00	$90,000
11	Chain Link Fence	700	LN.FT.	$ 31.00	$21,700
12	Metering Station	1	EACH	$ 18,000.00	$18,000
13	Combination Air/Vac Valve & Manhole	1	EACH	$ 7,500.00	$7,500
14	Wash Crossing	1	EACH	$ 3,000.00	$3,000
		SUBTOTAL			$2,098,000
		CONTINGENCY		15%	$315,000
		CONSTRUCTION TOTAL			$2,413,000
	INCIDENTALS				
15	Administration	0.50%	HOURLY		$12,000
16	Engineering Design	5.68%	LS		$163,000
17	Engineering Construction Services	8.00%	HOURLY		$193,000
18	Land & Right of Way	1	EST.		$20,000
19	Legal & Fiscal/Interim Financing	1	EST.		$0
20	Geotechnical	1	EST.		$25,000
21	Environmental	1	EST.		$30,000
22	Miscellaneous	1	EST.		$15,000
		TOTAL PROJECT COST			**$2,871,000**

S U N R I S E E N G I N E E R I N G I N C.
11 North 300 West, Washington, Utah 84780
Tel: (435) 652-8450

Engineer's Opinion of Probable Cost

WASHINGTON CITY WATER IMPROVEMENTS 28-Jan-10
Additional Projects (10-Year) DWS/sbh

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST
Connect to WCWCD line along southern edge of I-15					
1	Mobilization	1	LS	$ 78,000.00	$78,000
2	24" Pipe, Fittings, Tracer Wire, Bedding, Backfill,& Installation	10,700	LN.FT.	$ 80.00	$856,000
3	24" Butterfly Valve Assembly	12	EACH	$ 8,000.00	$96,000
4	Solid Rock Excavation	4,800	CU.YD.	$ 21.00	$100,800
5	Bituminous Surface Course (3" Thickness)	5,400	SQ. FT.	$ 3.00	$16,200
6	Untreated Base Course (6" Depth)	64,200	SQ. FT.	$ 1.00	$64,200
7	Metering Station	2	EACH	$ 22,000.00	$44,000
8	PRV Station (on 24" line)	1	EACH	$ 65,000.00	$65,000
9	Combination Air/Vac Valve & Manhole	6	EACH	$ 10,000.00	$60,000
10	Wash Crossing	2	EACH	$ 3,000.00	$6,000
11	Boring and Jacking	150	LN.FT.	$ 500.00	$75,000
			SUBTOTAL		$1,461,000
			CONTINGENCY	15%	$219,000
			CONSTRUCTION TOTAL		$1,680,000
	INCIDENTALS				
12	Administration	0.50%	HOURLY		$8,000
13	Engineering Design	5.82%	LS		$120,000
14	Engineering Construction Services	8.00%	HOURLY		$134,000
15	Land & Right of Way	1	EST.		$50,000
16	Legal & Fiscal/Interim Financing	1	EST.		$0
17	Geotechnical	1	EST.		$25,000
18	Environmental	1	EST.		$30,000
19	Miscellaneous	1	EST.		$15,000
			TOTAL PROJECT COST		**$2,062,000**

S U N R I S E E N G I N E E R I N G I N C.
11 North 300 West, Washington, Utah 84780
Tel: (435) 652-8450

Engineer's Opinion of Probable Cost

WASHINGTON CITY WATER IMPROVEMENTS 28-Jan-10
Additional Projects (10-Year) DWS/sbh

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST
New Grapevine Tank (North of I-15) and Pipeline					
1	Mobilization	1	LS	$ 80,000.00	$80,000
2	12" PVC Lines, Fittings, Tracer Wire, Bedding, Backfill,& Installation (C905 DR-18)	6,200	LN.FT.	$ 38.00	$235,600
3	12" Gate Valve Assembly	6	EACH	$ 2,400.00	$14,400
4	24" Butterfly Valve Assembly	2	EACH	$ 8,000.00	$16,000
5	Solid Rock Excavation	1,900	CU.YD.	$ 21.00	$39,900
6	Untreated Base Course (6" Depth)	31,000	SQ. FT.	$ 1.00	$31,000
7	Earthwork 500,000 Gallon Storage Tank	1	LS	$ 45,000.00	$45,000
8	Construct 500,000 Gallon Storage Tank	1	LS	$ 450,000.00	$450,000
9	Tank Appurtenances	1	LS	$ 45,000.00	$45,000
10	Chain Link Fence	760	LN.FT.	$ 31.00	$23,560
11	Metering Station	1	EACH	$ 18,000.00	$18,000
12	PRV Station (North end of Crown King Ave. on 8" line)	1	EACH	$ 55,000.00	$55,000
13	Combination Air/Vac Valve & Manhole	1	EACH	$ 7,500.00	$7,500
14	Boring and Jacking under Freeway	165	LN.FT.	$ 500.00	$82,500
15	Wash Crossing	1	EACH	$ 3,000.00	$3,000
16	Booster Pump Station	1	EACH	$ 175,000.00	$175,000
17	Power Supply	1	EACH	$ 100,000.00	$100,000
18	Emergency Power	0	EACH	$ 100,000.00	$0
			SUBTOTAL		$1,421,000
			CONTINGENCY	15%	$213,000
			CONSTRUCTION TOTAL		$1,634,000
	INCIDENTALS				
19	Administration	0.50%	HOURLY		$8,000
20	Engineering Design	5.76%	LS		$117,000
21	Engineering Construction Services	8.00%	HOURLY		$131,000
22	Land & Right of Way	1	EST.		$50,000
23	Legal & Fiscal/Interim Financing	1	EST.		$0
24	Geotechnical	1	EST.		$25,000
25	Environmental	1	EST.		$50,000
26	Miscellaneous	1	EST.		$15,000
			TOTAL PROJECT COST		**$2,030,000**

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Engineer's Opinion of Probable Cost

WASHINGTON CITY WATER IMPROVEMENTS 28-Jan-10
Additional Projects (10-Year) DWS/sbh

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST
Long Valley Tank and Pipeline					
1	Mobilization	1	LS	$ 111,000.00	$111,000
2	16" Pipe, Fittings, Tracer Wire, Bedding, Backfill,& Installation	2,400	LN.FT.	$ 45.00	$108,000
3	12" PVC Lines, Fittings, Tracer Wire, Bedding, Backfill,& Installation (C905 DR-18)	2,400	LN.FT.	$ 38.00	$91,200
4	16" Butterfly Valve Assembly	3	EACH	$ 4,100.00	$12,300
5	12" Gate Valve Assembly	3	EACH	$ 2,400.00	$7,200
6	Solid Rock Excavation	1,500	CU.YD.	$ 21.00	$31,500
7	Untreated Base Course (6" Depth)	24,000	SQ. FT.	$ 1.00	$24,000
8	Earthwork 2,000,000 Gallon Storage Tank	1	LS	$ 110,000.00	$110,000
9	Construct 2,000,000 Gallon Storage Tank	1	LS	$ 1,300,000.00	$1,300,000
10	Tank Appurtenances	1	LS	$ 90,000.00	$90,000
11	Chain Link Fence	840	LN.FT.	$ 31.00	$26,040
12	Metering Station	2	EACH	$ 18,000.00	$36,000
13	Control Valve & Vault	1	EACH	$ 20,000.00	$20,000
		SUBTOTAL			$1,967,000
		CONTINGENCY		15%	$295,000
		CONSTRUCTION TOTAL			$2,262,000
	INCIDENTALS				
14	Administration	0.50%	HOURLY		$11,000
15	Engineering Design	5.65%	LS		$154,000
16	Engineering Construction Services	8.00%	HOURLY		$181,000
17	Land & Right of Way	1	EST.		$50,000
18	Legal & Fiscal/Interim Financing	1	EST.		$0
19	Geotechnical	1	EST.		$25,000
20	Environmental	1	EST.		$30,000
21	Miscellaneous	1	EST.		$15,000
		TOTAL PROJECT COST			**$2,728,000**

SUNRISE ENGINEERING INC.
11 North 300 West, Washington, Utah 84780
Tel: (435) 652-8450

Engineer's Opinion of Probable Cost

WASHINGTON CITY WATER IMPROVEMENTS 28-Jan-10
Additional Projects (10-Year) DWS/sbh

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST
Miscellaneous Improvements					
Construct line from intersection of Windsor Dr. and Regent St. to intersection of Washington Pkwy. and Sandy Talus Dr.					
1	Mobilization	1	LS	$ 2,000.00	$2,000
2	8" PVC Lines, Fittings, Tracer Wire, Bedding, Backfill,& Installation (C905 DR-18)	500	LN.FT.	$ 22.00	$11,000
3	8" Gate Valve Assembly	2	EACH	$ 1,600.00	$3,200
4	Untreated Base Course (6" Depth)	2,500	SQ. FT.	$ 1.00	$2,500
				SUBTOTAL	$18,700
Construct line from Grapevine Tank to north end of Crown Ave.					
1	Mobilization	1	LS	$ 22,000.00	$22,000
2	16" Pipe, Fittings, Tracer Wire, Bedding, Backfill,& Installation (C905 DR-18)	4,800	LN.FT.	$ 45.00	$216,000
3	16" Butterfly Valve Assembly	6	EACH	$ 4,100.00	$24,600
4	Untreated Base Course (6" Depth)	24,000	SQ. FT.	$ 1.00	$24,000
				SUBTOTAL	$286,600
Construct PRV station in Lion's Head Dr.					
1	Mobilization	1	LS	$ 5,000.00	$5,000
2	PRV Station (on 8" line)	1	EACH	$ 55,000.00	$55,000
				SUBTOTAL	$60,000
Construct line in Seminole way and connect to Indian Springs Dr.					
1	Mobilization	1	LS	$ 16,000.00	$16,000
2	8" PVC Lines, Fittings, Tracer Wire, Bedding, Backfill,& Installation (C905 DR-18)	2,200	LN.FT.	$ 22.00	$48,400
3	8" Gate Valve Assembly	6	EACH	$ 1,600.00	$9,600
4	PRV Station (Indian Springs Dr. on 8" line)	1	EACH	$ 55,000.00	$55,000
5	PRV Station (Apache Dr. on 8" line)	1	EACH	$ 55,000.00	$55,000
6	Untreated Base Course (6" Depth)	11,000	SQ. FT.	$ 1.00	$11,000
7	Combination Air/Vac Valve & Manhole	2	EACH	$ 7,500.00	$15,000
				SUBTOTAL	$210,000
Connect to WCWCD line at 3650 South.					
1	Mobilization	1	LS	$ 13,000.00	$13,000
2	12" Gate Valve Assembly	6	EACH	$ 2,400.00	$14,400
3	PRV Station (on 12" line)	1	EACH	$ 60,000.00	$60,000
4	PRV Station (on 12" High Pressure Line)	1	EACH	$ 60,000.00	$60,000
5	Metering Station	1	EACH	$ 18,000.00	$18,000
				SUBTOTAL	$165,400
Connect to WCWCD line at Washington Fields Road.					
1	Mobilization	1	LS	$ 4,000.00	$4,000
2	12" Gate Valve Assembly	4	EACH	$ 2,400.00	$10,000
3	12" Check Valve and Vault	1	EACH	$ 12,000.00	$12,000
4	Metering Station	1	EACH	$ 18,000.00	$18,000
				SUBTOTAL	$44,000
Difference in 10" and 8" line (Wiltshire St. to Potomac Dr.)					
1	10" PVC Lines, Fittings, Tracer Wire, Bedding, Backfill,& Installation (C905 DR-18)	2,552	LN.FT.	$ 29.00	$74,000
2	8" PVC Lines, Fittings, Tracer Wire, Bedding, Backfill,& Installation (C905 DR-18)	(2,552)	LN.FT.	$ 22.00	($56,000)
3	10" Gate Valve Assembly	8	EACH	$ 1,950.00	$16,000
4	8" Gate Valve Assembly	(8)	EACH	$ 1,600.00	($13,000)
				SUBTOTAL	$21,000
			SUBTOTAL		$805,700
			CONTINGENCY	15%	$121,000
			CONSTRUCTION TOTAL		$926,700

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Engineer's Opinion of Probable Cost

WASHINGTON CITY WATER IMPROVEMENTS 28-Jan-10
Additional Projects (10-Year) DWS/sbh

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST
	INCIDENTALS				
1	Administration	0.50%	HOURLY		$5,000
2	Engineering Design	6.30%	LS		$71,000
3	Engineering Construction Services	8.00%	HOURLY		$74,000
4	Land & Right of Way	1	EST.		$20,000
5	Legal & Fiscal/Interim Financing	1	EST.		$0
6	Geotechnical	1	EST.		$10,000
7	Environmental	1	EST.		$10,000
8	Miscellaneous	1	EST.		$10,000
			TOTAL PROJECT COST		**$1,126,700**
		TOTAL COST			**$10,817,700**

Project Year				Present Value	Future Value
2011	**Grapevine/Green Springs Tank and Pipeline**			**$ 2,871,000.00**	**$ 2,971,000.00**
2014	**Connect to WCWCD line along southern edge of I-15**			**$ 2,062,000.00**	**$ 2,366,000.00**
2015	**New Grapevine Tank (North of I-15) and Pipeline**			**$ 2,030,000.00**	**$2,411,000.00**
2016	**Long Valley Tank and Pipeline**			**$ 2,728,000.00**	**$ 3,353,000.00**
Multiple	**Miscellaneous Improvements**			**$ 1,126,700.00**	**$1,327,000.00**
			Total	**$ 10,817,700.00**	**$ 12,428,000.00**

In providing opinions of probable construction cost, the Client understands that the Engineer has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinion of probable construction cost provided herein is made on the basis of the Engineer's qualifications and experience. The Engineer makes no warranty, expressed or implied, as the accuracy if such opinions compared to bid or actual costs.

APPENDIX D

CASH FLOW PROJECTION

#	Item	%									
1	*Annual Inflation Rate 3.50%*		**Actual**	**Actual**	**Actual**	**Budgeted**	**Budgeted**	**Budgeted**	**Budgeted**	**Projected**	**Projected**
2			**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
3	**Fiscal Year**		**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
4	**WATER SYSTEM INFORMATION**										
5	Annual Population Growth Rate		***4.7%***	***31.7%***	***9.0%***	***6.6%***	***4.2%***	***1.5%***	*5.00%*	*5.00%*	*6.00%*
6	Annual Interest Rate		*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*
7	Consumer Price Index (National)		184.0	188.9	195.3	*201.8*	*207.3*	*215.3*	*214.5*		
8	Annual Increase in Average Water Rate (100% of the increase in CPI)		*0.76%*	*0.89%*	*3.39%*	*3.33%*	*2.73%*	*3.86%*	*-0.37%*	*2.08%*	*2.08%*
9	Average Rate/ERU/Month (Annual Change =)		**$29.62**	**$27.49**	**$25.99**	**$34.02**	**$36.30**	**$32.95**	**$32.52**	$32.40	$33.07
10	Impact fee		$3,182	$3,182	$3,182	$3,182	$ 2,121	$ 2,121	$2,121	$ 2,310	$2,310
11	Connection Fee		$225	$225	$225	$225	$225	$225	$225	$225	$225
12	**System Users:**										
13	Residential ERU's		**4,818**	**6,560**	**7,203**	**7,660**	**8,001**	**8,121**			
14	Commercial ERU's (Billed)		**712**	**724**	**740**	**805**	**820**	**828**			
15	Total Existing ERU's (FY Year End June 30)		5,530	7,284	7,943	8,465	8,821	8,949	9,396	9,866	10,458
16	New ERU's:		248	1,754	659	522	356	128	447	470	592
17											
18	**WATER FUND ACCOUNTING**										
19	**Water Revenues**										
20	Water Sales		$ 1,921,491	$ 2,113,657	$ 2,374,136	$ 3,527,021	$ 3,925,538	$ 3,699,382	$ 3,769,184	$ 3,951,371	$ 4,252,454
21	Connection Fees		$ 151,411	$ 220,300	$ 142,685	$ 157,500	$ 123,750	$ 49,500	$ 36,000	$ 105,710	$ 133,195
22	Other Revenue (Hydrant Meters, etc.)		$ 191,946	$ 170,186	$ 282,743	$ 247,894	$ 210,883	$ 215,151	$ 52,700	$ 192,546	$ 198,322
23	Interest		$ 13,074	$ 10,510	$ 24,682	$ 26,652	$ 50,901	$ 50,901	$ 26,000	$ 90,901	$ 86,059
24	***TOTAL WATER FUND REVENUE:***		**$ 2,277,922**	**$ 2,514,652**	**$ 2,824,246**	**$ 3,959,067**	**$ 4,311,072**	**$ 4,014,934**	**$ 3,883,884**	**$ 4,340,527**	**$ 4,670,030**
25	**Water Expenses:** (Inc. O&M & Debt Serv.)										
26	Salaries & Wages		$ 266,266	$ 360,333	$ 385,841	$ 522,228	$ 523,456	$ 533,458	$ 545,791	$ 594,800	$ 633,462
27	Employee Benefits		$ 119,759	$ 171,202	$ 194,573	$ 281,854	$ 273,465	$ 275,130	$ 286,305	$ 309,822	$ 329,960
28	Overtime		$ -	$ -	$ -	$ -	$ 10,219	$ 13,000	$ 11,000	$ 12,699	$ 13,524
29	Memberships / Subscriptions		$ 1,305	$ 600	$ 1,043	$ 1,400	$ 1,400	$ 1,700	$ 1,500	$ 1,707	$ 1,818
30	Bank Trust Fees		$ 21,404	$ 13,723	$ 22,510	$ 20,000	$ 20,000	$ 20,500	$ 20,000	$ 22,468	$ 23,929
31	Conference / Travel		$ 1,626	$ 5,859	$ 7,019	$ 9,000	$ 10,000	$ 12,000	$ 12,000	$ 12,594	$ 13,413
32	Office Supply / Exp / Postage		$ 2,537	$ 6,094	$ 6,683	$ 8,500	$ 22,000	$ 10,000	$ 3,000	$ 13,317	$ 14,182
33	Equipment/Supply/Maintenance		$ 21,181	$ 21,577	$ 17,557	$ 30,000	$ 25,000	$ 26,000	$ 21,000	$ 26,812	$ 28,555
34	Buildings and Grounds		$ 10,492	$ 8,991	$ 27,468	$ 25,000	$ 43,000	$ 22,000	$ 9,660	$ 28,286	$ 30,124
35	Fuel & Oil		$ 10,140	$ 15,516	$ 26,944	$ 27,000	$ 29,000	$ 30,500	$ 30,500	$ 33,398	$ 35,569
36	Telephone		$ 3,899	$ 5,094	$ 7,049	$ 8,100	$ 8,400	$ 10,700	$ 9,130	$ 10,475	$ 11,156
37	Utilities		$ 177,694	$ 256,985	$ 286,959	$ 489,808	$ 506,265	$ 552,000	$ 396,550	$ 542,331	$ 577,582
38	Professional & Technical Services		$ 27,472	$ 115,465	$ 124,000	$ 95,000	$ 80,000	$ 50,000	$ 72,000	$ 75,100	$ 79,982
39	Uncollectable Accounts		$ 890	$ -	$ 2,311	$ -	$ 2,000	$ 1,500	$ 1,000	$ 1,688	$ 1,798
40	Special Department Supplies		$ 90,911	$ 147,191	$ 129,819	$ 155,000	$ 155,000	$ 155,000	$ 120,000	$ 160,317	$ 170,737
41	Cost Alloc. & Lease Payment			$ -	$ 255,000	$ 255,000	$ -	$ -	$ -	$ -	$ -
42	Miscellaneous			$ 1,144		$ -	$ -	$ -	$ -	$ -	$ -
43	Equipment Purchase		$ 5,461	$ 13,769	$ 2,000	$ 146,000	$ 153,500	$ 74,000	$ -	$ 87,095	$ 92,757
44	Special Projects		$ -	$ 374,378	$ 14,150	$ 232,500	$ 212,000	$ 74,500	$ 111,000	$ 149,166	$ 158,862
45	Quail Lake O&M Costs		$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000
46	Quail Lake Water Purchased		$ 94,534	$ 123,493	$ 140,500	$ 131,184	$ 161,000	$ 166,000	$ 221,748	$ 178,316	$ 183,665
47	Sand Hollow Water Purchased				$ 119,342	$ 200,000	$ 400,000	$ 400,000	$ 500,000	$ 500,000	$ 500,000
48	Pooling-Water Impact Fee (Pass through)				$ -	$ -	$ -	$ -	$ -	$ -	$ -
49	Pooling-5% Surcharge				$ -	$ 177,765	$ 160,953	$ 186,000	$ 190,000	$ 207,192	$ 219,623
50	Pooling-Cost of Water ($0.65/1,000 gal)				$ -	$ -	$ -	$ -	$ -	$ -	$ 25,213
51	Renewal & Replacement Fund (Funded Depreciation)									$ 200,000	$ 219,000
52	Depreciation (Unfunded)		$ 319,535	$ 348,813	$ 513,527	$ 474,729	$ 501,327	$ 522,511	$ 553,862	$ 587,094	$ 625,255
53	***Sub-Total Operation & Maintenance***		**$ 1,259,106**	**$ 2,074,227**	**$ 2,368,295**	**$ 3,374,068**	**$ 3,381,985**	**$ 3,220,499**	**$ 3,200,046**	**$ 3,838,676**	**$ 4,074,166**
54	**Existing Debt Service**	**% Impact Fee Ineligible**									
55	Water Resources Bonds 1987 & 88, 5%	100%	$ 8,671								
56	Water Resources Bonds 1993A & C, 0%	75%	$ 111,000	$ 111,000	$ 111,000	$ 111,000	$ 111,000	$ 111,000	$ 111,000	$ 111,000	$ 111,000
57	Rural Development 1993B, 1996, 4.5%	75%	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692
58	P&I, RD 3.25% Loan	20%	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681
59	Pmt Reserve, RD	20%	$ 1,477	$ 1,477	$ 1,477	$ 1,477	$ 1,477	$ 1,477	$ -	$ -	$ -
60	P&I, DWB 1.95% Loan	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
61	Pmt Reserve, DWB	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
62	Sand Hollow Pipeline	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
63	P&I, RD 4.25% Loan, Treatment Plant	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
64	Pmt Reserve, RD	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
65	P&I, DWB 2.59% Loan, Treatment Plant	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
66	Pmt Reserve, DWB	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
67	Water Revenue Bond 2006	100%	$ -	$ -	$ -	$ -	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240
68	Payment Reserve	100%	$ -	$ -	$ -	$ -	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000
69	Water Revenue Bond 2008	100%	$ -	$ -	$ -	$ -	$ -	$ -	$ 206,880	$ 206,880	$ 206,880
70	Payment Reserve	100%			$ -	$ -	$ -	$ -	$ 20,688	$ 20,688	$ 20,688
71	***Existing Impact Fee Ineligible Debt Service***		**$ 191,521**	**$ 182,850**	**$ 182,850**	**$ 182,850**	**$ 414,090**	**$ 414,090**	**$ 640,181**	**$ 640,181**	**$ 640,181**
72	**New Debt Service**										
73											
74	***New Impact Fee Ineligible Debt Service***		***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***
75	***TOTAL WATER FUND EXPENSES:***		**$ 1,450,627**	**$ 2,257,077**	**$ 2,551,145**	**$ 3,556,918**	**$ 3,796,075**	**$ 3,634,589**	**$ 3,840,227**	**$ 4,478,857**	**$ 4,714,347**
76	**WATER FUND CASHFLOW**										
77	Net Cashflow Water Fund		**$ 827,295**	**$ 257,575**	**$ 273,101**	**$ 402,149**	**$ 514,997**	**$ 380,345**	**$ 43,657**	**$ (138,330)**	**$ (44,317)**
78											
79	**IMPACT FEE FUND ACCOUNTING**										
80	**Impact Fee Revenues**										
81	Impact Fees		$ 2,256,169	$ 3,249,304	$ 2,225,255	$ 2,227,400	$ 1,166,550	$ 466,620	$ 339,360	$ 1,085,424	$ 1,367,634
82	Interest		$ 35,506	$ 64,500	$ 202,088	$ 189,412	$ 261,910	$ 300,000	$ 100,000	$ 218,734	$ 140,246
83	***TOTAL IMPACT FEE FUND REVENUE:***		**$ 2,291,675**	**$ 3,313,805**	**$ 2,427,343**	**$ 2,416,812**	**$ 1,428,460**	**$ 766,620**	**$ 439,360**	**$ 1,304,157**	**$ 1,507,880**
84	**Existing Eligible Debt Service**	**% Impact Fee Eligible**									
85	Water Resources Bonds 1987 & 88, 5%	0%	$ -	$ -							
86	Water Resources Bonds 1993A & C, 0%	25%	$ 37,000	$ 37,000	$ 37,000	$ 37,000	$ 37,000	$ 37,000	$ 37,000	$ 37,000	$ 37,000
87	Rural Development 1993B, 1996, 4.5%	25%	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564
88	P&I, RD 3.25% Loan, 2000	80%	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723
89	Pmt Reserve, RD	80%	$ 5,907	$ 5,907	$ 5,907	$ 5,907	$ 5,907	$ 5,907	$ -	$ -	$ -
90	P&I, DWB 1.95% Loan, 2000	100%	$ 69,489	$ 69,553	$ 69,597	$ 69,622	$ 69,628	$ 70,614	$ 70,488	$ 70,397	$ 70,285
91	Pmt Reserve, DWB	100%	$ 11,582	$ 11,592	$ -	$ -	$ -	$ -	$ -	$ -	$ -
92	Sand Hollow Pipeline	100%	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440
93	P&I, RD 4.25% Loan, Treatment Plant	100%	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992
94	Pmt Reserve, RD	100%	$ 12,499	$ 12,499	$ 12,499	$ 12,499	$ 12,499	$ 12,499	$ 12,499	$ 12,499	$ 12,499
95	P&I, DWB 2.59% Loan, Treatment Plant	100%	$ 44,742	$ 44,742	$ 44,042	$ 44,343	$ 44,618	$ 44,867	$ 44,339	$ 44,536	$ 44,707
96	Pmt Reserve, DWB	100%	$ 7,457	$ 7,457	$ 7,340	$ 7,390	$ 7,436	$ -	$ -	$ -	$ -
97	Water Revenue Bond 2006	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
98	Payment Reserve	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
99	Water Revenue Bond 2008	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
100	Payment Reserve	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
101	***Sub-Total Existing Eligible Debt Service***		***$ 587,395***	***$ 587,469***	***$ 575,105***	***$ 575,481***	***$ 575,808***	***$ 569,606***	***$ 563,045***	***$ 563,151***	***$ 563,210***
102	**New Debt Service**										
103											
104	***Sub-Total New Debt Service***		***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***
105	Misc. Impact Fee Projects										
106	***TOTAL IMPACT FEE FUND EXPENSES:***		**$ 587,395**	**$ 587,469**	**$ 575,105**	**$ 575,481**	**$ 575,808**	**$ 569,606**	**$ 563,045**	**$ 563,151**	**$ 563,210**
107	**IMPACT FEE FUND CASHFLOW**										
108	Net Cashflow Impact Fee Fund		**$ 1,704,280**	**$ 2,726,335**	**$ 1,852,238**	**$ 1,841,331**	**$ 852,652**	**$ 197,014**	**$ (123,685)**	**$ 741,007**	**$ 944,670**
109											
110	**CASH ON HAND**										
111	Water Fund Balance (FY Year End June 30)		$ 732,724	$ 988,822	$ 1,260,447	$ 1,661,119	$ 2,174,639	$ 2,553,507	$ 2,597,165	$ 2,458,835	$ 2,414,518
112	Impact Fee Fund Balance (FY Year End June 30)		$ 2,788,023	$ 5,476,902	$ 6,577,393	$ 7,380,300	$ 8,207,109	$ 8,385,717	$ 6,249,532	$ 4,007,039	$ 4,939,210
113	Bond Reserve Balance (FY Year End June 30)		$ 452,438	$ 491,371	$ 518,594	$ 545,868	$ 594,188	$ 635,071	$ 689,258	$ 743,445	$ 797,633
114	***Total***		**$ 3,973,185**	**$ 6,957,095**	**$ 8,356,434**	**$ 9,587,287**	**$ 10,975,936**	**$ 11,574,295**	**$ 9,535,955**	**$ 7,209,320**	**$ 8,151,361**
115				**$ 6,957,095**	**$ 8,356,434**	**$ 9,587,287**	**$ 10,954,936**	**$ 11,553,295**	**$ 9,494,267**	**$ 7,167,632**	**$ 8,109,673**
116	Renewal & Replacement Fund (Funded Depreciation)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
117											
118	**FINANCING PLAN FOR NEW PROJECT PHASES:**		Sand Hollow Pipe & 2004 Proj.		MF Plant Expansion, Supply Line, Quail BP Expansion	2006 Project (In Town Replacement)			City Water Dept. New Yard	Grapevine/Green Springs Tank and Pipeline	
119	**Total Project Amount**		**3,142,350**		**726,000**	**9,921,345**	**0**	**0**	**2,000,000**	**2,971,000**	**0**
120	Self Participation		3,142,350		726,000	1,012,627	0	0	2,000,000	2,971,000	0
121	Other Source										
122	Amount					8,908,718					
123	Interest					4.5%					
124	Years					40					
125	Approx. Annual Payment					$484,128					
126											
127											
128											
129	**RENEWAL & REPLACEMENT PROJECTS:**										
130	**Total Project Amount**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**200,000**	**219,000**
131	Self Participation		0	0	0	0	0	0	0	200,000	219,000
132	Other Source										
133	Amount										
134	Interest										
135	Years										
136	Debt service coverage			1.02	1.28	1.40	1.45	1.34	1.03	1.07	1.20
137	Debt service coverage(With Impact Fees)			5.33	4.48	4.58	2.89	2.12	1.39	2.15	2.45

	Annual Inflation Rate 3.50%		**Projected**	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**
			2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
	Fiscal Year		**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
	WATER SYSTEM INFORMATION										
	Annual Population Growth Rate		*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*
	Annual Interest Rate		*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*
	Consumer Price Index (National)										
	Annual Increase in Average Water Rate (100% of the increase in CPI)		*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*
	Average Rate/ERU/Month (Annual Change =)		$33.76	$34.46	$35.18	$35.91	$36.66	$37.42	$38.20	$39.00	$39.81
	Impact fee		$2,310	$2,310	$2,310	$2,310	$2,310	$2,310	$2,310	$2,310	$2,310
	Connection Fee		$225	$225	$225	$225	$225	$225	$225	$225	$225
	System Users:										
	Residential ERU's										
	Commercial ERU's (Billed)										
	Total Existing ERU's (FY Year End June 30)		11,086	11,751	12,456	13,203	13,995	14,835	15,725	16,669	17,669
	New ERU's:		627	665	705	747	792	840	890	944	1,000
	WATER FUND ACCOUNTING										
	Water Revenues										
	Water Sales		$ 4,596,619	$ 4,968,740	$ 5,371,093	$ 5,806,142	$ 6,276,551	$ 6,785,200	$ 7,335,206	$ 7,929,941	$ 8,573,050
	Connection Fees		$ 141,186	$ 149,658	$ 158,637	$ 168,155	$ 178,245	$ 188,939	$ 200,276	$ 212,292	$ 225,030
	Other Revenue (Hydrant Meters, etc.)		$ 204,272	$ 210,400	$ 216,712	$ 223,213	$ 229,910	$ 236,807	$ 243,911	$ 251,229	$ 258,765
	Interest		$ 84,508	$ 83,092	$ 88,504	$ 95,318	$ 109,406	$ 127,881	$ 151,403	$ 180,708	$ 216,613
	TOTAL WATER FUND REVENUE:		**$ 5,026,585**	**$ 5,411,889**	**$ 5,834,946**	**$ 6,292,829**	**$ 6,794,111**	**$ 7,338,827**	**$ 7,930,796**	**$ 8,574,169**	**$ 9,273,458**
	Water Expenses: (Inc. O&M & Debt Serv.)										
	Salaries & Wages		$ 674,637	$ 718,489	$ 765,191	$ 814,928	$ 867,898	$ 924,312	$ 984,392	$ 1,048,377	$ 1,116,522
	Employee Benefits		$ 351,408	$ 374,249	$ 398,575	$ 424,483	$ 452,074	$ 481,459	$ 512,754	$ 546,083	$ 581,578
	Overtime		$ 14,404	$ 15,340	$ 16,337	$ 17,399	$ 18,530	$ 19,734	$ 21,017	$ 22,383	$ 23,838
	Memberships / Subscriptions		$ 1,936	$ 2,062	$ 2,196	$ 2,339	$ 2,491	$ 2,653	$ 2,825	$ 3,009	$ 3,204
	Bank Trust Fees		$ 25,484	$ 27,141	$ 28,905	$ 30,784	$ 32,785	$ 34,916	$ 37,185	$ 39,602	$ 42,176
	Conference / Travel		$ 14,285	$ 15,213	$ 16,202	$ 17,255	$ 18,377	$ 19,571	$ 20,843	$ 22,198	$ 23,641
	Office Supply / Exp / Postage		$ 15,104	$ 16,086	$ 17,131	$ 18,245	$ 19,431	$ 20,694	$ 22,039	$ 23,471	$ 24,997
	Equipment/Supply/Maintenance		$ 30,411	$ 32,388	$ 34,493	$ 36,735	$ 39,123	$ 41,666	$ 44,374	$ 47,258	$ 50,330
	Buildings and Grounds		$ 32,082	$ 34,167	$ 36,388	$ 38,754	$ 41,273	$ 43,955	$ 46,812	$ 49,855	$ 53,096
	Fuel & Oil		$ 37,881	$ 40,344	$ 42,966	$ 45,759	$ 48,733	$ 51,901	$ 55,274	$ 58,867	$ 62,694
	Telephone		$ 11,881	$ 12,653	$ 13,476	$ 14,352	$ 15,284	$ 16,278	$ 17,336	$ 18,463	$ 19,663
	Utilities		$ 615,125	$ 655,108	$ 697,690	$ 743,040	$ 791,338	$ 842,775	$ 897,555	$ 955,896	$ 1,018,029
	Professional & Technical Services		$ 85,180	$ 90,717	$ 96,614	$ 102,894	$ 109,582	$ 116,705	$ 124,290	$ 132,369	$ 140,973
	Uncollectable Accounts		$ 1,915	$ 2,039	$ 2,172	$ 2,313	$ 2,463	$ 2,623	$ 2,794	$ 2,976	$ 3,169
	Special Department Supplies		$ 181,835	$ 193,654	$ 206,242	$ 219,648	$ 233,925	$ 249,130	$ 265,323	$ 282,569	$ 300,936
	Cost Alloc. & Lease Payment		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Miscellaneous		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Equipment Purchase		$ 98,786	$ 105,207	$ 112,045	$ 119,328	$ 127,085	$ 135,345	$ 144,143	$ 153,512	$ 163,490
	Special Projects		$ 169,188	$ 180,185	$ 191,897	$ 204,370	$ 217,654	$ 231,802	$ 246,869	$ 262,916	$ 280,005
	Quail Lake O&M Costs		$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000
	Quail Lake Water Purchased		$ 189,175	$ 194,851	$ 200,696	$ 206,717	$ 212,918	$ 219,306	$ 225,885	$ 232,662	$ 239,642
	Sand Hollow Water Purchased		$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
	Pooling-Water Impact Fee (Pass through)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pooling-5% Surcharge		$ 232,801	$ 246,769	$ 261,575	$ 277,269	$ 293,905	$ 311,540	$ 330,232	$ 350,046	$ 371,049
	Pooling-Cost of Water ($0.65/1,000 gal)		$ 92,903	$ 164,654	$ 240,711	$ 321,330	$ 406,787	$ 497,372	$ 593,391	$ 695,172	$ 803,060
	Renewal & Replacement Fund (Funded Depreciation)		$ 239,805	$ 262,586	$ 287,532	$ 314,848	$ 344,758	$ 377,510	$ 413,374	$ 452,644	$ 495,646
	Depreciation (Unfunded)		$ 665,896	$ 709,179	$ 755,276	$ 804,369	$ 856,653	$ 912,335	$ 971,637	$ 1,034,794	$ 1,102,055
	Sub-Total Operation & Maintenance		**$ 4,366,122**	**$ 4,677,081**	**$ 5,008,310**	**$ 5,361,157**	**$ 5,737,066**	**$ 6,137,580**	**$ 6,564,345**	**$ 7,019,122**	**$ 7,503,793**
	Existing Debt Service	**% Impact Fee Ineligible**									
	Water Resources Bonds 1987 & 88, 5%	100%									
	Water Resources Bonds 1993A & C, 0%	75%	$ 171,750	$ 51,000	$ 102,750	$ -	$ -	$ -	$ -	$ -	$ -
	Rural Development 1993B, 1996, 4.5%	75%	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692
	P&I, RD 3.25% Loan	20%	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681
	Pmt Reserve, RD	20%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, DWB 1.95% Loan	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pmt Reserve, DWB	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Sand Hollow Pipeline	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, RD 4.25% Loan, Treatment Plant	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pmt Reserve, RD	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, DWB 2.59% Loan, Treatment Plant	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pmt Reserve, DWB	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Water Revenue Bond 2006	100%	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240
	Payment Reserve	100%	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000
	Water Revenue Bond 2008	100%	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880
	Payment Reserve	100%	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688
	Existing Impact Fee Ineligible Debt Service		**$ 700,931**	**$ 580,181**	**$ 631,931**	**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**
	New Debt Service										
	New Impact Fee Ineligible Debt Service		*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*
	TOTAL WATER FUND EXPENSES:		**$ 5,067,053**	**$ 5,257,262**	**$ 5,640,241**	**$ 5,890,337**	**$ 6,266,247**	**$ 6,666,761**	**$ 7,093,526**	**$ 7,548,303**	**$ 8,032,974**
	WATER FUND CASHFLOW										
	Net Cashflow Water Fund		**$ (40,467)**	**$ 154,627**	**$ 194,705**	**$ 402,492**	**$ 527,864**	**$ 672,066**	**$ 837,271**	**$ 1,025,867**	**$ 1,240,485**
	IMPACT FEE FUND ACCOUNTING										
	Impact Fee Revenues										
	Impact Fees		$ 1,449,692	$ 1,536,673	$ 1,628,874	$ 1,726,606	$ 1,830,202	$ 1,940,014	$ 2,056,415	$ 2,179,800	$ 2,310,588
	Interest		$ 172,872	$ 192,283	$ 149,976	$ 96,494	$ 21,297	$ 57,875	$ 108,472	$ 166,288	$ 230,457
	TOTAL IMPACT FEE FUND REVENUE:		**$ 1,622,564**	**$ 1,728,956**	**$ 1,778,850**	**$ 1,823,100**	**$ 1,851,500**	**$ 1,997,889**	**$ 2,164,887**	**$ 2,346,089**	**$ 2,541,045**
	Existing Eligible Debt Service	**% Impact Fee Eligible**									
	Water Resources Bonds 1987 & 88, 5%	0%									
	Water Resources Bonds 1993A & C, 0%	25%	$ 57,250	$ 17,000	$ 34,250	$ -	$ -	$ -	$ -	$ -	$ -
	Rural Development 1993B, 1996, 4.5%	25%	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564
	P&I, RD 3.25% Loan, 2000	80%	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723
	Pmt Reserve, RD	80%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, DWB 1.95% Loan, 2000	100%	$ 70,154	$ 16,004	$ 69,834	$ 69,644	$ 69,435	$ 70,207	$ 69,939	$ 69,652	$ 70,346
	Pmt Reserve, DWB	100%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Sand Hollow Pipeline	100%	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440	$ 196,440
	P&I, RD 4.25% Loan, Treatment Plant	100%	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992
	Pmt Reserve, RD	100%	$ 12,499	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, DWB 2.59% Loan, Treatment Plant	100%	$ 43,852	$ 43,997	$ 44,117	$ 44,210	$ 44,278	$ 44,320	$ 44,335	$ 44,325	$ 44,289
	Pmt Reserve, DWB	100%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Water Revenue Bond 2006	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Payment Reserve	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Water Revenue Bond 2008	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Payment Reserve	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Sub-Total Existing Eligible Debt Service		*$ 582,475*	*$ 475,720*	*$ 546,920*	*$ 512,574*	*$ 512,432*	*$ 513,245*	*$ 512,994*	*$ 512,697*	*$ 513,354*
	New Debt Service										
	Sub-Total New Debt Service		*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*
	Misc. Impact Fee Projects										
	TOTAL IMPACT FEE FUND EXPENSES:		**$ 582,475**	**$ 475,720**	**$ 546,920**	**$ 512,574**	**$ 512,432**	**$ 513,245**	**$ 512,994**	**$ 512,697**	**$ 513,354**
	IMPACT FEE FUND CASHFLOW										
	Net Cashflow Impact Fee Fund		**$ 1,040,089**	**$ 1,253,236**	**$ 1,231,930**	**$ 1,310,526**	**$ 1,339,067**	**$ 1,484,644**	**$ 1,651,894**	**$ 1,833,392**	**$ 2,027,691**
	CASH ON HAND										
	Water Fund Balance (FY Year End June 30)		$ 2,374,051	$ 2,528,678	$ 2,723,383	$ 3,125,875	$ 3,653,738	$ 4,325,804	$ 5,163,075	$ 6,188,941	$ 7,429,426
	Impact Fee Fund Balance (FY Year End June 30)		$ 5,493,800	$ 4,285,036	$ 2,756,967	$ 608,493	$ 1,653,560	$ 3,099,204	$ 4,751,098	$ 6,584,490	$ 3,612,181
	Bond Reserve Balance (FY Year End June 30)		$ 851,820	$ 893,508	$ 935,196	$ 976,884	$ 1,018,572	$ 1,060,260	$ 1,101,948	$ 1,143,636	$ 1,185,324
	Total		**$ 8,719,671**	**$ 7,707,222**	**$ 6,415,545**	**$ 4,711,251**	**$ 6,325,870**	**$ 8,485,268**	**$ 11,016,120**	**$ 13,917,067**	**$ 12,226,931**
			$ 8,677,983	**$ 7,665,534**	**$ 6,373,857**	**$ 4,669,563**	**$ 6,284,182**	**$ 8,443,580**	**$ 10,974,432**	**$ 13,875,379**	**$ 12,185,243**
	Renewal & Replacement Fund (Funded Depreciation)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

	FINANCING PLAN FOR NEW PROJECT PHASES:	Miscellaneous Improvements	Connect to WCWCD line along southern edge of I-15 and Miscellaneous Improvements	New Grapevine Tank (North of I-15) and Pipeline and Miscellaneous Improvements	Long Valley Tank and Pipeline, Miscellaneous Improvements and Cul. WMP	Miscellaneous Improvements	Miscellaneous Improvements			Water Project
	Total Project Amount	**473,000**	**2,462,000**	**2,760,000**	**3,459,000**	**294,000**	**39,000**	**0**	**0**	**5,000,000**
	Self Participation	473,000	2,462,000	2,760,000	3,459,000	294,000	39,000	0	0	5,000,000
	Other Source									
	Amount									
	Interest									
	Years									
	Approx. Annual Payment									
	RENEWAL & REPLACEMENT PROJECTS:									
	Total Project Amount	**239,805**	**262,586**	**287,532**	**314,848**	**344,758**	**377,510**	**413,374**	**452,644**	**495,646**
	Self Participation	239,805	262,586	287,532	314,848	344,758	377,510	413,374	452,644	495,646
	Other Source									
	Amount									
	Interest									
	Years									
	Debt service coverage	1.22	1.62	1.59	1.97	2.17	2.39	2.64	2.92	3.23
	Debt service coverage(With Impact Fees)	2.48	3.25	3.09	3.72	3.95	4.31	4.72	5.17	5.67

	Annual Inflation Rate 3.50%		**Projected**	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**
			2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
	Fiscal Year		**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
	WATER SYSTEM INFORMATION										
	Annual Population Growth Rate		*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*6.00%*	*5.00%*
	Annual Interest Rate		*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*
	Consumer Price Index (National)										
	Annual Increase in Average Water Rate (100% of the increase in CPI)		*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*	*2.08%*
	Average Rate/ERU/Month (Annual Change =)		$40.64	$41.49	$42.35	$43.23	$44.13	$45.05	$45.99	$46.95	$47.92
	Impact fee		$2,310	$2,310	$2,310	$2,310	$2,310	$2,310	$2,310	$2,310	$2,310
	Connection Fee		$225	$225	$225	$225	$225	$225	$225	$225	$225
	System Users:										
	Residential ERU's										
	Commercial ERU's (Billed)										
	Total Existing ERU's (FY Year End June 30)		18,729	19,853	21,044	22,307	23,645	25,064	26,568	28,162	29,570
	New ERU's:		1,060	1,124	1,191	1,263	1,338	1,419	1,504	1,594	1,408
	WATER FUND ACCOUNTING										
	Water Revenues										
	Water Sales		$ 9,268,478	$ 10,020,490	$ 10,833,701	$ 11,713,103	$ 12,664,095	$ 13,692,518	$ 14,804,688	$ 16,007,442	$ 17,221,279
	Connection Fees		$ 238,531	$ 252,843	$ 268,014	$ 284,095	$ 301,140	$ 319,209	$ 338,361	$ 358,663	$ 316,819
	Other Revenue (Hydrant Meters, etc.)		$ 266,528	$ 274,524	$ 282,760	$ 291,243	$ 299,980	$ 308,979	$ 318,249	$ 327,796	$ 335,991
	Interest		$ 260,030	$ 311,971	$ 373,558	$ 446,039	$ 530,792	$ 629,345	$ 743,387	$ 874,785	$ 1,025,599
	TOTAL WATER FUND REVENUE:		**$ 10,033,567**	**$ 10,859,828**	**$ 11,758,033**	**$ 12,734,479**	**$ 13,796,007**	**$ 14,950,051**	**$ 16,204,686**	**$ 17,568,686**	**$ 18,899,688**
	Water Expenses: (Inc. O&M & Debt Serv.)										
	Salaries & Wages		$ 1,189,096	$ 1,266,387	$ 1,348,702	$ 1,436,368	$ 1,529,732	$ 1,629,164	$ 1,735,060	$ 1,847,839	$ 1,958,709
	Employee Benefits		$ 619,380	$ 659,640	$ 702,517	$ 748,180	$ 796,812	$ 848,605	$ 903,764	$ 962,509	$ 1,020,259
	Overtime		$ 25,387	$ 27,037	$ 28,795	$ 30,667	$ 32,660	$ 34,783	$ 37,044	$ 39,451	$ 41,819
	Memberships / Subscriptions		$ 3,413	$ 3,634	$ 3,871	$ 4,122	$ 4,390	$ 4,676	$ 4,980	$ 5,303	$ 5,621
	Bank Trust Fees		$ 44,918	$ 47,837	$ 50,947	$ 54,258	$ 57,785	$ 61,541	$ 65,541	$ 69,801	$ 73,990
	Conference / Travel		$ 25,178	$ 26,814	$ 28,557	$ 30,413	$ 32,390	$ 34,496	$ 36,738	$ 39,126	$ 41,473
	Office Supply / Exp / Postage		$ 26,622	$ 28,352	$ 30,195	$ 32,158	$ 34,248	$ 36,474	$ 38,845	$ 41,370	$ 43,852
	Equipment/Supply/Maintenance		$ 53,602	$ 57,086	$ 60,796	$ 64,748	$ 68,957	$ 73,439	$ 78,212	$ 83,296	$ 88,294
	Buildings and Grounds		$ 56,547	$ 60,223	$ 64,137	$ 68,306	$ 72,746	$ 77,474	$ 82,510	$ 87,873	$ 93,146
	Fuel & Oil		$ 66,769	$ 71,109	$ 75,731	$ 80,653	$ 85,896	$ 91,479	$ 97,425	$ 103,757	$ 109,983
	Telephone		$ 20,941	$ 22,302	$ 23,752	$ 25,296	$ 26,940	$ 28,691	$ 30,556	$ 32,542	$ 34,494
	Utilities		$ 1,084,201	$ 1,154,674	$ 1,229,728	$ 1,309,661	$ 1,394,788	$ 1,485,450	$ 1,582,004	$ 1,684,834	$ 1,785,924
	Professional & Technical Services		$ 150,137	$ 159,895	$ 170,289	$ 181,357	$ 193,146	$ 205,700	$ 219,071	$ 233,310	$ 247,309
	Uncollectable Accounts		$ 3,375	$ 3,594	$ 3,828	$ 4,077	$ 4,342	$ 4,624	$ 4,924	$ 5,245	$ 5,559
	Special Department Supplies		$ 320,497	$ 341,329	$ 363,516	$ 387,144	$ 412,309	$ 439,109	$ 467,651	$ 498,048	$ 527,931
	Cost Alloc. & Lease Payment		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Miscellaneous		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Equipment Purchase		$ 174,117	$ 185,434	$ 197,488	$ 210,324	$ 223,996	$ 238,555	$ 254,061	$ 270,575	$ 286,810
	Special Projects		$ 298,206	$ 317,589	$ 338,232	$ 360,217	$ 383,631	$ 408,567	$ 435,124	$ 463,407	$ 491,212
	Quail Lake O&M Costs		$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000	$ 84,000
	Quail Lake Water Purchased		$ 246,831	$ 254,236	$ 261,863	$ 269,719	$ 277,810	$ 286,145	$ 294,729	$ 303,571	$ 311,160
	Sand Hollow Water Purchased		$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
	Pooling-Water Impact Fee (Pass through)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pooling-5% Surcharge		$ 393,312	$ 416,910	$ 441,925	$ 468,441	$ 496,547	$ 526,340	$ 557,920	$ 591,395	$ 620,965
	Pooling-Cost of Water ($0.65/1,000 gal)		$ 917,420	$ 1,038,643	$ 1,167,139	$ 1,303,344	$ 1,447,722	$ 1,600,762	$ 1,762,985	$ 1,934,942	$ 2,086,836
	Renewal & Replacement Fund (Funded Depreciation)		$ 542,732	$ 594,291	$ 650,749	$ 712,570	$ 780,264	$ 854,390	$ 935,557	$ 1,024,434	$ 1,111,511
	Depreciation (Unfunded)		$ 1,173,689	$ 1,249,979	$ 1,331,227	$ 1,417,757	$ 1,509,911	$ 1,608,056	$ 1,712,579	$ 1,823,897	$ 1,933,331
	Sub-Total Operation & Maintenance		**$ 8,020,367**	**$ 8,570,998**	**$ 9,157,983**	**$ 9,783,780**	**$ 10,451,022**	**$ 11,162,518**	**$ 11,921,280**	**$ 12,730,528**	**$ 13,504,189**
	Existing Debt Service	**% Impact Fee Ineligible**									
	Water Resources Bonds 1987 & 88, 5%	100%									
	Water Resources Bonds 1993A & C, 0%	75%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Rural Development 1993B, 1996, 4.5%	75%	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692	$ 55,692
	P&I, RD 3.25% Loan	20%	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681	$ 14,681
	Pmt Reserve, RD	20%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, DWB 1.95% Loan	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pmt Reserve, DWB	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Sand Hollow Pipeline	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, RD 4.25% Loan, Treatment Plant	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pmt Reserve, RD	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, DWB 2.59% Loan, Treatment Plant	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pmt Reserve, DWB	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Water Revenue Bond 2006	100%	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240	$ 210,240
	Payment Reserve	100%	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000	$ 21,000
	Water Revenue Bond 2008	100%	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880	$ 206,880
	Payment Reserve	100%	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688	$ 20,688
	Existing Impact Fee Ineligible Debt Service		**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**	**$ 529,181**
	New Debt Service										
	New Impact Fee Ineligible Debt Service		***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***
	TOTAL WATER FUND EXPENSES:		**$ 8,549,548**	**$ 9,100,179**	**$ 9,687,164**	**$ 10,312,961**	**$ 10,980,202**	**$ 11,691,699**	**$ 12,450,461**	**$ 13,259,708**	**$ 14,033,369**
	WATER FUND CASHFLOW										
	Net Cashflow Water Fund		**$ 1,484,020**	**$ 1,759,649**	**$ 2,070,870**	**$ 2,421,518**	**$ 2,815,805**	**$ 3,258,352**	**$ 3,754,225**	**$ 4,308,978**	**$ 4,866,319**
	IMPACT FEE FUND ACCOUNTING										
	Impact Fee Revenues										
	Impact Fees		$ 2,449,224	$ 2,596,177	$ 2,751,948	$ 2,917,064	$ 3,092,088	$ 3,277,614	$ 3,474,270	$ 3,682,727	$ 3,253,075
	Interest		$ 126,426	$ 203,533	$ 290,693	$ 390,106	$ 323,777	$ 261,253	$ 378,033	$ 505,784	$ 645,302
	TOTAL IMPACT FEE FUND REVENUE:		**$ 2,575,650**	**$ 2,799,710**	**$ 3,042,641**	**$ 3,307,170**	**$ 3,415,865**	**$ 3,538,866**	**$ 3,852,303**	**$ 4,188,510**	**$ 3,898,377**
	Existing Eligible Debt Service	**% Impact Fee Eligible**									
	Water Resources Bonds 1987 & 88, 5%	0%									
	Water Resources Bonds 1993A & C, 0%	25%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Rural Development 1993B, 1996, 4.5%	25%	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564	$ 18,564
	P&I, RD 3.25% Loan, 2000	80%	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723	$ 58,723
	Pmt Reserve, RD	80%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, DWB 1.95% Loan, 2000	100%	$ (70,345)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pmt Reserve, DWB	100%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Sand Hollow Pipeline	100%	$ 196,440	$ 62,001	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, RD 4.25% Loan, Treatment Plant	100%	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,992	$ 124,994	$ 124,992	$ 124,992	$ 124,992
	Pmt Reserve, RD	100%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	P&I, DWB 2.59% Loan, Treatment Plant	100%	$ 44,227	$ 45,140	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Pmt Reserve, DWB	100%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Water Revenue Bond 2006	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Payment Reserve	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Water Revenue Bond 2008	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Payment Reserve	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Sub-Total Existing Eligible Debt Service		***$ 372,602***	***$ 309,420***	***$ 202,279***	***$ 202,279***	***$ 202,279***	***$ 202,281***	***$ 202,279***	***$ 202,279***	***$ 202,279***
	New Debt Service										
	Sub-Total New Debt Service		***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***
	Misc. Impact Fee Projects										
	TOTAL IMPACT FEE FUND EXPENSES:		**$ 372,602**	**$ 309,420**	**$ 202,279**	**$ 202,279**	**$ 202,279**	**$ 202,281**	**$ 202,279**	**$ 202,279**	**$ 202,279**
	IMPACT FEE FUND CASHFLOW										
	Net Cashflow Impact Fee Fund		**$ 2,203,048**	**$ 2,490,290**	**$ 2,840,362**	**$ 3,104,891**	**$ 3,213,586**	**$ 3,336,585**	**$ 3,650,024**	**$ 3,986,231**	**$ 3,696,098**
	CASH ON HAND										
	Water Fund Balance (FY Year End June 30)		$ 8,913,446	$ 10,673,095	$ 12,743,964	$ 15,165,482	$ 17,981,287	$ 21,239,640	$ 24,993,865	$ 29,302,843	$ 34,169,162
	Impact Fee Fund Balance (FY Year End June 30)		$ 5,815,229	$ 8,305,519	$ 11,145,881	$ 9,250,772	$ 7,464,358	$ 10,800,943	$ 14,450,967	$ 18,437,198	$ 17,133,296
	Bond Reserve Balance (FY Year End June 30)		$ 1,227,012	$ 1,268,700	$ 1,310,388	$ 1,352,076	$ 1,393,764	$ 1,435,452	$ 1,477,140	$ 1,518,828	$ 1,560,516
	Total		**$ 15,955,687**	**$ 20,247,314**	**$ 25,200,233**	**$ 25,768,330**	**$ 26,839,409**	**$ 33,476,034**	**$ 40,921,972**	**$ 49,258,869**	**$ 52,862,974**
			$ 15,913,999	**$ 20,205,626**	**$ 25,158,545**	**$ 25,726,642**	**$ 26,797,721**	**$ 33,434,346**	**$ 40,880,284**	**$ 49,217,181**	**$ 52,821,286**
	Renewal & Replacement Fund (Funded Depreciation)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	FINANCING PLAN FOR NEW PROJECT PHASES:					Water Project	Water Project				Water Project
	Total Project Amount		**0**	**0**	**0**	**5,000,000**	**5,000,000**	**0**	**0**	**0**	**5,000,000**
	Self Participation		0	0	0	5,000,000	5,000,000	0	0	0	5,000,000
	Other Source										
	Amount										
	Interest										
	Years										
	Approx. Annual Payment										
	RENEWAL & REPLACEMENT PROJECTS:										
	Total Project Amount		**542,732**	**594,291**	**650,749**	**712,570**	**780,264**	**854,390**	**935,557**	**1,024,434**	**1,111,511**
	Self Participation		542,732	594,291	650,749	712,570	780,264	854,390	935,557	1,024,434	1,111,511
	Other Source										
	Amount										
	Interest										
	Years										
	Debt service coverage		4.14	4.93	6.26	6.95	7.70	8.54	9.48	10.51	11.54
	Debt service coverage(With Impact Fees)		6.99	8.27	10.42	11.47	12.37	13.38	14.74	16.23	16.87

APPENDIX E

IMPACT FEE ANALYSIS

TABLE X.3

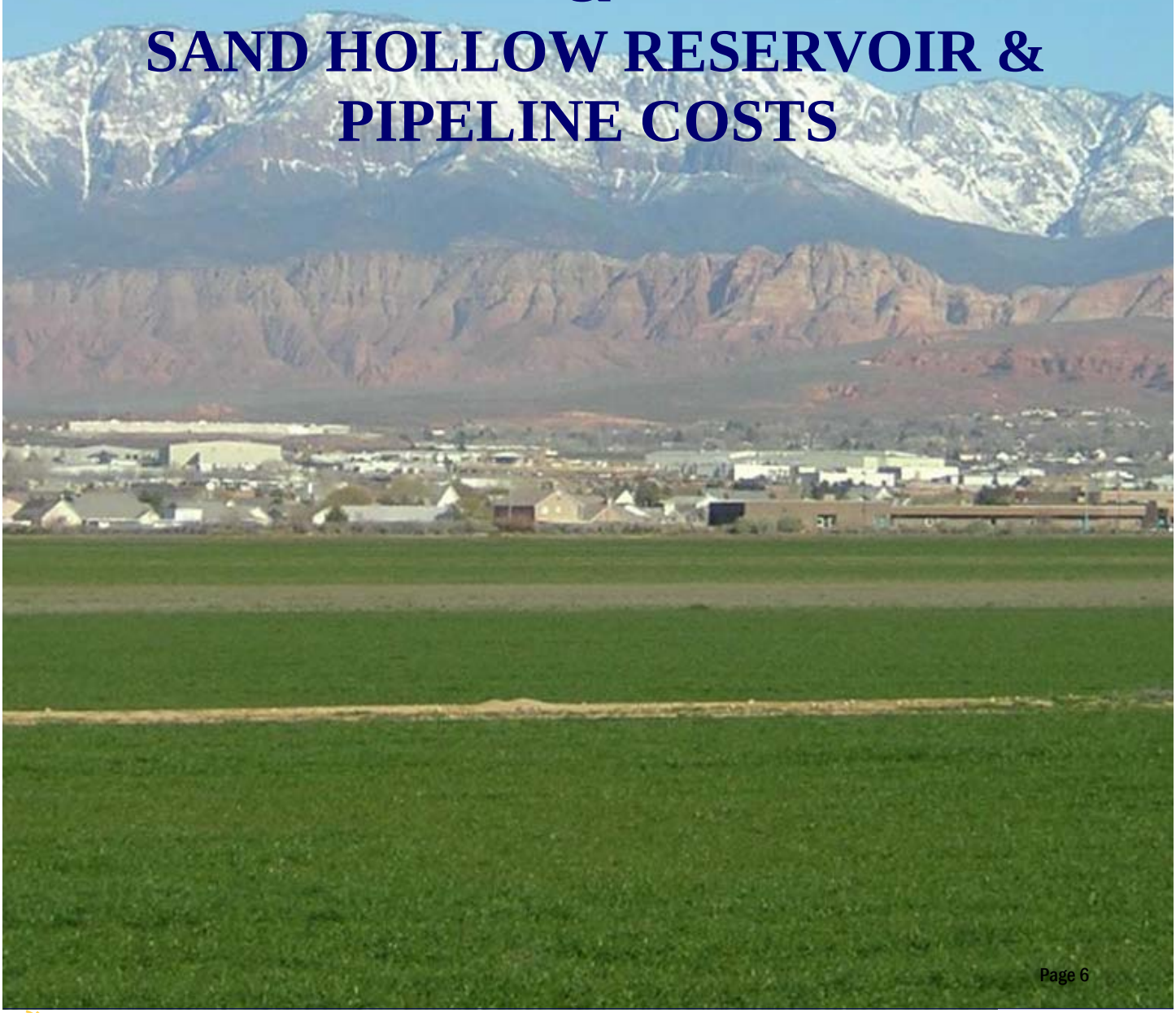
IMPACT FEE ANALYSIS

WASHINGTON CITY CULINARY WATER MASTER PLAN - FY 2010/2011

	TOTAL			
EXISTING DEBT SERVICE	**Debt to be paid from FY2010/2011 to FY2020/2011**	**Impact Fee % Eligible**	**Impact Fee Eligible**	**Logic and Calculations:**
Water Resources Bonds 1993A & C, 0%	$ 730,000	25%	$ 182,500	Only included payments for ten years in the analysis (FY 2010-2011 to FY 2019-2020)
Rural Development 1993B, 1996, 4.5%	$ 742,560	25%	$ 185,640	
P&I, RD 3.25% Loan, 2000	$ 734,040	80%	$ 587,232	
P&I, DWB 1.95% Loan, 2000	$ 645,549	100%	$ 645,549	
P&I, RD 4.25% Loan, Treatment Plant	$ 1,249,920	100%	$ 1,249,920	
P&I, RD 4.25% Loan, Treatment Plant (Pmt Reserve)	$ 37,498	100%	$ 37,498	
P&I, DWB 2.59% Loan, Treatment Plant	$ 442,677	100%	$ 442,677	
Water Revenue Bond 2006	$ 2,102,400	0%	$ -	
Water Revenue Bond 2006 (Pmt Reserve)	$ 210,000	0%	$ -	
Water Revenue Bond 2008	$ 2,068,800	0%	$ -	
Water Revenue Bond 2008 (Pmt Reserve)	$ 206,880	0%	$ -	
Sand Hollow Regional Pipeline	$ 1,964,400	100%	$1,964,400	
Total Cost Due to New Growth (Impact Fee Eligible)			$ 5,295,416	
SELF PARTICIPATION FROM IMAPCT FEES FOR PAST PROJECT	**Total Estimated Self Participation**	**Percent Eligible from FY2010/2011 to FY2020/2011**	**Eligible Costs**	
MF Plant Expansion, Supply Line, Quail BP Expansion	$ 1,210,000	60%	$ 726,000	Assume that improvmement supports new growth for 10 years (6 of which are in the 10 years of the analysis). (6/10=60%)
2006-2010 Project (In Town Replacement)	$ 1,303,485	73%	$ 952,724	Assume I.F. eligible improvmement support new growth for 10 years (8 of which are in the 10 years of the analysis). (8/10=80%)
Total Cost in 10 yr period due to New Growth (Impact Fee Eligible)			$ 1,678,724	
PROPOSED IMPROVEMENT PROJECTS (FY2011 to FY2021)	**Total Estimated Future Costs**	**Percent Eligible from FY2010/2011 to FY2020/2011**	**Eligible Costs**	Note: Projected future costs used in impact fee analysis
Culinary Water Master Plan	$ 30,000	100%	$ 30,000	Estimated completion in 2015. Max. of 5 years before update is needed. All costs within the 10 years of the analysis.
City Water Dept. New Yard	$ 500,000	100%	$ 500,000	Assume all costs eligible within ten year analysis period.
Grapevine/Green Springs Tank and Pipeline	$ 2,871,000	81.7%	$ 2,345,607	2MG tank capable of serving 4,706 ERU's. 4,362 ERU's expected north of river in 10 year period. Subtract 517 ERU's to be served by other proposed Grapevine tank equals 3,845 ERU's served in ten year period (3,845/4,706=81.7%).
Connect to WCWCD line along southern edge of I-15	$ 2,062,000	36.5%	$ 752,630	24" pipe will bring 7,050 gpm of source, equivalent to 11,944 ERU's of PDD (4,362 additional ERU's projected between north of river in ten years). (4,362/11,944) = 36.5%
New Grapevine Tank (North of I-15) and Pipeline	$ 2,030,000	44.0%	$ 893,200	0.5MG tank capable of serving 1,176 ERU's. Assume 517 ERU's (new ERU's from time tank is expected to be constructed*tank capacity/total new capacity or 2,584*500,000/2,500,000) to be served by tank (517/1,176=44.0%).
Long Valley Tank and Pipeline	$ 2,728,000	14.4%	$ 392,832	2MG tank capable of serving 4,706 ERU's. Assume tank serves 679 additional ERU's from 2016 to 2020. (679/4,706=14.4%)
South Fields Pipeline	$ 1,375,000	63.2%	$ 869,000	Assume increase to 20" pipe & valves (20" costs - 16" costs) non I.F. eligible ($113,100 or 88.1%I.F. eligible). 16" line capable of 3,133 gpm @ 5fps or 1,681 ERU's @ PID. South Fields projected 2,106 ERU's in 2021. (1,206/1,681=71.7%). (.881*.717 = 63.2%)
Miscellaneous Improvements	$ 1,126,700	81.2%	$ 914,880	See summary of each project below
			$ 6,698,149	Construct line from intersection of Windsor Dr. and Regent St. to intersection of Washington Pkwy. and Sandy Talus Dr. - $29,000 (100% eligible)
				Construct line from Grapevine Tank to north end of Crown Ave. - $444,000 (100% eligible)
% Of New Project Cost Due to New Growth	100%		$ 6,698,149	Construct PRV station in Lion's Head Dr. - $96,000 (100% eligible)
Interest From New Debt Service				Construct line in Seminole way and connect to Indian Springs Dr. - $349,000 (100% eligible)
				Connect to WCWCD line at 3650 South. - $294,000 - 2,916 additional ERU's south of river in 10 years. Combined capacity of both WCWCD connections is 8,957 (5,972+2,985). (2,917/8,957=32.6%)
Impact Fee Eligible Proposed Project Cost			$ 6,698,149	Connect to WCWCD line at Washington Fields Road. - $76,000 - 2,916 additional ERU's south of river in 10 years. Combined capacity of both WCWCD connections is 8,957 (5,972+2,985). (2,917/8,957=32.6%)
				Difference in 10" and 8" line (Wiltshire St. to Potomac Dr.) - $39,000 (100% eligible)
Total Cost Eligible For Impact Fee			**$ 13,672,289**	
Projected No. of Culinary ERU's (FY 2010-2011)			10,157	
Anticipated No. of ERU's - 10 Year Proj. (FY 2020-2021)			16,075	
No. of New ERU's Due to Growth			**5,918**	
Maximum Impact Fee = Total Eligible Cost / New ERU's			**$ 2,310** /ERU	

APPENDIX F

QUAIL CREEK IRRIGATION WATER SCHEDULE & SAND HOLLOW RESERVOIR & PIPELINE COSTS



DRAFT REGIONAL PIPELINE FINANCING COSTS AND WATER ALLOCATION

	St. George	Washington	Ivins	Santa Clara	Total
Section 1	$6,844,636.25	$1,430,222.50	$1,328,063.75	$612,952.50	$10,215,875.00
Section 2	$3,597,945.00	$0.00	$694,912.50	$322,892.50	$4,612,750.00
Section 3	$1,476,393.75	$0.00	$283,921.88	$132,496.88	$1,892,812.50
total regional pipeline cost	$11,918,975.00	$1,430,222.50	$2,306,898.13	$1,068,341.88	$16,721,437.50
annual payment 25 yrs @ 5.4%int.	$879,900.00	$105,584.00	$170,303.00	$78,869.00	$1,234,656.00
section 5 18 inch pipeline					
growth rate 90-00	5.70%	6.90%	10.60%	7.10%	
2001 population	52,105	8,990	4,790	5,008	70,893
2002 proj pop.	55,075	9,610	5,298	5,364	75,347
2003 proj pop	58,214	10,273	5,859	5,744	80,091
2004 proj pop	61,532	10,982	6,480	6,152	85,147
2005 proj. pop.	65,040	11,740	7,167	6,589	90,536
growth 2001 to 2002	12,935	2,750	2,377	1,581	19,643
% growth all cities	65.85%	14.00%	12.10%	8.05%	
% growth w/o Santa Clara	71.61%	15.23%	13.16%		18,062.20
sandhollow well allocation of 3000af	2,148	457	395	0.00	3,000
sandhollow raw water per acre ft.	$143.00	$143.00	$143.00		
wells and 18" pipeline per acre ft.	$82.00	$82.00	$82.00		
estimate of annual o&m	$75.00	$75.00	$75.00		
est total sandhollow well water	$300.00	$300.00	$300.00		
annual water contract for wells sh	$644,514.15	$137,028.01	$118,442.03		
cost per 1000 gal	$0.92	$0.92	$0.92		
total annual cost of pipeline &water+	$1,524,414.15	$242,612.01	$288,745.03	$78,869.00	$2,134,640.20
estimated monthly cost	$127,034.51	$20,217.67	$24,062.09	$6,572.42	
allocation of sandhollow raw water af	9877	2100	1815	1207	15000
current quail creek allocation	10000	2000	2000	0	14000
Total district allocation in acre feet	22026	4557	4210	1207	32000

QUAIL CREEK WATER PETITION NO. 2

PETITION TO THE WASHINGTON COUNTY WATER CONSERVANCY DISTRICT FOR ALLOTMENT OF WATER FOR MUNICIPAL AND INDUSTRIAL USE FROM THE QUAIL CREEK PROJECT

WASHINGTON CITY, a municipal corporation under the laws of the State of Utah, hereinafter referred to as "CITY", hereby petitions the WASHINGTON COUNTY WATER CONSERVANCY DISTRICT, hereinafter referred to as "DISTRICT", for a perpetual annual allotment of 1,000 acre feet of the Quail Creek Water Project's municipal and industrial water, hereinafter referred to as "project water".

The DISTRICT has constructed a diversion dam, water pipeline and off stream reservoir designated as the Quail Creek Project, with a storage capacity of approximately 40,000 acre feet.

CITY desires to receive an allocation of 1,000 acre feet of water from said project to be used for industrial and municipal purposes, and, in order to use the water CITY proposes to build an aqueduct (canal or pipeline) to connect the Quail Creek Reservoir to the area of use planned by CITY.

1. Payment Provisions. CITY agrees to pay the DISTRICT in the manner and at the rates hereinafter provided the following separate costs, to-wit:

Repayment of project water costs;

A. Operation and maintenance costs for the Quail Creek water project, hereafter referred to as "project facilities";

B. Payments to repair and replacement reserve funds;

2. Project Water Costs. The project water costs have previously been established to be $50 per acre foot over the first 50 years of the project. The DISTRICT agrees to use part of the five mill levy established by DISTRICT as a subsidy to the $50 rate and the water charge after subsidy shall be as follows:

A. Year	Price Per Acre Foot of Water
1997	32.50
1998	34.25
1999	36.00
2000	37.75
2001	39.50
2002	41.25
2003	43.00
2004	44.75
2005	46.50
2006	48.25
2007	50.00

B. CITY shall pay as part of the project water costs a reservation fee equal to one-half of the above rates for water reserved but unused. The payment for water not used but reserved shall be due 31 days after the end of the calendar year and the first payment shall be due on January 1, 1998. No reservation fee shall be charged until 1998.

3. Operation and Maintenance Costs. Operation and maintenance costs shall be defined as all actual operation and maintenance costs related to the Quail Creek Project incurred by the District in any particular Operating

Year or period to which said term is applicable or charges made therefor during such Operating Year or period, including amounts reasonably required to be set aside in reserves for items of Operation and Maintenance Costs, the payment of which is not then immediately required. Such Operation and Maintenance Costs include, but are not limited to, amounts paid by the District for improvement, repair, replacement or acquisition of any item of equipment related to the diversion, pipeline and related facilities of the Project, for salaries and wages, employees' health, hospitalization, pension, and retirement expenses, fees for services, materials and supplies, rents, administrative and general expenses, insurance expenses, Trustee, paying agent, legal, engineering, accounting, and financial advisor's fees and expenses and costs of other consulting and technical services, training of personnel, taxes, payments in lieu of taxes and other governmental charges imposed by other than the District and any other current expenses or obligations required to be paid by the District under the provisions of the Bond Resolution or by law. Operation and maintenance costs for Quail Creek Project facilities shall be assessed to the CITY in the same ratio as the CITY'S allotment for water bears to the total available project water. Total available water shall be defined as the amount of water the Engineers have determined the Quail Creek Reservoir will yield each year without substantial risk of a water shortage. Total available water has presently been estimated at 22,000 acre feet of water per year. To the extent that the District incurs Operation and Maintenance Costs which,

under generally accepted accounting principles, are not clearly allocable to the Quail Creek Project, such operations and maintenance costs shall be allocated to the Project on the basis of the percentage of the revenues of the District arising from the sale of water pursuant to this Petition to the total revenues to the District from the sale of water and electricity. Such Operation and Maintenance Costs do not include depreciation or obsolescence charges or reserves therefor, amortization of intangible or other bookkeeping entries of a similar nature, interest charges and charges for the payment of principal, or amortization, of bonded or other indebtedness of the District, costs or charges made thereof, reclassification, revaluation of other disposition or any properties of the Project.

In the event the CITY does not agree that the operation and maintenance costs are reasonable the CITY may request the DISTRICT to retain an independent consultant acceptable to both parties to review the operation and maintenance costs and make recommendations to the DISTRICT. The DISTRICT shall retain and pay the costs of employing the consultant. If the consultant indicates that the Operation and Maintenance costs are excessive; the CITY shall pay reasonable operation and maintenance costs as outlined in the consultants management report. In the event the consultant find the Operation and Maintenance costs to be reasonable, the costs to retain the consultant shall be paid by the District and be treated as an Operation and Maintenance cost.

4. Payments to Reserve Funds

The DISTRICT has created a repair and replacement fund for DISTRICT'S constructed storage facilities. This fund is to keep the DISTRICT'S storage facilities in good operating condition, including dam structure and pipelines. The funds may be used anywhere in the DISTRICT for the purpose of replacing any storage facility or parts thereof, which notwithstanding reasonable DISTRICT maintenance requires replacement from time to time. It may also be used for operation and maintenance of DISTRICT treatment or storage facilities which are determined to be costs in excess of the ordinary costs of such operation and maintenance, or in the operation during periods of special stress.

This reserve fund will be established by a charge of $2.00 per acre-foot per year for water stored in DISTRICT projects. The charge to the CITY will be calculated on 1,000 acre foot of water. This fund, together with interest thereon shall be invested or deposited by the DISTRICT and maintained apart from other DISTRICT funds, in compliance with the laws of the State of Utah governing the investment of such fund. The annual payment for the replacement and emergency fund may be adjusted upward or downward, as determined to be essential by the sole judgment of the DISTRICT'S Board of Directors and based upon recommendation of the DISTRICT'S Engineer as to the amount to be allocated to this fund. A twelve-month notice will be given to CITY on any adjustment.

In the event the CITY does not agree that the assessments by the DISTRICT for the repair and replacement fund are reasonable, the CITY may request that the DISTRICT retain an independent consultant and the DISTRICT shall retain an independent consultant acceptable to both parties to review the repair and replacement fund costs and make recommendations to the DISTRICT. If the consultant indicates that the repair and replacement costs are excessive, the DISTRICT shall reduce the repair and replacement costs assessed as outlined in the consultant's audit. The costs of the audit shall be treated as an Operation and Maintenance cost.

5. Payments Made by City. As a Cost Reference Point, based on the 1997 estimated costs, it is estimated that CITY will be required to pay as follows:

A.	Project untreated water cost of $50.00 per acre-foot of which the DISTRICT will initially subsidize 70%.	$32.50
B.	Estimated O&M Costs $40 per acre-foot.	$40.00
C.	Reserve Fund Charges per acre-foot.	$2.00
D.	Total estimated initial cost per acre foot Of project treated water.	$74.50
E.	Cost for untreated water unused but reserved (Commencing for water reserved but unused in 1997.)	$16.25

6. Water allocation. Water allotted herein shall be made available to the CITY and shall be measured at the Quail Creek Reservoir Control Station. It shall be the responsibility of the CITY to provide facilities to convey water

from such point of delivery to the place of use unless otherwise agreed in writing by the DISTRICT and the CITY.

7. Payments made to DISTRICT by City shall be as follows:

A. Water Reserved But Unused.

Water held in reserve by DISTRICT but unused by the CITY Shall be for at one-half the rate schedule set forth in Paragraph 2. For examp the CITY does not use 1,000 acre foot of its allocated water in 1997 CITY would pay $16.25 per acre foot or $16,250 as a project water cc The first payment shall be due on January 1, 1998.

B. Project Water.

Payments for untreated project water shall be paid to DISTRICT monthly on or before the 10th of each month if the water is used. Subsequent monthly payments are to be made on or before the 10th day of each month thereafter for all the water used by CITY from the DISTRICT. Payments will include the agreed cost for the repair and replacement reserve fund for project water.

C. Operation and Maintenance Project Facilities & District Aqueduct.

An estimate of annual operation and maintenance charges for project facilities for the following calendar year shall be provided to CITY on or before July 1st of each year. CITY agrees to pay 10 percent of the amount specified on or before December 1st of the year in which the notice is given. Then monthly billings will be tendered to the City for actual O&M

costs incurred by the District. If the amount paid by CITY exceeds or is inadequate to meet actual costs during the year of payment, appropriate adjustments will be made in the charges for the next succeeding year to recover, adjust and equate to actual costs and revenues.

D. Payments to Repair and Replacement Fund. Payments for the repair and replacement fund shall be made on January 1 of each year commencing January 1, 1998.

8. Equal Treatment. The DISTRICT will not allot project water to any other municipal entity on more advantageous terms than provided under this petition. The DISTRICT also specifically agrees that it will not absorb a greater percentage of costs from Ad Valorem tax revenues for any project water allotted to any municipal type entity than the percentage absorbed by the DISTRICT for water allotted hereunder.

9. Approval to Allocate. Unless CITY gives its prior written approval, DISTRICT will not allot municipal and industrial project water to any other user within the city limits of CITY.

10. Water Shortage. In the event there is a shortage of project water caused by drought, inaccuracy of distribution not resulting from negligence, hostile diversion, prior or superior claims, or other causes not within the reasonable control of the DISTRICT, no liability shall accrue against the DISTRICT, or the Board of Water Resources or any of their officers, agents, or employees, or either of them for any damage, direct or indirect, arising

therefrom. If a shortage occurs within the project in municipal and industrial water, then deliveries of water pursuant to this petition shall be reduced in the proportion that the number of acre-feet of such shortage bears to the total number of acre-feet allotted for municipal and industrial use. The determination of shortages will be made by the DISTRICT'S Board of Directors, and its determination will be final and conclusive. In the event that water is not available, the CITY shall only pay for the amount of water that is available.

11. Reservations. The DISTRICT reserves the right to adopt lawful rules and regulations, and to exercise its full statutory powers, including specifically the right to amend its rates, rules and its regulations in the future, and the right to exercise its statutory powers, as they now exist or are amended or enacted in the future, and it is expressly agreed that the DISTRICT, by signing this contract, has not surrendered any of its rights in this regard.

12. Federal Laws and Regulations. CITY and DISTRICT shall, within its legal authority, comply fully with all applicable federal laws, orders and regulations. and the laws of the State of Utah, all as administered by appropriate authorities, concerning the pollution of streams, reservoirs, groundwater, or water courses with respect to thermal pollution or the discharge of refuse, garbage, sewage, effluent, industrial waste, oil, mine tailings, mineral salts or other pollutants, and concerning the pollution of air with respect to radioactive materials or other pollutants.

13. Water Commitments. Any commitment of water, and payment to the DISTRICT for water so committed pursuant to this petition, shall be subject to the Water Conservancy Act of Utah, Title 73, Chapter 9, U.C.A. 1953, as heretofore or hereafter amended, the rules and regulations of the DISTRICT'S Board of Directors now existing or hereafter legally promulgated, and the Board of Water Resources/District Contract, as the same may be supplemented or amended.

DATED this 12 day of November, 1997.

WASHINGTON CITY:

By: Terrill Clove
Terrill Clove, Mayor

Attest:

WASHINGTON CITY SEAL
HERITAGE
PRIDE
PROGRESS
WASHINGTON CO. UTAH

Ralph McClure, City Recorder

ACKNOWLEDGMENT

STATE OF UTAH)
: ss
COUNTY OF WASHINGTON)

On the 12 day of November 1997, personally appeared before me RALPH McCLURE, who being by me duly sworn, did say that RALPH McCLURE is the City Manager, and TERRILL CLOVE is the Mayor of Washington City, that the aforesaid Petition to the Washington County Water Conservancy District was signed on behalf of said City by authority of a resolution of its City Council, unanimously adopted on Nov. 12 '97, at a regular meeting of said council, and at which a quorum of the City Council was in attendance, and the said RALPH McCLURE and the said TERRILL CLOVE acknowledged to me that as said Mayor and City Manager, they executed the same.

Christina Lou
NOTARY PUBLIC
Address: Washington City
My Commission Expires: 8-26-98

CHRISTINA L. LOU
NOTARY PUBLIC - STATE of UTAH
WASHINGTON CITY OFFICES
POST OFFICE BOX 475
WASHINGTON, UT 84780
COMM. EXP. 8-26-98

ORDER APPROVING PETITION

Due notice having been given and a hearing thereon having been held, it is hereby ORDERED that the above Petition be granted, and that an allotment of 1,000 acre-feet of municipal and industrial water is hereby made to the City of Washington, upon the terms and conditions recited in said Petition, and Washington County Water Conservancy District, by accepting said Petition, hereby agrees to all of the terms and conditions set forth in said petition.

DATED this _____day of _____. 1997.

WASHINGTON COUNTY WATER
CONSERVANCY DISTRICT:

_____
By: C. JACK LEMMON, Chairman

ATTEST:

_____
Secretary

ACKNOWLEDGMENT

STATE OF UTAH)
: ss
COUNTY OF WASHINGTON)

On the _____day of _____. 1997, personally appeared before me C. JACK LEMMON and ROBERTA McMULLIN, who being duly sworn, did say that ROBERTA McMULLIN is the Secretary and C. JACK LEMMON is the President of the Washington County Water Conservancy District, and that the Order approving Petition was signed on behalf of said District by authority of a resolution of its Board of Directors unanimously adopted _____, which was a regular meeting of said Board of Directors, called on proper notice, and attended by a quorum of said Board, and said C. JACK LEMMON and ROBERTA MCMULLIN acknowledged to me that said District executed the same.

_____
NOTARY PUBLIC
Address: _____
My Commission Expires:_____

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APPENDIX G

WATER RATE ORDINANCE

ORDINANCE #2006-17

AN ORDINANCE OF WASHINGTON CITY REPLACING ORDINANCE #2002-14 AND AMENDING THE CULINARY WATER RATES.

PREAMBLE

WHEREAS Washington City ("City") has conducted a review of the culinary water rates charged within the City; and

WHEREAS the City has determined that it is necessary to adjust the culinary water rates to increase the revenue of the City Water Department to keep pace with the growth of the City and the cost of providing culinary water to citizens of the City; and

WHEREAS the City has determined it is necessary to make the water rates more fair and equitable for all citizens; and

WHEREAS the City desires to adopt the rate schedules set forth below, and thereby amend the current City culinary water rates Ordinance 2002-14; and

WHEREAS the City Council has reviewed these ordinance amendments and finds that it is in the best interest of the public and promotes the health, safety and welfare of the community;

NOW THEREFORE, BE IT HEREBY ORDAINED by the City Council of Washington City as follows:

1. Amendment.

   Washington City Ordinance No. 2002-14 is amended and replaced in its entirety to read as follows:

2. Definitions.

   A. "Equivalent Residential Unit" or "ERU" is defined as the equivalent of 15,000 gallons per month of metered water usage.

   B. "Drought Management Plan Staging" is defined as the four (4) state drought management plan as defined and adopted in Washington City Ordinance No. 2002-09, and as amended from time to time, referred to herein as the "Drought Management Plan Ordinance." (A current copy of the Drought Management Plan Ordinance is attached hereto and incorporated herein, as amended from time to time, by reference as Exhibit A.)

3. Water Rates.

   A. *Minimum Amount Per Month Fee/Base Rate:* Seventeen dollars and fifty cents ($17.50) per ERU.

Base Rate Structure		
Base Rate	$17.50	/ERU
Includes	0	Gallons

B. *Water Usage / Overage Fee:* Water usage rates for usage shall be in accordance with the following table and in accordance with the Drought Management Plan Stage in effect at the time of billing:

Overage Steps		Cost / 1,000 Gallons			
		Stage 1	Stage 2	Stage 3	Stage 4
0	4,999	$ 0.90	$ 0.90	$ 0.90	$ 0.90
5,000	9,999	$ 1.00	$ 1.00	$ 1.00	$ 1.00
10,000	14,999	$ 1.10	$ 1.10	$ 1.10	$ 1.10
15,000	19,999	$ 1.20	$ 1.20	$ 1.20	$ 1.20
20,000	24,999	$ 1.30	$ 1.30	$ 1.30	$ 1.30
25,000	29,999	$ 1.40	$ 1.40	$ 1.40	$ 1.40
30,000	34,999	$ 1.55	$ 1.55	$ 1.55	$ 1.55
35,000	39,999	$ 1.70	$ 1.70	$ 1.70	$ 1.70
40,000	and Over	$ 1.85	$ 1.85	$ 1.85	$ 1.85

C. *Drought Management Plan Staging Schedule Fee:* The usage/overage fee schedule to be used shall be based upon the then effective Drought Management Plan Stage as found in the Drought Management Plan Ordinance. See Exhibit A, which is attached hereto and incorporated herein by reference. The following is a summary of the four (4) stages of the Drought Management Plan Ordinance:

Drought Management Plan Staging		
Stage	Rate Increase	Description
1	-	Normal usage / Normal rate
2	10%	Reduction goal is 5-10% of peak use
3	25%	Reduction goal is 10-25% of peak use
4	50%	Reduction goal is 25-60% of peak use

D. *Yearly Adjustment Review*: The Culinary Water Rates is to be review and adjust annually based on the Consumer Price Index.

4. Drought Management Staging Plan

The Drought Management Plan Ordinance, as amended from time to time, is incorporated into this Resolution by reference and the four (4) stages of water availability / scarcity as referred to therein is incorporated herein by reference.

5. Miscellaneous

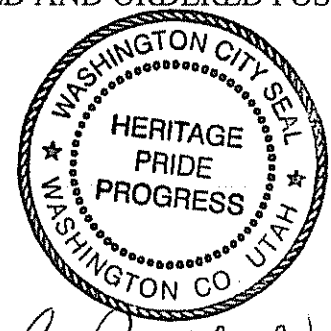
A. If any provision or clause of this ordinance or the application thereof to any person or entity or circumstance is held to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect other sections, provisions, clauses or applications hereof

which can be implemented without the invalid provision(s), clauses(s) or application(s) hereof, and to this end the provisions and clauses of this resolution are declared to be severable.

B. This ordinance supersedes or repeals the provision(s) of any ordinances(s) or resolutions(s) that is (are) inconsistent with the provisions of this ordinance.

C. This Ordinance shall take effect immediately upon publication or posting, as required by law.

PASSED AND ORDERED POSTED this 28th day of June, 2006.



Washington City

Terrill Clove, Mayor

Attested by:

Danice B. Bulloch, City Recorder

APPENDIX H

TIME-OF-DAY WATERING ORDINANCE

ORDINANCE 2004-23

TIME-OF-DAY WATERING ORDINANCE

AN ORDINANCE AMENDING THE MUNICIPAL CODE TO PROMOTE WATER USE EFFICIENCY IN AMENITY LANDSCAPE IRRIGATION.

Section 1. Preamble

A. WHEREAS, Washington City desires to promote efficient sprinkler irrigation Practices for all lawns and landscapes; and

B. WHEREAS, research has shown that irrigating landscapes only during the hours of 8:00 p.m. to 10:00 a.m. significantly increases irrigation efficiency; and

C. WHEREAS, conservation of water through more efficient use is in the public interest and enhances the community's economic, environmental, recreational and aesthetic resources.

Section 2. Ordaining Clause

NOW THEREFORE, be it ordained by Washington City that the following ordinance be enacted.

Section 3. Time-of-Day Watering Parameters
Sprinkler irrigation of all lawns and landscapes is prohibited between the hours of 10:00 a.m. and 8:00 p.m. from the first Sunday of April of each year to the last Sunday of October of each year (Day Light Savings).

Section 4. Applicability of Time-of-Day Watering Ordinance
The provisions of this ordinance shall apply to all landscapes within the city. This Ordinance does not apply in the following situations:

A. New lawns that require frequent irrigation for establishment purposes within 90 days of planting.

B. Short cycles required for testing, inspecting and maintaining irrigation systems.

C. Landscape watering is allowed on any day if using a hand-held hose, a soaker hose, a 5-gallon or less capacity bucket, a watering can, bubbler or drip-irrigation system.

D. Private Wells, wastewater effluent, aerobic septic systems, nursery plant stock and the watering of golf course greens that do not require the use of potable water are exempt from these restrictions.

E. Other situations as permitted by the city.

Section 6. Penalty
Any person, firm or corporation or other entity found in violation of any provision of this ordinance shall be punished as follows: First offense will generate the issuance of a warning only; second offense will require an appearance before the Washington City Justice Court for a judgment not to exceed $100.00; third offense will be a mandatory $100.00 fine; and, the fourth offense, and each offense thereafter, will be a fine of $500.00.

SECTION 7.
If any provision or clause of this Ordinance or application thereof to any person or entity or circumstance is held to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect other sections, provisions, clauses or applications hereof which can be implemented without the invalid provisions(s), clause(s) or application(s) hereof, and to this end the provisions and clauses of this Ordinance are declared to be severable.

SECTION 8.
This Ordinance supersedes or repeals the provision(s) of any ordinance(s) or resolution(s) that is (are) inconsistent with the provisions of this Ordinance.

SECTION 9.
This Ordinance shall take effect immediately upon publication or posting, as required by law.

Passed and approved this 23 day of June 2004.

WASHINGTON CITY

By _____
Terrill Clove, Mayor

ATTEST

_____
Tina Loui, City Recorder

HERITAGE
PRIDE
PROGRESS
WASHINGTON CO. UTAH

APPENDIX I

DROUGHT MANAGEMENT PLAN ORDINANCE

ORDINANCE NO. 2002-09

AN ORDINANCE ESTABLISHING CULINARY WATER SUPPLY/SHORTAGE And DROUGHT MANAGEMENT PLAN

WHEREAS, the City shall encourage wise use of water and conservation of all water resources on an on-going basis.

WHEREAS, it shall be the policy of the City to implement the procedures and restrictions outlined herein under four stages of culinary water resource shortage that may occur in the Washington area; and

WHEREAS, the drought management plan is intended to establish measures for essential conservation of water resources and to provide for equitable distribution of limited water supplies, in order to balance demand and limited available supplies and to assure that sufficient water is available to preserve public health and safety within the City of Washington; and

WHEREAS, water issues are regional in nature requiring efforts to effectively deal with drought management. This drought management plan purposely mirrors those of surrounding communities to insure continuity in dealing with shortages stemming from drought, demand, actions of other Cities or equipment failure; and

WHEREAS, Washington City is aware of the need to work with other communities/cities in implementing drought management plans. Washington City acknowledges its intent to work with neighboring communities in the event called upon to do so; and

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF WASHINGTON CITY, UTAH, as follows

Scarcity of Water,
If a culinary water shortage or drought is expected, the City will implement the attached four-stage shortage of culinary water conservation management plan. The implementation will be under the approval and direction of the City Council and City Manager. The City Staff (City department heads and City Manager) shall meet on a regular basis to discuss the drought conditions and ensure all City departments are doing their part to comply, enforce and encourage the outlined water conservation measures.

The following shortage or drought indicators will be used to decide what stage or level should be implemented.

STAGE 1:

- If total culinary supply exceeds the total daily demand by only 2% to 3% (i.e.: water tanks cannot recover):
- Water resources are reduced by 2% to 3% due to equipment failure or lack of supply.

STAGE 2:

- Total culinary water resources are reduced by 5% of peak capacity due to equipment failure or any other loss.
- Total culinary demand exceeds supply by 1% to 3% and Stage 1 restrictions fail to meet goal.

STAGE 3:

- Total culinary water resources are reduced by 10% of peak capacity due to equipment failure or any other loss.
- Total culinary water demand exceeds supply by 5% and Stage 2 restrictions fail to meet goal.

STAGE 4:

- Total culinary water resources are reduced by 25% of peak capacity due to equipment failure or any other loss.
- Total culinary water demand exceeds supply by 10% and Stage 3 restrictions fail to meet goal.

MANAGEMENT PLAN

STAGE 1: Voluntary Restrictions on nonessential water use:

Estimated reduction goal – 2% to 3% of peak use.

Procedure: Publish attached news release in local newspaper, on the web site and have radio stations announce the release.

News Release:

The City of Washington is currently experiencing a shortage of water supply. The supply cannot meet the current demands. The City adopted a water shortage drought management plan on **DATE** . This plan involves four stages of water conservation/reduction. Due to the current conditions, the City has decided to implement
Stage 1 of this plan. Stage 1 involves voluntary restrictions on non-essential water use. This stage requests that all City, County, State and Federal organizations also follow these criteria. All citizens are to conserve water wherever possible (inside and outside) and suggest the following as guidelines for water conservation efforts.

INSIDE:

- Fix dripping and leaking faucets and toilets. A leak in the toilet can waste more than 100 gallons of water a day.
- Don't let the water run while shaving. Filling the sink basin when shaving uses 1 gallon of water, letting the water run uses 5 –10 gallons.
- Don't flush the toilet unnecessarily. Water saving toilets use 1.6 gallons of water, standard toilets use 5 to 7 gallons of water each time it's flushed.
- Take shorter showers or fill bathtub only part way. Long showers waste 5 to 10 gallons of water every minute.
- Don't run the water while brushing teeth. Turning the water off while brushing your teeth can save 1.5 to 3.5 gallons of water.
- Don't run the tap to make water hot or cold.
- Keep a bottle of drinking water in the refrigerator so you don't have to run the tap to get a cool drink of water.
- Wash only full loads of dishes and laundry. A dishwasher uses approximately 25 gallons of water, a washing machine uses 30 –35 gallons of water per cycle.
- Install water-saving plumbing fixtures. A water saving showerhead can save 1.5 gallons of water per minute.
- Wash fruits and vegetables in a basin instead of under running water.

OUTSIDE:

- Raise your lawn mower cutting height. Longer grass needs less water.
- Don't plant any new grass or sod.
- Don't fill swimming pools. If possible, cover the swimming pool an uncovered pool will loose 900 – 3,000 gallons of water a month to evaporation, a covered pool losses 300 –1,000 gallons a month.
- Use mulch around shrubs and garden plants to save soil moisture.
- Don't wash cars or wash at a facility that recycles water. Washing the car with the hose running uses 100-200 gallons of water.
- Sweep sidewalks and steps rather than hosing.
- Water lawns & gardens every 3 or 4 days, to 1inch deep. Deep watering encourages deep root growth. If the water is running off, turn off the sprinkler, let the water soak in and start watering again. A typical sprinkler system uses 20 gallons of water every minute.
- Avoid watering on windy days or midday when the evaporation rate is the highest. Water after 7:00PM.
- Keep fire hydrants closed.
- Adjust sprinklers to not spray road or sidewalk.
- Repair leaks in hoses, pipes, faucets and connections.

If the implementation of these voluntary restrictions does not reduce the water demand enough to meet the supply, the City will have to go to Stage 2, 3 or 4 of the drought shortage of culinary water and drought management plan, which involves mandatory restrictions.

STAGE 2: **Mandatory restrictions on nonessential water use:**

Estimated reduction goal – 5% to 10% of peak use.

Procedure: By authority of the City Manager and the City Council, the following water conservation measures along with those of Stage 1 will be implemented.

- All parks currently on culinary water will be allowed to water every three days at a reduced level of demand.
- ***Residential and commercial users will be allowed to water outside areas based on*** odd/even concept. (If the address is even or odd will determine the day of watering.)
- Use of water for noncommercial car washing, streets washing, or driveway washing will not be allowed.
- Use of water for ornamental fountains, waterfalls, or reflection pools will not be allowed.
- During this stage the approval of any new developments will be delayed until the conservation restrictions are lifted.

Enforcement
If any person or entity violates these restrictions, citations could be issued, or the City may elect to remove the water service from the property.

STAGE 3: **Mandatory restriction on all culinary water uses:**

Estimated reduction goal – 10% to 25% of peak use.

Procedure: By authority of the City Manager and the City Council, the following water conservation measures ***along with those of Stage 1 and 2*** will be implemented:

- The use of fire hydrants for purposes other than fire protection will not be allowed for use by municipal departments, contractors and all others.
- Water use for the following non-essential uses will not be allowed:
  - Non-commercial washing of automobiles and trucks.
  - The washing of streets, driveways, and sidewalks.
  - Ornamental water use including, but not limited to fountains, artificial waterfalls and reflecting pools.
  - The use of water to fill and top off swimming pools, hot tubs etc.
- Users will be allowed 75% of use levels for the same month of the proceeding year. All users will reduce demand by 25%.

Enforcement
If any person or entity violates these restrictions, citations could be issued, or the City may elect to remove the water service from the property.

The utility billing department will monitor usage by using triggers and computer alarms for notification.

Exemptions or Variance:

(1) If compliance with the non-essential use of water restrictions would result in extraordinary hardship upon a water user, the water user may apply for an exemption or variance. For purposes of this section, extraordinary hardship means a permanent damage to property or other personal or economic loss, which is substantially more severe than the sacrifices borne by other water users subject to the nonessential use of water restrictions.

(2) A person or business entity believing he suffers an extraordinary hardship and desiring to be wholly or partially exempt from the restrictions on the non-essential use of water shall submit a written request with full documentation supporting the need for the requested relief to the City. The application shall contain information specifying:

(a) The nature of the hardship claimed and reasons for the requested exemption or variance.
(b) The efforts taken by the applicant to conserve water and extent to the applicant without extraordinary hardship may reduce which water use.

(3) The City shall advise the applicant of its decision regarding the application. An exemption or variance will be granted only to the extent necessary to relieve extraordinary hardship.

STAGE 4: Water rationing plan for all available culinary water resources

Estimated reduction goal – 25% to 60% of peak use.

Procedure: By the authority of the City Manager and City Council, the following water rationing plan will be implemented ***along with those of Stages 1, 2and 3*** :

(A) General:

It is imperative that water customers within the City of Washington area achieve an immediate and further reduction in the water use in order to extend existing water supplies and, at the same time, assure that sufficient water is available to preserve the public health and sanitation, and provide fire protection service.

The objective of this Local Water Rationing Plan is to effect an immediate 25 percent reduction in water usage. Should drought conditions continue, further reductions in usage

may be required. If it is necessary to implement further reductions, this Plan will be modified to reduce the levels more. It is the City Water Department's responsibility to continually monitor on-hand quantities to determine if amendments are required.

The Plan provides for equitable reductions in water usage on the part of each water customer. The success of this Plan depends on the cooperation of all water customers.

During this stage the approval of any new building permits will be delayed until the conservation restrictions are lifted.

(B) Prohibited non-essential water uses:

The following water uses are declared non-essential and will not be allowed within the City of Washington:

- The watering of lawns.
- The watering of outdoor gardens, landscaped areas, trees, shrubs, and other outdoor plants, except by means of a bucket, pail, or handheld hose equipped with an automatic shut-off nozzle between the hours of 5:00 p.m. and 9:00 a.m.
- The watering of golf course fairways with culinary water.
- The non-commercial washing of automobiles and trucks.
- The washing of streets, driveways, and sidewalks.
- The serving of water in restaurants, clubs or eating-places unless specifically requested by the individual.
- Ornamental water use including, but not limited to, fountains artificial waterfalls, and reflecting pools.
- The use of water for flushing sewers or hydrants by municipalities or any public or private individual or entity except as deemed necessary and approved in the interest of public health or safety by the City.
- The use of fire hydrants by the Fire Department for testing fire apparatus and for Fire Department drills, except as deemed necessary in the interest of public safety and specifically approved by the City.
- The use of fire hydrants by City Street Department, contractors and all others, except as necessary for fire fighting or protection purposes.

- The use of water to fill and top off swimming pools, hot tubs etc.

(C) Water use restrictions for all water customers:
Customers include residential, commercial, industrial, institutional, public and all other users, with the exception of hospitals and health care facilities.

- Water customers shall reduce their water usage by a minimum of 25 percent of use levels for the same quarter of the preceding year.

- It is the primary responsibility of each water customer to meet its mandated water use reduction goal in whatever manner possible.

- The City will establish a water allotment for each water customer, based upon a required 25 percent reduction of water usage from the rate of water used by the customer in the same quarter of the preceding year or the last recorded use level if no meter readings record the rate of the customer's use in the same quarter of the preceding year.

- Each water user shall provide access to the City personnel for purposes of meter reading and monitoring of compliance with this Plan. The City shall make all reasonable efforts to contact customers to arrange for access.

(E) Water use restrictions for hospital and health care facilities:
Hospitals and health care facilities shall comply with all restrictions imposed on water customers as may be applicable to each individual institution, to the extent compliance will not endanger the health of the patients or residents of the institution.

Each hospital and health care facility shall survey its water usage patterns and requirements and implement such additional conservation measures as may be possible without endangering the health of patients or residents to achieve a 25 percent reduction in the institution's water usage. The level of conservation arrived at will be recommended to the City for billing and record. The established level that does not endanger the health of the patients will be provided to the City for record.

Enforcement:

If any person or entity violates these restrictions, citations could be issued or the City may elect to remove the water service from the property.

The utility billing department will monitor usage by using triggers and computer alarms for notification.

Exemptions or variance:

If compliance with the non-essential use of water restrictions would result in extraordinary hardship upon a water user, the water user may apply for an exemption or variance. For purposes of this section, extraordinary hardship means a permanent damage to property or other personal or economic loss, which is substantially more severe than the sacrifices borne by other water users subject to the nonessential use of water restrictions.

A person or business entity believing he suffers an extraordinary hardship and desiring to be wholly or partially exempt from the restrictions on the nonessential use of water shall submit a written request with full documentation supporting the need for the requested relief to the City.

The application shall contain information specifying:

- The nature of the hardship claimed and reason for the requested exemption or variance.

- The efforts taken by the applicant to conserve water and extent to which water use may be reduced by the applicant without extraordinary hardship.

- The City shall advise the applicant of its decision regarding the application. An exemption or variance will be granted only to the extent necessary to relieve extraordinary hardship.

Constitutional Considerations:

If any provision or clause of this Ordinance or the application thereof to any person or entity or circumstance is held to be unconstitutional or otherwise invalid by any court of competent jurisdiction, such invalidity shall not affect other sections, provisions, clauses or applications hereof which can be implemented without the invalid provision(s), clause(s), or application(s) hereof and to this end the provisions and clauses of this ordinance are declared to be severable.

Repeal:

This Ordinance supersedes or repeals the provision(s) of any ordinance(s) or resolutions(s) that is (are) inconsistent with the provisions of this ordinance.

Effective Date:

This ordinance shall take effect immediately upon publication or posting, as required by law.

PASSED AND ORDERED POSTED this 24 day of April 2002.

WASHINGTON CITY

Terrill Clove, Mayor

ATTEST:

Tina Loui, City Recorder

WASHINGTON CITY SEAL
HERITAGE
PRIDE
PROGRESS
WASHINGTON CO. UTAH