ENOCH CITY

CULINARY WATER IMPACT FEE FACILITIES PLAN 2018

APRIL 2019

PREPARED BY:

SUNRISE ENGINEERING

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I. INTRODUCTION

Enoch City operates a culinary water system which supplies water to residents and businesses located within the city. Enoch City is located in Iron County, Utah along I-15 which neighbors Cedar City to the south and Summit to the east. Enoch City has multiple municipal water sources and three storage tanks for the culinary water system. The water sources are wells located around the city. Enoch City has entered into an agreement with Sunrise Engineering, Inc. to provide an Impact Fee Facilities Plan (IFFP) for the culinary water system.

The culinary water system has been analyzed under The State of Utah Division of Drinking Water Regulations to determine the current system status and to determine possible system upgrades as the community grows during the next 20-years with additional information provided about 40-year growth. As part of this plan, Sunrise Engineering, Inc. has evaluated the current and future needs of the City's water rights, source capacity, storage capacity, treatment requirements, and distribution system and has recommended improvements to the culinary water system.

Enoch City's water system currently serves a population of approximately 6,891 people (based on census estimates) as well as multiple commercial and institutional connections. Although the City also operates a secondary water/irrigation system, this IFFP will primarily evaluate the culinary water system. The City water is used for both indoor and outdoor watering; the majority of outdoor watering is done through the culinary system. Roughly 10% of the City's residences connected to the culinary water system are also connected to the City's irrigation system.

The City has experienced varied population growth in the past 40 years. Historically the city has grown rapidly, but the growth rate has tapered down in the past few decades. It is expected that the City's population will continue to increase in coming years at a slightly slower rate than its past growth. In order to meet the needs of this projected population growth, and to rectify known and unknown deficiencies in the culinary water system, the City has contracted with Sunrise Engineering, Inc. to make recommendations for improvements to the culinary water system.

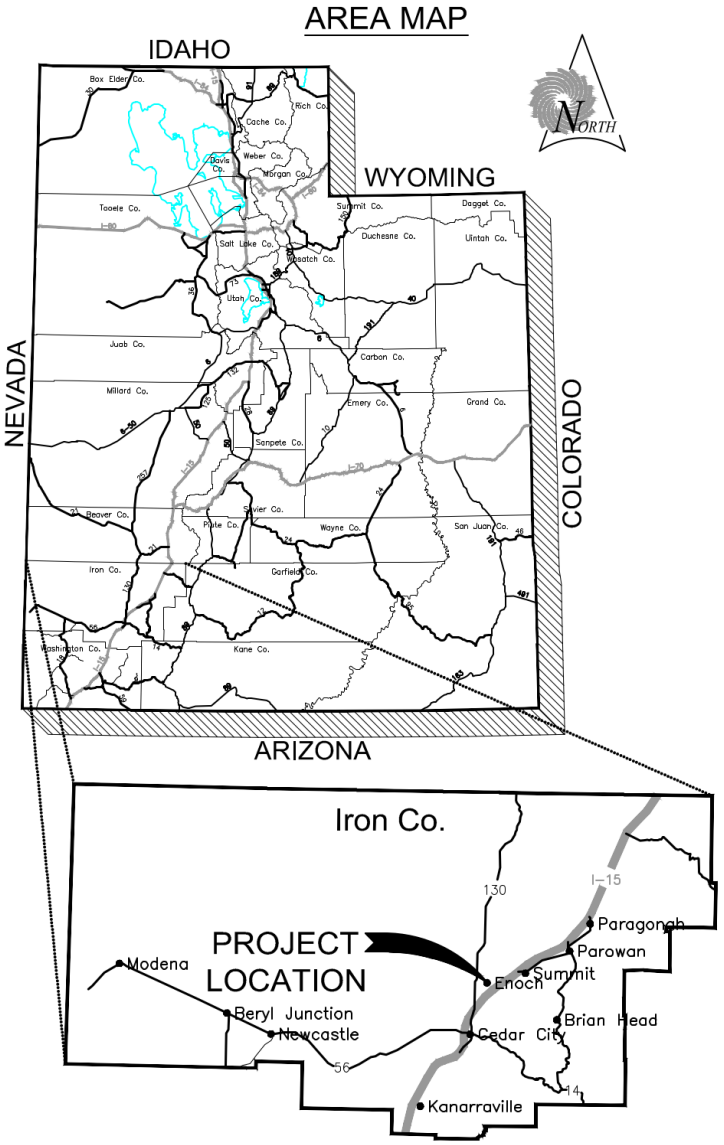

Figure I-1: Area Map

II. SYSTEM USERS ANALYSIS

A. LENGTH OF PLANNING PERIOD

A typical Master Plan or Impact Fee Facilities Plan uses a 20 or 40-year planning period. This plan will assume a 40-year planning period with a 20-year period for recommended improvements. 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 budgets are set.

B. PROJECTED GROWTH RATE

The population projection rate can be a subjective process. One method of estimating the number of future ERC's is by analyzing the past historical number of ERC's and census records.

Table II-1: Historical Data

YEAR	POPULATION	GROWTH/YR
1970	120	
1980	678	18.9%
1990	1947	11.1%
2000	3467	5.9%
2010	5878	5.4%
Average		10.2%

The population (as estimated by the Census) and the associated growth rate of Enoch City is shown in Table II-1.

The historical population as estimated by the Census, shows that in the past four census periods, the annual population growth rate averaged over 10-year periods has ranged between 5.4% and 18.9% with an average annual growth rate of 10.2%.

The average annual growth rate over the past two census periods (2000-2010) was lower at 5.7%. This is typical of what is seen in communities as a population base grows larger, the percent growth per year decreases even though the population added per year increases. Census estimates since the 2010 census (available thru 2017) show a smaller growth rate than historical averages at 2.0% average annual growth (see Table II-2 on the following page).

In discussion with the City, it was determined that a growth rate of 3.0% will be used until the end of the planning period. If actual growth rates differ greatly from the assumed growth rates, an update to this plan is recommended.

C. EQUIVALENT RESIDENTIAL CONNECTIONS

Commercial connections generally require more water than that required by a residential customer. An Equivalent Residential Connection (ERC) represents the additional volume of water required for commercial and other types of connections that use above and beyond the amount used by an average residential connection. The ERC value is determined by comparing the average daily use per commercial or other (agriculture, institutional, etc.) connection to the average daily use per residential connection. 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 year 2017, the total commercial water usage of approximately 7,440,000 gallons was distributed to 11 commercial users. Other connections are calculated using the same method. The total other water in 2017 is approximately 47,044,000 gallons which is distributed over 17 other users.

The average commercial connection used approximately 3.55 times the amount used by the average residential connections (544 gal/day). Similarly the average other connection used approximately 14.04 times the amount used by the average residential connection. The total number of ERCs for 2017 is calculated on the following page.

Residential ERC's = 2,092 ERC's
Commercial ERC's = 3.55 * 11 = 38 ERC's
Other ERC's = 14.04 * 17 = 243 ERC's

2017 Total ERC's = 2,373 ERC's

D. PROJECTED POPULATION & NUMBER OF ERC'S

Based on the projected growth rate, the population for which the City will need to plan is shown in Table II-2 and can be calculated with the compound interest formula shown below.

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

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

2017 Census Est: 6,756 People
2018 Projected: 6,756 $(1+0.03)^1$ = 6,959 People
2038 Projected: 6,959 $(1+0.03)^{20}$ = 12,568 People
2058 Projected: 6,959 $(1+0.03)^{40}$ = 22,699 People

The existing total equivalent residential connections (ERC) in 2017 has been calculated at 2,373 ERC's. The projected number of ERC's can be estimated with the same equation used for population.

2017 ERC's: 2,373 ERC's
2018 Projected: 2,373 $(1+.03)^1$ = 2,444 ERC's
2038 Projected: 2,444 $(1+.03)^{20}$ = 4,414 ERC's
2058 Projected: 2,444 $(1+.03)^{40}$ = 7,972 ERC's

It is important to understand that projected population and ERC figures are not the cornerstone of this plan. If the maximum number of system ERC's projected is reached earlier or later than projected, future improvements to support growth may also come earlier or later. An update to the plan is recommended if actual growth varies significantly from projected growth.

Table II-2: Projected Growth Rate

YEAR	SOURCE	POPULATION	GROWTH
2010	Census	5878	
2011	Census Est.	5974	1.6%
2012	Census Est.	6022	0.8%
2013	Census Est.	6017	-0.1%
2014	Census Est.	6086	1.1%
2015	Census Est.	6237	2.5%
2016	Census Est.	6539	4.8%
2017	Census Est.	6756	3.3%
2018	Census Est.	6959	3.0%
2019	Projected	7167	3.0%
2020	Projected	7382	3.0%
2021	Projected	7604	3.0%
2022	Projected	7832	3.0%
2023	Projected	8067	3.0%
2024	Projected	8309	3.0%
2025	Projected	8558	3.0%
2026	Projected	8815	3.0%
2027	Projected	9079	3.0%
2028	Projected	9352	3.0%
2029	Projected	9632	3.0%
2030	Projected	9921	3.0%
2031	Projected	10219	3.0%
2032	Projected	10526	3.0%
2033	Projected	10841	3.0%
2034	Projected	11167	3.0%
2035	Projected	11502	3.0%
2036	Projected	11847	3.0%
2037	Projected	12202	3.0%
2038	Projected	12568	3.0%
2039	Projected	12945	3.0%
2040	Projected	13334	3.0%
2041	Projected	13734	3.0%
2042	Projected	14146	3.0%
2043	Projected	14570	3.0%
2044	Projected	15007	3.0%
2045	Projected	15457	3.0%
2046	Projected	15921	3.0%
2047	Projected	16399	3.0%
2048	Projected	16891	3.0%
2049	Projected	17397	3.0%
2050	Projected	17919	3.0%
2051	Projected	18457	3.0%
2052	Projected	19010	3.0%
2053	Projected	19581	3.0%
2054	Projected	20168	3.0%
2055	Projected	20773	3.0%
2056	Projected	21396	3.0%
2057	Projected	22038	3.0%
2058	Projected	22699	3.0%

E. AVERAGE CULINARY WATER USAGE

The State of Utah Public Drinking Water Regulations requires public water systems to meet requirements based on usage. State rules provide a standard usage based upon the types of ERC's serviced in a system. Usage can also be based upon historical data if there is enough data to provide a confidence level of 90% or higher that the usage shown is representative of actual average use. Enoch has provided historical usage data which will be used for the analysis. The analysis of this historical usage is outlined in this section.

As detailed above, the average number of existing ERC's in 2018 is 2,444. To calculate how much water is used by an average ERC, the total amount of water used by all ERC's over the course of a year is determined. From the connection data, the average daily use per ERC was calculated to be 544 gal/day.

Any future improvements will be sized for **544 gal/day per ERC** for culinary water. The remainder of this report will refer to this usage as historical usage and each section will include analysis showing requirements based upon this historical usage.

Although the value of 544 gal/day per ERC may be higher than could be expected for a water system in the State of Utah, it is reasonable seeing that Enoch uses culinary water for irrigation and has a larger than average lot size. The city has a goal to conserve water, should the demand be lowered due to conservation then the recommended improvements may be pushed back.

F. PEAK DAY DEMAND CULINARY WATER USAGE

Peak day demand is defined by the Utah Administrative Code as the "anticipated water demand on the day of the highest water consumption." Peak day demand is typically taken as twice the average day demand. In this case, Peak day demand for this report will be higher than the typical average day demand. Since Enoch uses culinary water for irrigation the summer months experience higher than average usage. Monthly data from the past five years was used to determine the highest demand the system has experienced. The highest months daily demand in the past five years was 1,661 gpd per ERC. The peak day demand is assumed to be greater than the peak month and a factor of 3.1 times the average day demand was used to give a peak day demand of **1,686 gpd per ERC.** Peak day demand will be used in determining source capacity and in modeling the distribution system.

G. PEAK INSTANTANEOUS DEMAND CULINARY WATER USAGE

Peak instantaneous demand can be described as the highest demand at any one instance in the system and is used for modeling the system. This can be estimated based on hourly usage data. Where hourly usage data does not exist, which is the case for this study, the state requires that the following formulas are used for indoor and outdoor usage:

Indoor Usage:

$Q_{peak\ indoor} = 10.8 \times N^{0.64}$

where N is the number of ERC's and Q is the flow in gpm

Outdoor Usage:

$Q_{peak\ outdoor}$ = N x Irr. Acreage x Demand Factor

where N is the number of ERC's, Irr. Acreage is the average area that is irrigated throughout the system and the Demand Factor is based on zone and given in Table 510-7 of R309-510 of the Utah Administrative Code.

For current peak instantaneous indoor usage, the amount recommended by the aforementioned equation was calculated as follows:

$Q_{peak\ indoor} = 10.8 \times (2{,}444)^{0.64} = 1{,}592$ gpm

For current peak instantaneous outdoor usage, the amount recommended by the aforementioned equation was calculated as follows. The average irrigated acreage per ERC was estimated to be 0.18 acres. The demand factor for Enoch based on Zone 3 is 6.78 gpm/irrigated acre. The number of ERC's assumed to use culinary water for irrigation is 90%.

$Q_{peak\ outdoor}$ = 90% x 2,444 x 6.78 x 0.18
= 2689 gpm

Summing up the indoor and outdoor demands, yields a peak instantaneous demand of 4,281 gpm for the entire system.

For comparison purposes, it is useful to determine the "peaking factor" for the Peak Instantaneous Demand. The peaking factor is determined by comparing peak instantaneous demand with average day demand. As an example, the peaking factor for peak day demand is 3.1. In order to find the peaking factor, the peak instantaneous demand should be converted to gallons per day (gpd) per ERC. The peak instantaneous demand was determined to be 2,522 gpd by dividing the number of ERC's and multiplying by 1,440 minutes per day.

The peaking factor can then be determined by dividing the peak instantaneous demand per ERC of 2,522 gpd by the average day demand per ERC of 544 gpd. The peaking factor was determined to be 4.6.

The peak instantaneous demand for future years can now be calculated by multiplying by the peaking factor.

III. WATER RIGHTS ANALYSIS

A. EXISTING WATER RIGHT

The existing culinary water rights owned by the city for the water system are listed in Appendix C. The water rights are listed according to number, amount, name, and location.

According to Enoch City, the existing municipal water rights currently owned for culinary water total 3,211 Ac-Ft. It should be noted that Enoch City is planning on condensing the list of water rights into one water right. By combining water rights Enoch is likely to receive a depleted water right amount. An update to the plan is recommended if water rights are significantly changed from the current water rights.

B. EXISTING REQUIRED WATER RIGHT

The State of Utah Public Drinking Water Regulation, 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 the case of water rights, this historical use data is the average usage. The average usage for the culinary water system has already been established as 544 gallons per day per ERC as outlined in Section II. The majority of outdoor usage is accounted for in the culinary system and is included in the scope of this plan.

From Appendix C, the total amount of municipal water right available is 3,211 Ac-Ft. As shown in Table III-1, the existing required water right for ERC's in Enoch is calculated as 1,489.05 Ac-Ft and the existing water right surplus is calculated as 1,721.95 Ac-Ft.

Table III-1: Existing Water Rights

Existing Required Water Rights Calculations											
Average Demand (Total Use)											
2444	ERC's	X	544	gpd / ERC	X 1	day / 24	X 1	hr / 60	=	923.15	gpm
2444	ERC's	X	544	gpd / ERC	X 365	day / 1	X 1	Ac-ft / 325,851	=	1489.05	Ac-Ft
Existing Culinary System Water Rights Surplus										1721.95	Ac-Ft

C. PROJECTED REQUIRED WATER RIGHT (2038)

The projected required water right at the end of the 20-year planning period can be calculated by using the projected number of ERC's in place of the current number of ERC's. Table III-2 shows the calculations for the projected required water rights.

As shown in Table III-2 on the following page, the projected required water right is calculated as 2,689.31 Ac-Ft and the projected water right surplus is calculated as 521.69 Ac-Ft.

D. PROJECTED REQUIRED WATER RIGHT (2058)

As previously mentioned, the State of Utah allows that water rights be analyzed on a 40-year planning period. The projected required water right at the end of the 40-year planning period can be calculated by using the projected number of ERC's. Table III-3 shows the calculations for the projected required water rights.

As shown in Table III-3, the projected required water right is calculated as 4,857.09 Ac-Ft and the projected water right deficit is calculated as 1,646.09 Ac-Ft.

E. RECOMMENDED WATER RIGHT IMPROVEMENTS

The water rights projections show that the system will not have sufficient water rights throughout the 40-year study. Enoch City is predicted to run out of water rights beginning in 2043.

The water rights should be reviewed at least every five years in order to ensure that the system is able to meet future demands and maintain a right to the water. If additional sources are developed, the City may be required to submit a change application to move existing water rights to the new source location. For more information on the existing water rights see Appendix C.

As mentioned earlier Enoch City may have a reduction in water rights due to depletion. It is recommended that Enoch City look into purchasing water rights to meet future demands.

Table III-2: 20-Year Projected Water Rights

Projected Required Water Rights Calculations (2038)												
Average Demand (Total Use)												
4414	ERC's	X	544	gpd	X	1	day	X	1	hr	=	1667.27 gpm
				ERC		24	hr		60	min.		
4414	ERC's	X	544	gpd	X	365	day	X	1	Ac-ft	=	2689.31 Ac-Ft
				ERC		1	yr		325,851	gal		
Projected Culinary System Water Rights Surplus												521.69 Ac-Ft

Table III-3: 40-Year Projected Water Rights

Projected Required Water Rights Calculations (2058)												
Average Demand (Total Use)												
7972	ERC's	X	544	gpd	X	1	day	X	1	hr	=	3011.20 gpm
				ERC		24	hr		60	min.		
7972	ERC's	X	544	gpd	X	365	day	X	1	Ac-ft	=	4857.09 Ac-Ft
				ERC		1	yr		325,851	gal		
Projected Culinary System Water Rights Deficit												-1646.09 Ac-Ft

IV. WATER SOURCE CAPACITY ANALYSIS

A. EXISTING WATER SOURCE CAPACITY

To analyze source capacity, all available culinary water sources must first be identified. These sources are listed in Table IV-1. Enoch City currently has six culinary water sources: Ravine Well, Anderson Well, Woolsey Well, Homestead Well, Iron Works Well, and the BLM Well.

Table IV-1: Existing Water Source Capacity

Enoch City Sources	Total Flow	
Wells	CFS	gpm
Ravine Well	0.32	142
Anderson Well	0.70	314
Woolsey Well	0.70	315
Homestead Well	1.32	594
Iron Works Well	2.23	1,000
BLM Well	0.89	400
Source Total (In Use)=	**6.16**	**2,765**

Table IV-2: Existing Required Water Source

Existing Required Water Source Capacity Calculations									
Required Indoor / Outdoor Source - Historic Usage									
2,444	Conn.	1088 gpd	X	1 day	X	1 hr	=	1846	gpm
		Conn.		24 hr		60 min.			
Existing Culinary System Source Capacity Surplus								**919**	**gpm**

Table IV-3: 20-Year Projected Required Water Source Capacity

Projected Required Water Source Capacity Calculations (2038)									
Required Indoor / Outdoor Source - Historic Usage									
4,414	Conn.	1088 gpd	X	1 day	X	1 hr	=	3335	gpm
		Conn.		24 hr		60 min.			
Future Culinary System Source Capacity Deficit								**-570**	**gpm**

Enoch City also operates two irrigation wells: 3 Peaks Well, and Spanish Trails Well. While this study does not go into the irrigation system it is important to note that changes to the irrigation system change usage for culinary water.

Enoch City has plans to increase culinary source capacity by drilling an existing well into a deeper aquifer. If the new well increases capacity adequately additional source improvements may be pushed back. Enoch is also potentially looking to increase irrigation source capacity to help relieve the demand of culinary water in the summer months.

B. EXISTING REQUIRED WATER SOURCE CAPACITY

The State of Utah Public Drinking Water Regulations, Section 5, states that a community should have an adequate water source capacity to physically meet the anticipated peak day demand. The peak day demand has been determined as 1,686 gpd per ERC per Section II of the report.

The existing required source capacity calculations are shown in Table IV-2. The existing source capacity surplus or deficit is determined by subtracting the existing required source capacity of 1,846 gpm from the total available source capacity of 2,765 gpm, which yields a surplus of 919 gpm. Enoch City has some redundancy in the system; however, the redundancy is lacking if the Iron Works Well is offline during peak day demand. If the Iron Works Well is offline during peak day demand the other sources don't have the ability to cover the entire demand.

C. PROJECTED REQUIRED WATER SOURCE CAPACITY (2038)

Projected required water source capacity at the end of the planning period is determined from the same information and calculations explained above, except the projected number of culinary water ERC's is substituted in the calculations for the current number of ERC's. The projected required source capacity calculations are shown in Table IV-3.

The projected source capacity surplus or deficit is determined by subtracting the projected required source capacity of 3,335 gpm from the total available source capacity of 2,765 gpm, which yields a deficit of 570 gpm at the end of the planning period.

D. RECOMMENDED WATER SOURCE IMPROVEMENT

The existing source capacity of 2,765 gpm is projected to be deficient through the 20-year planning period. The system also lacks in redundancy due to most water capacity coming from one well. Therefore, it is recommended that Enoch adds additional sources to its water system.

Enoch City will need to add 1,570 gpm of source capacity over the next 20 years to have adequate redundancy and capacity. It is recommended that new sources are included into the system as soon as possible.

The water source capacity should be reviewed at least every five years in order to ensure that the system is able to meet future demands. If additional sources are necessary in the future, the City may be required to submit a change application to move existing water rights to the new source location.

V. WATER STORAGE CAPACITY ANALYSIS

A. EXISTING WATER STORAGE CAPACITY

The culinary water storage capacity for Enoch is identified in Table V-1.

Table V-1: Storage Capacity Summary

Existing Storage Capacity:		
Midvalley Tank #1	2,000,000	gal.
Midvalley Tank #2	250,000	gal.
BLM Well Tank	2,000,000	gal.
Total Existing Storage Capacity	**4,250,000**	**gal.**

There are currently three existing water storage tanks in Enoch. The Midvalley Tanks are at similar elevations while the BLM Well Tank is the high elevation tank. The Midvalley Tanks are fed by the distribution system by way of wells located throughout the distribution system. The BLM Well Tank is fed from both the BLM Well which is housed next to the tank, and a booster station that pumps water to the tank from the distribution system.

B. EXISTING REQUIRED WATER STORAGE CAPACITY

Water storage capacity requirements are found in the State of Utah Public Drinking Water Regulations, R309-510 http://www.rules.utah.gov/publicat/code/r309/r309-510.htm. These regulations require storage for a community's culinary water system to meet one full day's average use requirement for all connections in the community in addition to fire flows for a minimum of two hours and emergency storage as deemed necessary.

As shown in previous sections, the average water use per ERC in the water system for 2018 is 544 gallons per day of culinary water. Storage requirements for fire protection vary slightly 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 is 1,000 gpm; however, Enoch City uses a fire-flow of 1,500 gpm which will be used for this plan. Also included in required storage is emergency storage as determined by the Owner and Engineer. For planning purposes, this Impact Fee Facilities Plan will use an amount of 25% of the total required storage from equalization and fire protection storage.

Based on the requirements for required storage capacity, the required storage capacity is calculated as shown in Table V-2.

Table V-2: Existing Required Storage Capacity

Existing Required Storage Capacity										
		544 gpd	X	2,444 ERC	=			1,329,340	gpd
		ERC							
Fire Demand										
1,000	gpm	X	60 min	X	2 hr	=		120,000	gal.
			1 hr						
Emergency Supply										
		25% of required storage						362,335	gal.
							Total Existing Required Storage	1,811,675	gal.
							Total Existing Storage Capacity	4,250,000	gal.
							Existing Storage Capacity Surplus	2,438,325	gal.

The existing water storage capacity surplus or deficit is determined by subtracting the existing required water storage capacity of 1,811,675 gallons from the total available water storage capacity of 4,250,000 gallons, which yields an existing surplus of 2,438,325 gallons.

C. PROJECTED REQUIRED WATER STORAGE CAPACITY (2038)

The projected required culinary water storage capacity at the end of the planning period is determined from the same factors explained in part B; except the projected number of culinary water ERC's is inserted into the calculations.

Based on the requirements for projected required storage capacity, the required storage capacity is calculated as shown in Table V-3.

The projected water storage capacity surplus or deficit is determined by subtracting the projected required water storage capacity of 3,151,078 gallons from the total available water storage capacity of 4,250,000 gallons, which yields a projected surplus of 1,098,922 gallons 20 years out.

Table V-3: Projected Required Storage Capacity

Projected Required Storage Capacity in 2038										
	544	gpd	X	4,414	ERC	=		2,400,862	gpd
		ERC							
Fire Flow										
1,000	gpm	X	60	min	X	2	hr	=	120,000	gal.
			1	hr						
Emergency Supply										
25%	of required storage								630,216	gal.
								Total Required Storage	3,151,078	gal.
								Total Existing Storage Capacity	4,250,000	gal.
								Future Storage Capacity Surplus	1,098,922	gal.

D. RECOMMENDED WATER STORAGE CAPACITY IMPROVEMENTS

Enoch City currently has adequate storage and is projected to have adequate storage through the planning period according to historic usage as is shown above. New tanks should only be necessary if future developments come online above the elevations that can be serviced by the current tanks or at considerable distance from an existing tank. All future developments should be required to take this into consideration and show evidence that the system will remain functioning if not improved on existing storage capacity.

VI. WATER TREATMENT REQUIREMENTS

A. GENERAL REQUIREMENTS

The State of Utah Public Drinking Water Regulations, 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

Enoch City does not have treatment facilities for water; however, Enoch City's has a proven track record of providing water in compliance with government regulations.

C. RECOMMENDED WATER TREATMENT FACILITY IMPROVEMENTS

Enoch City currently has compliant water and is projected to have compliant water through the planning period. There are no additional recommendations for Enoch City's water treatment.

VII. DISTRIBUTION SYSTEM ANALYSIS

A. EXISTING DISTRIBUTION SYSTEM ANALYSIS

The State of Utah Public Drinking Water Regulations, R309-105-9, require that no connection experience less than 20 psi at any time during operation of the system. The regulations also require that the distribution system be sized to maintain 20 psi during peak day conditions with fire flow demands, 30 psi during conditions of peak instantaneous demand, and 40 psi during peak day demand. As a general guideline, it is desirable that the system be able to provide a minimum static pressure of 50 psi at every point in the distribution system.

Existing peak flows per ERC were calculated in Section II. These flows are shown below as well as the total demand for the entire system:

Existing Peak Day Demand

$$Q = \frac{1686 \text{ gpd} \times 2{,}444 \text{ ERC}}{1{,}440 \text{ min}} = 2{,}862 \text{ gpm}$$

Existing Peak Instantaneous Demand

$$Q = \frac{2522 \text{ gpd} \times 2{,}444 \text{ ERC}}{1{,}440 \text{ min}} = 4{,}281 \text{ gpm}$$

Fire flow added to peak day demand: 1,500 gpm

The existing culinary water distribution system has been modeled using the computer program H2ONET® by Innovyze, Inc. There are areas in the system with concern of meeting the fire flow at peak day demands, system updates have been shown in Appendix A that bring all areas of the system into compliance.

B. PROJECTED DISTRIBUTION SYSTEM ANALYSIS

The projected distribution system analysis is performed using the same assumptions as in the existing system analysis, except that the projected number of ERC's is inserted into the calculations. The calculations for the projected distribution demands are shown below:

Future Peak Day Demand

$$Q = \frac{1686 \text{ gpd} \times 4{,}414 \text{ ERC}}{1{,}440 \text{ min}} = 5{,}169 \text{ gpm}$$

Future Peak Instantaneous Demand

$$Q = \frac{2522 \text{ gpd} \times 4{,}414 \text{ ERC}}{1{,}440 \text{ min}} = 7{,}731 \text{ gpm}$$

Fire flow added to peak day demand: 1,500 gpm

Using each of the above listed flows, the water system model was used to analyze the culinary water system. Similar to the distribution system analysis there are areas which are projected to not meet fire flow. The areas not meeting fire flow are the same as in the existing distribution system analysis.

C. RECOMMENDED DISTRIBUTION SYSTEM IMPROVEMENTS

There are areas in the system where lines are recommended to be replaced with larger diameter pipes in order to meet fire flow. The recommended distribution system improvements are shown in Appendix A.

The distribution system should be re-analyzed every 5 years to insure it is compliant with up to date rules and regulations; this can be accomplished through an updated water master plan or similar analysis.

Also, in accordance with Utah Administrative Code R309, the hydraulic model should be updated for all public drinking water projects with the exception of those falling under a category listed in R309-511-4(1)(a)(i), or those included in this Impact Fee Facilities Plan.

VIII. SUMMARY OF RECOMMENDED SYSTEM IMPROVEMENTS

A. PRELIMINARY ENGINEER'S OPINION OF PROBABLE COST

Engineer's opinions of probable cost (EOPC) for the recommend improvements are provided in Appendix D.

Included in the EOPC for the proposed projects are anticipated construction costs, a contingency budget, and a budget for incidental project costs such as survey, administration, engineering, legal services, fiscal costs, permitting, environmental, rights-of-way, etc.

Improvements have been recommended to update Enoch's water system through the 20-year planning period. A review of the locations of the proposed system improvements can be found in Appendix A.

B. PRIORITY OF IMPROVEMENTS

The Impact Fee Facilities Plan is a 40-year plan designed to consider the projected growth and required demands for the City's culinary water system over the next 40 years recommended improvements have been given for the next 20-years.

Table VIII-1 provides a list of the proposed improvements from this plan, the improvements are prioritized from high priority to low priority. The system improvements priority is based on potential benefits to the water system. Not included in this list is potential water rights that may be needed. The Impact Fee Facilities Plan and Impact Fee Analysis update should occur at least every 5 years.

Table VIII-1: Project Priority

Recommended Improvements Priority List
New 16" Line, BLM Tank to Saddleback View Dr.
12" Line, Village Green, Blueberry, & Ravine Rd.
8" Line, 500 E from 3830 N to 3890 N
New 8" Line, 3800 N from Maxwell Rd. to 430 E
New Well
8" Line, Apple Blossom Ln., Primrose Ln., Golden Leaf Cir., & Rose Cir.
New 8" Line, Half Mile Rd from Eden Way to 5400 N
New 8" Line, 700 E from 5200 N to 5600 N
Hydrants
10" Line, connection rd. from 3800 N to 940 E
8" Line, Maxwell Rd from 3600 N to South pipe end
8" Line, Columbia Dr.
8" Line, Canyon Rd.
8" Line, 500 E from 3600 N to South pipe end

C. PROPOSED FINANCING PLAN

Table VIII-2 on the following page outlines a possible financing plan for the recommended improvements. The financing plan includes the proposed projects within the 20-year period.

The city may also choose to complete the projects in separate smaller projects. However, keeping the recommended improvements in one project mitigates issues with funding acquisition and would likely result in more grant awarded by funding agencies.

In order to pay for the improvements, whether based on the proposed financing plan or from multiple smaller projects, the city would need to address the monthly water user fee. The recommended amount based on calculations for these fees for the proposed financing plan can be found in Table VIII-2. The average monthly water user fee was calculated using the sample financing plan by taking all the expected expenditures, projects, and debt service and subtracting off the other expected revenues obtained that year. The amount was then divided by the number of expected connections in the system that year to come up with the average monthly water user fee per connection of **$30.14**. It should be noted that this amount includes all connections independent of

sizes of meters and should not be thought of as the average user fee per 1" meter. Section IX lays out possible water rate structures set to cover the anticipated required average monthly water user fees. The $30.14 user rate represents the cost each user would need to pay in order to fully sustain the water system.

Table VIII-2: Proposed Financing Plan

ENOCH CITY			
PROPOSED FINANCING PLAN (FY 2020)			
TOTAL PROJECT COST			
Proposed Funding:	**Rate**	**Term in Yrs.**	**Principal**
Self Participation			$400,000
RD Grant			$886,500
RD Loan	3.38%	40	$2,068,500
TOTAL PROJECT FUNDING:			**$ 3,355,000**
EXPENSES: (2020)			
Personnel services			$302,220
Utilities			$125,877
Operating and maintenance			$218,096
Insurance expense			$7,374
Interest On Long-term Debt			$15,756
Long Term Debt (Principal)			$99,000
Pension Expense			$1,507
Subtotal Expenses:			**$769,830**
NEW DEBT SERVICE			
New Loan(s)			$94,993
Subtotal New Annual Debt Service:			**$94,993**
Renewal and Replacement Fund (5% of Annual Expenses)			$38,491
GRAND TOTAL EXPENSES:			**$903,314**
ANNUAL INCOME			
Estimated Number Of ERCs (2020)			2,317
Average Monthly Water User Rate/ERC			**$30.14**
Charges for Services, Fees, etc.			$903,314
Impact fee eligible expenses			$65,334
GRAND TOTAL INCOME:			**$968,648**

IX. WATER RATE ANALYSIS

A. GENERAL

Generally, water rates are a combination of base rates and overage rates wherein 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 and should cover all fixed costs of the system. Overage rates are normally set to encourage water conservation, but should always cover all variable costs of the system. Enoch City has established the service fee rate structure shown in Table IX-1. The table shows the existing costs and an example of the water bill for assumed usages.

Table IX-1: Existing Water Rate Structure

ENOCH CITY Existing Residential Water Rate Structure		
Total Base Rate	$29.00	per Conn./Month
Includes	30,000	Gallons
Overage Steps		
Cost Per 1,000 Gal.	Low Gallons	High Gallons
$0.40	30,001	50,000
$0.65	50,001	70,000
$0.85	70,001	90,000
$1.00	90,001	120,000
$1.20	120,001	& UP
Example of Water User's Bill Based on Usage		
Usage	Amount	
(Gallons)	Existing Rates	
0	$ 29.00	
5,000	$ 29.00	
30,000	$ 29.00	
50,000	$ 37.00	
70,000	$ 50.00	
90,000	$ 67.00	

B. AVERAGE RATE DETERMINATION FOR 2020

Table IX-2 on the following page shows a method used to determine the average water rate per connection which should be divided among all system customers.

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, utilities, personnel salaries and benefits, operating and maintenance, insurance, and other miscellaneous items. It is recommended that the water department maintain a funded depreciation account or a replacement fund to provide the money necessary for replacement and repair of water system facilities and pipelines in the future.

An estimate of the FY 2020 costs was found using a trend line from the costs shown on the audits in 2014-2018, expected expenses for 2020 total $903,314. Any impact fees collected would lower the amount of expenses that system users pay; however, inputting impact fees into the calculations for the billing rate may present some budget shortfalls. Impact Fees are not a guaranteed source of revenue, they are based on the number of new connections to the system. It is important to be conservative in budgeting for impact fees. This plan proposes that the impact fees will cover the amount of impact eligible costs from the new water projects. Enoch City is expected to bring in more income from impact fees than what the new water projects require. If the projected revenue of impact fees is achieved the city will still have the option of putting the additional revenue from water bills into the water fund account. Impact fees have been calculated for improvements over the next 7 years.

The impact fee eligible cost for FY 2020 equals $65,334. Subtracting the impact fee amount from the total expenses leaves $837,980 needed to be paid by user rates. This total divided by the estimated number of billable connections in the system in 2020 (2,317) then again by 12 months results in an average water bill of **$30.14** per connection per month to cover expenses. Under the existing fee schedule the amount paid by a customer using the average amount of water used by current customers is estimated to be **$29.00**.

This implies that the existing rate structure may not be generating enough income to the water fund.

C. BASE AND OVERAGE RATE DETERMINATION

This study includes separating the average user rate into base and overage rates, and investigates possible rate structures that would promote conservation and work hand-in-hand with drought management and conservation policies.

In order to determine a base and overage schedule, the projected expenses of the water system for FY 2020 have been separated into fixed and variable expenses (Table IX-2). It is recommended that the base rate should cover the fixed expenses of the system.

In order to provide the necessary culinary water system improvements as recommended in this Plan and maintain the current level of O&M, Enoch City will need to determine a rate schedule that will result in revenues that will average $30.14 per connection per month. The base and overage rates should be examined each year to ensure that adequate revenue is being generated to cover the expenses.

D. POSSIBLE RATE STRUCTURE

Enoch City is able to set the rate structure to an amount it deems to be fair. However, the rates should be such that the system remains financially viable.

Table IX-3 on the following page suggests one possible scenario for determining base and overage rates for Enoch City. In this scenario, fixed costs are covered by the base rate and variable costs are covered by the overage rates. This rate scenario simply identifies base and overage rates that should satisfy the revenue requirements based on estimated operation and maintenance (O&M) expenses and on projected water usage. This scenario differs from the existing in that the base rate is higher and the overage rates are lower. Enoch City's rate structure is typical of many communities with the base rate that is anticipated to cover fixed expenses. The general reasoning behind having a base rate similar to total system expenditures is that it increases the likelihood that the system will continue to be financially stable. Occasionally systems will choose a lower base rate and higher overage rates to encourage conservation and to keep rates low for low income households that choose to use less than the gallons allotted in the base rate.

Table IX-2: Fixed Rate Analysis

ENOCH CITY FIXED RATE ANALYSIS			
FY 2020 Expenses	**Fixed**	**Variable**	**Total**
Personnel services	$287,109	$15,111	$302,220
Utilities	$88,114	$37,763	$125,877
Operating and maintenance	$65,429	$152,667	$218,096
Insurance expense	$7,374	$0	$7,374
Interest On Long-term Debt	$15,756	$0	$15,756
Long Term Debt (Principal)	$99,000	$0	$99,000
Renewal and Replacement Fund (5% of Annual Exper	$38,491	$0	$38,491
Pension Expense	$1,507	$0	$1,507
NEW PROJECTS			
2020 Water Project	$94,993	$0	$94,993
Total Expenses:	$697,773	$205,541	**$903,314**
Revenue from Impact Fees	$32,667	$32,667	$65,334
Revenue from User Rates	$665,106	$172,875	$837,980
Total Projected System Connections in 2020	2317	2317	2317
Monthly Cost/Conn. in 2020	$23.92	$6.22	$30.14

Table IX-3: Possible Water Rate Structure

ENOCH CITY Possible Water Rate Structure (Option 1) 1" Meter		
Base Rate	$24.00	Conn./Month
Includes	5,000	Gallons
Overage Steps		
Cost Per 1,000 Gal.	Low Gallons	High Gallons
$0.55	5,001	40,000
$0.75	40,001	& UP
Example of Water User's Bill Based on Usage		
Usage (Gallons)	Amount New Rate	Existing Rate
0	$ 24.00	$ 29.00
5,000	$ 24.00	$ 29.00
30,000	$ 37.75	$ 29.00
50,000	$ 50.75	$ 37.00
70,000	$ 65.75	$ 50.00
90,000	$ 80.75	$ 67.00

Table IX-4 displays two additional possible changes to the rate structure. Option 2 provides a scenario where no usage is included with the base rate. This allows the overage amounts to be lowered from the existing amounts. Option 3 provides a more balanced scenario where a portion of the rate is achieved by a slightly higher base rate and the rest of the increase with slightly higher overage rates.

Similar to the existing rate structure, the overage rate structures are stepped to promote conservation by charging a higher amount for excessive water usage. By including a small amount of, or no base gallons, in Option 2, residents also have a greater incentive to conserve water.

The tables also include examples of water bills based on the proposed rate structure and show bills based on existing rates for comparison. The best way to confirm that the average rate produced will cover annual expenses is to implement the structure and evaluate the results after a full year of use.

Table IX-4: Possible Water Rate Structure

ENOCH CITY Possible Water Rate Structures (Options 2 and 3) 1" Meter					
Base Rate	$24.00	Conn./Month	Base Rate	$27.00	Conn./Month
Includes	0	Gallons	Includes	10,000	Gallons
Overage Steps			Overage Steps		
Cost Per 1,000 Gal.	Low Gallons	High Gallons	Cost Per 1,000 Gal.	Low Gallons	High Gallons
$0.40	1	50,000	$0.00	1	10,000
$0.60	50,001	75,000	$0.50	10,001	50,000
$1.00	75,001	& UP	$0.80	50,001	&UP
Example of Water User's Bill Based on Usage					
Usage (Gallons)	Rates New Rate	Existing Rate	Usage (Gallons)	Rates New Rate	Existing Rate
0	$ 24.00	$ 29.00	0	$ 27.00	$ 29.00
5,000	$ 26.00	$ 29.00	5,000	$ 27.00	$ 29.00
30,000	$ 36.00	$ 29.00	30,000	$ 37.00	$ 29.00
50,000	$ 44.00	$ 37.00	50,000	$ 47.00	$ 37.00
70,000	$ 56.00	$ 50.00	70,000	$ 63.00	$ 50.00
90,000	$ 74.00	$ 67.00	90,000	$ 79.00	$ 67.00

Figure IX-1 shows the estimated water bills for the existing rate structure and each of the previous described billing options.

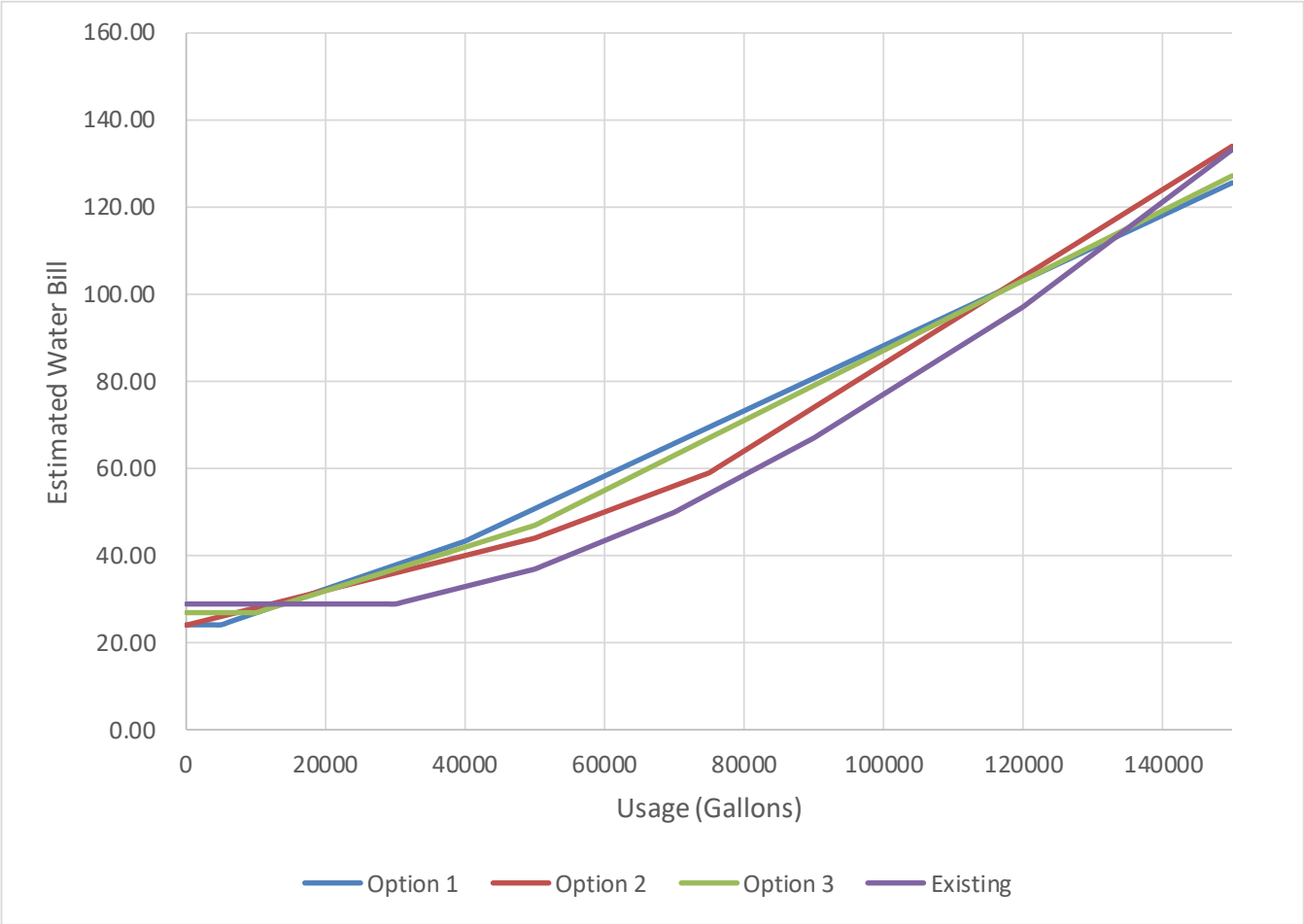

Figure IX-1: Estimated Water Bills (1" Meter)

X. IMPACT FEES

A. IMPACT FEE

The Impact Fees Act allows for the charging of Impact Fees to pay for culinary water facilities needed to mitigate the impact of new water connections on the water system. A portion or all of these improvements will be designated as Impact Fee eligible due to the City needing to install the necessary infrastructure to provide for new growth.

An Impact Fee Analysis has been performed based on the improvements indicated in previous sections of this report. This Impact Fee Analysis looks at improvements needed within a seven-year window. Impact fees collected in Utah must be expended within 6 years. The future improvements have been shown and justified by previous sections of this report. The improvements shown below are deemed impact fee eligible because they are needed due to an increase in the source capacity, storage capacity, treatment capacity, and distribution system caused by new growth.

Below is a list of the projects, cost, and estimated percent Impact Fee Eligible amounts with estimated financing and inflation after removing the portion not impact fee eligible. The breakdown of the estimated project costs can be seen in the Engineer's Opinion of Probable Cost (see Appendix D).

Enoch City currently charges, and plans to continue charging an impact fee on all new connections at the time of construction to help with the necessary capital improvements for Enoch City necessitated by growth. It should be noted that the connection fees may not be combined into the impact fee. Separate from impact fees the State of Utah has mandated that connection fees may only be charged for the actual costs of the connection into the water system.

B. CALCULATION

The total cost that is eligible for the impact fee assessment is equal to the existing debt service from previous water improvements projects that can be attributed to new growth plus 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 projected number of new connections that will be added to the system within the service area during the impact fee analysis window.

The system improvements have been calculated as 68.8% impact fee eligible. This percentage comes from evaluating each of the improvements to determine which percentage is necessitated due to growth.

For this Impact Fee Analysis, the system improvements needed for growth are calculated using the 3% growth rate. By using the projected number of new connections, the connections that benefit from these improvements will pay their share of the costs for the improvements.

Enoch is projected to serve an additional 596 connections in the seven-year window. This will become the denominator for the impact fee calculation for the distribution system improvements. There is one impact fee analysis

Table X-1: Impact Fee Eligible Improvements

	Current Costs	Year	Grant $	City Contribution	Future Cost	% IF El.	IF El. Cost
Distribution System Improvements	$ 2,539,242	2020	$ 782,775	$ 302,741	$ 2,670,403	58.7%	$ 1,746,630
Source Improvements	$ 815,758	2020	$ 251,475	$ 97,259	$ 857,895	100.0%	$ 955,154
Impact Fee Analysis Update (2025)	$ 45,000	2023, 2028			$ 55,344	100.0%	$ 55,344
Total							$ 2,757,128

update assumed over the next 7 years (at 5 year intervals).
The total impact fee eligible amount for the system improvements is as shown below. The impact fee eligible cost minus the interest gained on the impact fees divided by the estimated number of new connections benefiting from these improvements (596). The impact fee eligible cost minus the interest gained is $2,597,806.

$$\frac{\$2,597,806}{596\ ERC's} = \$4,359\ per\ ERC's$$

This $4,359 is similar to the existing impact fee of $4,703. The $4,359 represents the maximum eligible impact fee that can be charged for 1" meters. Larger meters should be charged higher impact fees due to expected higher usage.

The impact fee cost for other meter sizes is shown in Table X-2. The impact fee charges for the larger meters were calculated by multiplying by the ratios shown in the table, which are the ratios of the cross sectional area for the given meter size.

Table X-2: Impact Fee by Meter Size

Meter Size	Ratios	IF Charge
1" Impact Fee	1.00	$ 4,358.73
1-1/2" Impact Fee	2.25	$ 9,807.15
2" Impact Fee	4.00	$ 17,434.94
3" Impact Fee	9.00	$ 39,228.61
4" Impact Fee	16.00	$ 69,739.75
6" Impact Fee	36.00	$ 156,914.44

C. IMPACT FEE CERTIFICATION

The Impact Fee Certification is included as Appendix F.

D. IMPACT FEE RELATED ITEMS

There are a few items related to Impact Fees that Enoch City staff should keep in mind when planning for, collecting, and expending impact fees.

Generally, it is a good idea to update this plan at least every five years or more frequently if occasion arises. This plan assumes that it will be updated every 5 years – 4 times in the next 20 years.

City staff should be made aware that, in conformance with Utah Code 11-36a-602, impact fees can generally only be expended for a system improvement that is identified in the Impact Fee Facilities Plan and that is for the specific public facility type for which the fee was collected (i.e. transportation impact fees cannot be used for water or sewer projects). Also, impact fees in Utah must be expended or encumbered for a permissible use within six years of their receipt unless 11-36a-602(2)(b) applies.

City staff should also ensure that proper accounting of the Impact Fees occurs (track each fee in and out). See Utah Code 11-36a-601.

APPENDIX A – MAPS

EXISTING WATER DISTRIBUTION SYSTEM

NORTH

SCALE
0 1000 2000

5200 N. (JONES RD.)

4800 N.

HOMESTEAD BLVD.

1740 E.

4420 N.

MINERSVILLE HWY. 130

DRIFTWOOD LN.

HALF MILE RD.

INTERSTATE 15

HWY 91

3800 N.

3600 N.

LEGEND

- 2" WATER PIPE (EXISTING)
- 4" WATER PIPE (EXISTING)
- 6" WATER PIPE (EXISTING)
- 8" WATER PIPE (EXISTING)
- 10" WATER PIPE (EXISTING)
- 12" WATER PIPE (EXISTING)
- 14" WATER PIPE (EXISTING)
- 16" WATER PIPE (EXISTING)
- 18" WATER PIPE (EXISTING)

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RECOMMENDED DISTRIBUTION SYSTEM IMPROVEMENTS

RECOMMENDED DISTRIBUTION IMPROVEMENTS

1. NEW 16" LINE, BLM TANK TO SADDLEBACK VIEW DR.
2. 12" LINE, VILLAGE GREEN, BLUEBERRY, & RAVINE RD.
3. 8" LINE, 500 E. FROM 3830 N. TO 3890 N.
4. NEW 8" LINE, 3800 N. FROM MAXWELL D. TO 430 E.
5. 8" LINE, APPLE BLOSSOM LN., PRIMROSE LN,. GOLDEN LEAF CIR., & ROSE CIR.
6. NEW 8" LINE, HALF MILE RD. FROM EDEN WAY TO 5400 N.
7. NEW 8" LINE, 700 E. FROM 5200 N. TO 5600 N.
8. 10" LINE, CONNECTION RD., FROM 3800 N. TO 940 E.
9. 8" LINE, MAXWELL RD. FROM 3600 N. TO SOUTH PIPE END
10. 8" LINE, COLUMBIA DR.
11. 8" LINE, CANYON RD.
12. 8" LINE, 500 E. FROM 3600 N. TO SOUTH PIPE END

NORTH

SCALE
0 1000 2000

5200 N. (JONES RD.)

4800 N.

HOMESTEAD BLVD.

4420 N.

3800 N.

3600 N.

1740 E.

DRIFTWOOD LN.

MINERSVILLE HWY. 130

HALF MILE RD.

HWY 91

INTERSTATE 15

LEGEND

- 2" WATER PIPE (EXISTING)
- 4" WATER PIPE (EXISTING)
- 6" WATER PIPE (EXISTING)
- 8" WATER PIPE (EXISTING)
- 8" WATER PIPE (PROPOSED)
- 10" WATER PIPE (EXISTING)
- 10" WATER PIPE (PROPOSED)
- 12" WATER PIPE (EXISTING)
- 12" WATER PIPE (PROPOSED)
- 14" WATER PIPE (EXISTING)
- 16" WATER PIPE (EXISTING)
- 16" WATER PIPE (PROPOSED)
- 18" WATER PIPE (EXISTING)

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FIRE HYDRANT COVERAGE MAP

NORTH

SCALE
0 1000 2000

5200 N. (JONES RD.)

4800 N.

HOMESTEAD BLVD.

1740 E.

4420 N.

INTERSTATE 15

DRIFTWOOD LN.

MINERSVILLE HWY. 130

HALF MILE RD.

HWY 91

3800 N.

3600 N.

LEGEND

FIRE HYDRANT COVERAGE (EXISTING)

FIRE HYDRANT COVERAGE (PROPOSED)

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APPENDIX B – POPULATION & GROWTH PROJECTIONS

YEAR	SOURCE	POPULATION	NUMBER OF ERC's	GROWTH
2010	Census	5,878		
2011	Census Est.	5,974		1.6%
2012	Census Est.	6,022		0.8%
2013	Census Est.	6,017		-0.1%
2014	Census Est.	6,086		1.1%
2015	Census Est.	6,237		2.5%
2016	Census Est.	6,539		4.8%
2017	Census Est.	6,756	2,373	3.3%
2018	Projected	6,959	2,444	3.0%
2019	Projected	7,167	2,517	3.0%
2020	Projected	7,382	2,593	3.0%
2021	Projected	7,604	2,671	3.0%
2022	Projected	7,832	2,751	3.0%
2023	Projected	8,067	2,833	3.0%
2024	Projected	8,309	2,918	3.0%
2025	Projected	8,558	3,006	3.0%
2026	Projected	8,815	3,096	3.0%
2027	Projected	9,079	3,189	3.0%
2028	Projected	9,352	3,285	3.0%
2029	Projected	9,632	3,383	3.0%
2030	Projected	9,921	3,485	3.0%
2031	Projected	10,219	3,589	3.0%
2032	Projected	10,526	3,697	3.0%
2033	Projected	10,841	3,808	3.0%
2034	Projected	11,167	3,922	3.0%
2035	Projected	11,502	4,040	3.0%
2036	Projected	11,847	4,161	3.0%
2037	Projected	12,202	4,286	3.0%
2038	Projected	12,568	4,414	3.0%
2039	Projected	12,945	4,547	3.0%
2040	Projected	13,334	4,683	3.0%
2041	Projected	13,734	4,823	3.0%
2042	Projected	14,146	4,968	3.0%
2043	Projected	14,570	5,117	3.0%
2044	Projected	15,007	5,271	3.0%
2045	Projected	15,457	5,429	3.0%
2046	Projected	15,921	5,592	3.0%
2047	Projected	16,399	5,759	3.0%
2048	Projected	16,891	5,932	3.0%
2049	Projected	17,397	6,110	3.0%
2050	Projected	17,919	6,294	3.0%
2051	Projected	18,457	6,482	3.0%
2052	Projected	19,010	6,677	3.0%
2053	Projected	19,581	6,877	3.0%
2054	Projected	20,168	7,083	3.0%
2055	Projected	20,773	7,296	3.0%
2056	Projected	21,396	7,515	3.0%
2057	Projected	22,038	7,740	3.0%
2058	Projected	22,699	7,972	3.0%

APPENDIX C – WATER RIGHTS

Water Right Number	Other Number	Priority Date	Chg Appl Number	Acre Feet	Name	Location
71-1203				-2	Salvatore Caruso	1219 & 1231 E Midvalley Rd/Trade for 73-2281
73-0045		1936		1	Nathan P & Hillary G Ellsworth	5230 N 600 E
73-0099	C	1934	a13392	2.28	Francis P. Webster	Grimshawville
73-0136		1909	a29698a	0.48	Hilda H. Grimshaw	4950 N 600 E (Maloney)
73-0146		1934		36.5199	Dixie & Anne Leavitt Foundation	**Undecided lots in The Gardens Subdivision (Iron Mtn)**
73-0160	C	1933	a21896	3.086	Lyle E. Gibson (1)	1337 E Midvalley Rd
73-0160	C		a21896		Earl Gibson to Greg Savage Minor lot (1)	Lot 3 Savage Subdivison, Midvalley Road
73-0160	C		a21896		Earl Gibson to Greg Savage Minor lot (1)	Lot 2 Savage Subdivision, Enoch Road
73-0173		1942	a924	295	South Bluff LC(Burgess seller)	Purchase for use within Corporate bounds
73-0173			a924	2	Part of water rights purchase	**3379 Westward (Address?)**
73-0173			a924	3	Part of water rights purchase	Rec. Complex Highway 91
73-0173				1	Part of water rights purchase	Ridge Phase 3; 1928 E Cedar Berry Ln.
73-0173				28	Part of water rights purchase	28 Ac.ft for Hawthorn Sub. Phases 1 & 2
73-0175					Michael R Brayley & Jatona G Berry	5148 and 5178 Veterans Memorial Dr
73-0209		1911		1	Hilda H. Grimshaw	83 E Midvalley Rd (Clayton Beckstrom)
73-0213		1911	a29698	0.28	Hilda H. Grimshaw	4950 N 600 E (Maloney)
73-0213			a29698	1	Hilda Grimshaw	Robert Tryon lot division on Midvalley Rd
73-0213			a29698	1	Hilda Grimshaw	Dan Smith/4294 N Driftwood Ln
73-0263		1912		2.45	James C. & Connie Bills	Approx. 24 East 3600 North
73-0298		1956	a9336	80.36	Original Incorporation (.111 sf)	Old Enoch area
73-0303		1890	a9335	33.26	Original water rights (73-303,304,	Old Enoch area
73-0303			X		396,397,398,473,474,491,522,523,	
73-0303			X		524,525,526,665,671,672,673)	
73-0435		1890	a29698	1.55	Linden R. & Debra J. Drake	Lot 43 & 44 division in So Homestead Sub
73-0533		1912		1.738	James and Connie Bills	cf
73-0590		1932		1	Kade & Heidi Creamer	620 E 4200 N
				2	Kade & Heidi Creamer	900 E Midvalley Rd (Enoch purchased)
73-0717		1934		0.8	James & Connie Bills	Approx. 24 East 3600 North
73-1043		1950	a13813	1	Mary May Nelson	3451 N Highway 91
73-1875		1951	a29698a			REJECTED
73-2019	a36642	1936	a37966	11.84	Corporation of Presiding Bishop LDS	New Stake Center -East side-Village Green
73-2227	U1216	1931	a14914	26	Hunter Land & Livestock Co.	Cottonwood Subdivision
73-2229		1931	a9334	69.35	Francis P. Webster	Homestead
73-2236	73-2019	1931	a37966	5	M. Kim Frei & W. Dallin Gardner (1)	Shane Schulthies/1957 E Midvalley Rd
73-2236	73-2019		a37699		Schulthies to Owens (1)	Schulthies to Owens 1935 E. Midvalley Road
73-2236	73-2019		a37966		(3) Schulthies to Peterson to Fawson	Schulthies sold to Peterson to Fawson
73-2236	73-2019		a37966		Fawson to Glazier (1)	to #A-0922-0000-0000
73-2236	73-2019		a37966		Fawson to Robert Tryon (1)	4840 N Horseshoe Dr - **1 Future remaining**
73-2237	73-146	1934	a13393	126.52	Garden Park Estates Water Co.	Garden Park Subdivision
73-2238	73-148	1934	a13394	45.48	Garden Park Estates Water Co.	Garden Park Subdivision
73-2242	73-2019	1944		13.76	North Road Water Company Inc.	Chamberlain Subdivision (rest at 73-3403)
73-2244		1931	a21440	3.722	Shelemiah Management Trust(1.73)	Donneybrook Subdision (2 deeded)
73-2244			X		Connel Gower Construction (1)	4845 N Enoch Road
73-2244			X		Thomas O. Hansen (1)	5227 North 1600 East
73-2249		1963	a21440	40	D. & Ola Robinson	**Robinson - Future**
73-2250		1963		0.72	Road Creek Ranch Inc	303 E Midvalley Road (Tommy Leavitt)
73-2262	73-149	1935	a11055	40	Parson's Homestead, Inc.	Homestead Subdivision
73-2270		1934	a13395	25.26	Ray S. Hambleton (15)	**Future - North Spring Ranch, LLC (Jones)**
73-2270	73-148		X		Ross J. & Greg F. Hyland (10.26)	The Ridge Subdivision, Phase 4 (10.26)
73-2271		1934	a29698	10	Virginia L. Campanella	The Ridge Subdivision,Phase 4 (4)& 5 (6)
73-2272	73-149	1935	a13396	9	Ross J. & Greg F. Hyland	The Ridge Subdivision, Phase 5 (6) & 6 (3)
73-2305		1926	a17883	9	Sunset Water Company (5.93)	Sunset Subdivision
73-2306		1961	X		Sunset Water Company (3.07)	Sunset Subdivision
73-2321			a21440	12	D. & Ola Robinson	**Robinson - Future**
73-2322		1944	a21440	27	D. & Ola Robinson	**Robinson - Future**
73-2335	U15342	1931	a21897	6	Shelemiah Management Trust	Donneybrook Subdivision
73-2363	73-345	1934	a9752	5	Paul Beck, Carl Croft, Gary Jones	Mark Webster - 5057 N Horseshoe (2.5)
						Mark Webster - his land north of 5057 (1)
						Mark Webster - 1.5 future
73-2378		1930	a21438	15	Grimshaw,J H & Hilda,George,W R	Grimshawville (2 deeds, 1st rec 5-21-85)
73-2397		1963		5	King Rollins & Stella Rollins (1)	4806 N Wagon Wheel Drive
73-2397					Lot north of 4806 N Wagon Wheel (1)	Lot north of 4806 N Wagon Wheel
73-2397					Rollins Nest (3)	**Future - 3 lots in Rollins Nest Subdiv. or any in Enoch**
73-2434	U8182	1936	a14915	32	Hunter Land & Livestock Co.	Cottonwood Subdivision
73-2439		1934	a21438	38	Roland Anderson & David Anderson	Lin Drake/Saddleback Views, Phase 1, 2, 3
73-2493	73-717	1934	a13397	58	Old Spanish Trails Estates	Spanish Trails Subdivision
73-2494	73-2271	1934	a13398	2.74	Ross J. & Greg F. Hyland	The Ridge Subdivison, Phase 4 (2.74)
73-2513	73-1032	1953	a13791	5	Paul Gardner	Cedars Mobile Home Park

73-2514	73-1091	1951	a13792	15	Paul Gardner	Cedars Mobile Home Park
73-2517	73-0353	1936	a13814	12	Church of Jesus Christ of LDS	Midvalley Church
73-2529	73-0796	1934	a13970	1	Samuel M. Gentry & Linford Orton	Spanish Trails Subdivision
73-2532	73-2492	1934	a17611	149	Spanish Trails Estates, Ltd.	Spanish Trails Subdivision (a14058)
73-2568	73-2401	1963	a14916	0.27	John Galley	Spanish Trails (A34982)
73-2569	73-46	1937	a14917	12	Church of Jesus Christ of LDS	Enoch Stake Center
73-2570	73-179	1934	a14918	3	Hunter Land & Livestock Co.	Cottonwood Subdivision
73-2571	73-2236	1931	a14919	15	Wilbur Grisham	**Future**
73-2738		1951	a27180	11	Sheridan Hills Water Users Assoc.	Sheridan Hills Subdivision
73-2752		1944	a27180	1	Judy Taunton3616	3636 N Bulldog Road - lot division
73-2772		1944		0	John Banks	4895 N Green Acres Cir/Requirement Waived (Feb 2000)
73-2772				1		4895 N Green Acres Cir/Requirement Waived (Feb 2000)
73-2811	2nd	1951	a37245	16.87	Velocity Development	Ridge Phase 8 & 10 (total 21 lots)
73-2811	2nd		a37245	9.13	Velocity Development	Abandoned Village Green lots to Ridge phases
73-2811	2nd		a37245		Velocity Development (1)	Lot 1 Phase 13 Ridge (1 lot)
73-2811	2nd		a37245		Velocity Development (1)	Lot 1 Phase 14 Ridge (1 lot)
73-2811	2nd		a37245		Velocity Development (1)	Lot 1 Phase 15 Ridge (1 lot)
73-2811	2nd		a37245		Velocity Development (1)	Lot 1 Phase 16 Ridge (1 lot)
73-2811	2nd		a37245		Velocity Development (1)	Lot 1 Phase 17 Ridge (1 lot)
73-2811	2nd		a37245		Velocity Development (1)	Lot 1 Phase 18 Ridge (1 lot)
73-2811	2nd		a37245		Velocity Development (1)	Lot 1 Phase 19 Ridge (1 lot)
73-2811	2nd		a37245		Velocity Development (1)	Lot 1 Phase 20 Ridge (1 lot)
73-2813	73-2019	1963		1	Michael W. & Pamela A. Hardin	158 W. Midvalley Road (Dwayne Alger Home)
73-2813				4	Michael W. & Pamela A. Hardin	**1 lot for Hardin Circle**
73-2813						**1 acre ft to Ryan & Bree Rayburn (future use)**
73-2813						Moved 2 acre ft to Veteran Memorial-Ryan & Bree Rayburn
73-2813					Rick Jorgensen (1)	**1/2 AF for 3492 N Minersville Hwy (1/2 AF credit remains for Jorgensen)**
73-2865		1944	a29698	1	Gary C. & Laura J. Goodge	5560 N Enoch Road
73-2905		1956		3	Richard Long	Richard Long-Minor Lot Subdivision
73-2951		1934		0.5	Scott & Cindee Petrocco	Commercial lot 3492 N Minersville Hwy
73-3008		1865	a20754	8	Norman J. Grimshaw (73-434, (3)	3 lots on 1600 East
73-3008			X		73-774, 73-1791, 73-1838) (1)	Lot 39, Bk 8 Spanish Trails (Amy Larsen)
73-3008			X		Grimshaw (1)	1625 E Sunset Rd (Doug Grimshaw)
73-3008			X		Brough (1)	1655 E 5250 N (Rulon & Joy Brough)
73-3008			X		SW Homestead (2)	2 for Southwestern Homestead, Phase II
73-3009	73-45	1936	a20872	9	George D. Grimshaw	Spanish Trails Subdivision
73-3010	73-46	1937	a20872	5	George D. Grimshaw (1)	1900 E Ravine Rd
73-3010			X		Chamberlain (1)	**1 Future for Scott Chamberlain**
73-3010			X		Brindley (1)	Jerald Brindley - animal watering
73-3010			X		Batt (1)	Lot 7, Bk 5, Homestead Sub (Gordon Batt)
73-3010			X		Cappasola (1)	Lot 8, Bk 6, Spanish Trails (Cappasola)
73-3011	73-115	1934	a20874	3.5	Hunter Land & LIvestock Co. (2)	Cottonwood Subdivision
73-3011			X		M. Lamont Pugmire (1)	Cottonwood Subdivision
73-3011	73-115		X		Joseph E. Miner (0.5)	Cottonwood Subdivision
73-3012	73-341	1934	a20875	144.495	Parson's Homestead, Inc	Homestead Subdision (150 deeded)
73-3019	73-146	1934	a20877	17.86	Parsons Homestead, Inc.	Homestead Subdivision
73-3020	73-148	1934	a20877	42.02	Lin Drake	Southern Homestead Subdivision
73-3021	73-149	1935	a20877	1	Kyle E. Wilson	Lot Division/339 W Spanish Trails Dr
73-3044	73-2189	1934	a21441	15	Pioneer Valley Water Company	Pioneer Valley Subdivision
73-3045	73-2140	1944	a21438	1	Ivor D. Jones	5288 N Enoch Rd (Mel Lunt)
73-3046	73-2133	1934	a21441	2	Gregory A. Carter (1)	Lot 16, Bk B, Little Eden Subdivision
73-3046	73-2133		X		Douglas L. Green (1)	1253 E Midvalley Road
73-3047	73-1017	1931	a21438	16.135	Parsons Homestead, Inc. (12.14)	Homestead Subdivision
73-3047	73-1017		X		Stephen R. Brown (3.995)	Stephen Brown Subdivision (4 deeded)
73-3048	73-2216	1944	a21441	17	C.R. Stratton (Blake Dawson) (15)	Homestead Amended Subdivision
73-3048	73-2216		X		C.R. Stratton (Frank T. Rives) (2)	Lot 30, Block 8 & Lot 5, Block 5 Spanish T
73-3049	73-2217	1951	a21438	10	Lorin C. Jones (1)	5156 N Enoch Road (SUU House)
73-3049	73-2217		X		Lorin C. Jones (3)	Jason & Linda Hoyt property (5594/5598 Minersville?)
73-3049	73-2217		X		Lorin C. Jones (1)	Jason & Linda Hoyt property (5594/5598 Minersville?)
73-3049	73-2217		X		Lorin C. Jones (5)	4 lot subdivision & 5176 N Enoch Road
73-3050	73-1153	1936	a21438	1	Kathryn L. Caldwell	5085 N Enoch Road
73-3051	73-2908	1956	a21442	2	James A. Tarazoff	Randy & Arlan Carter Subdivision
73-3052	73-528	1930	a21441	1	Arlen D Grimshaw	3600 N Minersville Hwy (Mack Croft)
73-3052	73-528		a25284		Clarence L and Deanne G Stubbs	east of Robert Rasmussen
73-3053	73-435	1890	a21438	2	Lin Drake	Lot 42 & 46, So. Homestead
73-3064	73-2217	1951	a21898	6	Lorin C. Jones (5)	4858 N Enoch Rd - Stephen Holmes
73-3064	X		X			3575 N Westward Ave - Ben Baldwin
73-3064	X		X			4005 N Driftwood Lane - Helen Sauer
73-3064	X		X			5360 N Enoch Road - Blake Bentley
73-3064	X		X			The Ridge Subdivision, Phase 3 (1)
73-3064	73-2217		X		Lorin C. Jones (1)	Stanley Herold lot division in Cottonwood

73-3065	73-2398	1951	a21898	1	Lloyd Scott	5600 N Enoch Road
73-3081	73-0133	1930	a21896	1	William Randolph Grimshaw	429 E Churchfield Ln (Scott Jenson)
73-3083	73-0175	1936	a21897	75	Wallace R. Woolsey	Enoch Gardens Subdivision
73-3084	73-0299	1870	a21897	0.9	Joseph Dilworth Armstrong	1579 E 5250 N & 5259 N 1575 E (Fales)
73-3085	73-0146	1934	a21896	21	Joe Burgess	Trails West - Phase I
73-3086	73-2127	1951	a21898	4	Stephen R. Brown (1)	Stephen Brown Subdivision
73-3086	73-2127		X		Stephen R. Brown (3)	Stephen Brown Subdivision
73-3087	73-0148	1934	a21896	1	Mary May Nelson	3413 N 940 E (Leon Nelson)
73-3088	73-0796	1934	a21896	3	Marcus E. White	3 lot Subdivision on Wagon Wheel Dr
73-3089	73-1770	1860	a21898	2	Glen & Jean Brunson (Chet Simpson)	1874 & 1856 E Midvalley Road
73-3090	73-1032	1953		1	Paul & Betty Gardner	
73-3264	73-146	1934		21	Joe Burgess Trust	Phase III, Trails West Subdivision
73-3264	73-146			12	Gregory Bulloch & Cresent Hardy	Phase I, Southwestern Homestead Sub
73-3264	73-146			19	Joe Burgess Trust	Phase VI, Trails West Subdivision
73-3264	73-146			2.76	Joe Burgess Trust	Phase VII & VIII, Trails West Subdivision
73-3265	73-148	1934		21.24	Joe Burgess Trust	Phase VII & VIII, Trails West Subdivision
73-3265	73-148			13	Joe Burgess Trust	Phase IV, Trails West Subdivision
73-3266	73-149	1935		19	Joe Burgess Trust	Phase II, Trails West Subdivision
73-3266	73-149			1	Lin Drake	Lot 36, Southern Homestead Sub
73-3266	73-149			1	Lin Drake	Lot 38, Southern Homestead Sub
73-3266	73-149			2	Lin Drake	Lot 34 & 35, Southern Homestead Sub
73-3266	73-149			1	Henry R. & Jo Velasco(Son Builders)	Lot 37, Southern Homestead Sub
73-3266	73-149			15	Wade Hill Family Limited Partnership	Owen Evan Estates, Phase I
73-3267	73-434	1865		10	Norman Grimshaw(73-774,1791,1838)	**2 future connections**
73-3267						(1) Lot 9 Block 1 Western Homestead Sub
73-3267						(1)2382 E Village Green Rd (Dave Taylor)
73-3267						(1)4692 N Enoch Rd (Mark Barton)
73-3267						(2)Commerical Subdiv/Minersvilly Hwy(Joey Ellis)
73-3267						(1.33)Garden Park Nursery/additional land
73-3267						(1)JasonHoyt for Spencer Jones/Ridge Subdiv
73-3267						(.67) 2 duplexes/4256 N Wagon Wheel/Adair
73-3268	73-987	1944		7	Joe Burgess Trust	Phase IV, Trails West Subdivision
73-3269	73-1032	1953		1	Edward A Nelson	3662 N 940 E (Ben Ross)
73-3270	73-1770	1860		3	Edward A Nelson (1)	3701 N 940 E (Edward A Nelson)
73-3270	73-1770				Susan Christopher (1)	3702 N 940 E (Susan N Christopher)
73-3270	73-1770				Caroline Howe (1)	3695 N 940 E (Caroline N Howe)
73-3270	73-1770			1	Frank J & Dorothy Lial	4462 N Summit Frontage Road
73-3271	73-2019	1936		2	Church of Jesus Christ of LDS	Church at 1390 E Midvalley Road
73-3272	73-2132	1937		1	Diane L. Bernal	1234 E 5200 N (Little Eden)
73-3273	73-2133	1963		1	Carmen Wisdom	1285 E Eden Way (Little Eden)
73-3274	73-2372	1963		1	Ivan M. Matheson,Matheson Dairy	265 E Midvalley Road
73-3275	73-2717	1936		1	Thomas O. Hansen (1)	Rendezvous Subdivision Lot 1
73-3276	73-2893	1937		1	Arnold Barnes	1169 E 5000 N (Allen Wood - Little Eden)
73-3286	73-2140	1944		1	Enoch Development Corporation	Village Green - Lot 6, Block 5
73-3286	73-2140			1	Enoch Development Corporation	Village Green - Lot 4, Block 5
73-3286	73-2140			1	Enoch Development Corporation	Village Green - Lot 5. Block 5
73-3286	73-2140			1	Enoch Development Corporation	Village Green - ?
73-3336	73-0238	1865		4	37 Leasing LC Ken Wade(Gale Fife)	Minor Sub - 5373,5387,5405, 5425 N. Enoch Road
73-3403		1944		2	North Road Water Company Inc.	Chamberlain Subdivision (rest at 73-2242)
73-3424		1934	a34754	1	John & Catherine Pace	715 W Midvalley (Dave & Laurie Dunnell)
73-3451	73-0042	1934	a29698	2	Pearl Jones Halterman Family	LDS Church on west Midvalley Road
73-3451	73-0042		a29698	9.63	Pearl Jones Halterman Family	Trails West, Phase 11
73-3452	73-0135	1910	a29698	1	Hilda H. Grimshaw	564 E Midvalley Rd (Jim Clark)
73-3453	73-0146	1934	a29698	10.2	Joe Burgess Trust	Phase V, IX, X, Trails West Subdivision
73-3453	73-0146		a29698	1	Kevin D. Schoppman/Seven V Farms	Garden Park/animal watering(replace 73-2140)
73-3453	73-0146		a29698	2.88	Gregory L. Bulloch & Cresent Hardy	Southwestern Homestead, Phase 2
73-3453	73-0146		a29698	4.37	Joe Burgess Trust	Trails West, Phase 11
73-3453	73-0146		a29698	1	Joe J. Cavazoz	Commercial Subdiv/Minersvilly Hwy/Joey Ellis
73-3454	73-0149	1935	a29698	7	Joe Burgess & Beverly Burgess	Trails West, Phase 11
73-3454	73-0149		a29698	7.12	Gregory L. Bulloch & Cresent Hardy	Southwestern Homestead, Phase 2
73-3454	73-0149		a29698	1.93	Lin Drake	Duplex/1586&1588 E So Homestead Dr
73-3454			a29698			Flag lot/31A So Homestead Subdivision
73-3455	73-0175	1936	a29698	3	Linden R & Debra J. Drake	Lot 30 division, So Homestead Sub
73-3455	73-0175		a29698	1.532	Linden R & Debra J. Drake	Lot 43 & 44 division in So Homestead Sub
73-3456	73-0209	1911	a29698	0.23	Hilda H. Grimshaw	4950 N 600 E (Maloney)
73-3457	73-0345	1934	a29698	2	Roger & Debra Ley	1887 & 1913 E Midvalley Road
73-3458	73-0772	1931	a29698	1	Vista Development, LLC	Red Hills Southern Baptist Church
73-3459	73-0796	1934	a29698	2	Alan B & D Anne Robinson (1)	Ben Shirley/Flag lot/4397 N Driftwood Ln
73-3459	73-0796		a29698		Ben Shirley (1)	**Ben Shirley - Future connection**
73-3460	73-1032	1953	a29698	1	Edward Nelson, Caroline Howe,	279 E 3810 N - Richard Nelson
73-3460	73-1032		a29698		Susan Christopher	
73-3461	73-1153	1936	a29698	3	Michael W. & Pamela A. Hardin	3 lot subdivision on Veterans Memorial Ln

73-3461	73-1153		a29698			1 acre foot to Mike & Kim On Lot #2
73-3461	73-1153		a29698			1 acre foot to Ryan & Bree Rayburn for lot #3
73-3461	73-1153		a29698	0.63	Linden R. & Debra J. Drake	Lot 43 & 44 division in So Homestead Sub
73-3461	73-1153		a29698	26	Son Builders, Inc	Highland Trails Subdivision
73-3462	73-1985	1935	a29698	1	Herschel L. & Lajuana Owens	Lot 33 Southern Homestead Sub (Garrett)
73-3462	73-1985		a29698	1	Herschel L. & Lajuana Owens	4297 N Morgan Dr - James Anderson
73-3462	73-1985		a29698	1	Herschel L. & Lajuana Owens	Lot 7, Bk 2 Village Green/Norma Henry
73-3463	73-2140	1944	a29698	1	Joey & Kim Ellis	Commercial Subdiv/Minersvilly Hwy/Joey Ellis
73-3464	73-2203	1953	a29698	4	Linden R & Debra J Drake	Lot 43 & 44 division in So Homestead Sub
73-3465	73-2444	1953	a29698	28.8	Joe Burgess Trust	Phase V, IX, X, Trails West Subdivision
73-3467	73-2717	1936	a29698	1	Thomas & Trudy Hansen	Rendezvous Subdivision Lot 2
73-3468	73-2722	1951	a29698	18	Lorin C & Shirley M Jones	Ridge Subdivision, Phase 1(10) & 2(8)
73-3469	73-3386	1965	a29698	13	Lorin C & Shirley M Jones	Ridge Subdivision, Phase 2(3) & 3(10)
73-3551		1944	a37245	2	Robert L & Peggy A. Tryon	Lot division @ 1861 E. Midvalley Road
73-3611		1956	a37966	37.097	Velocity Development	Rest of Ridge and Pinnacle Point Subdivision
73-3611			a37966		Velocity Development (1)	Phase 9, Lot 95
73-3611			a37966		Spencer Jones (1)	Custer Ave Land Trust (Highway 91 annexation)
73-3611			a37966		Velocity Development (8)	Ridge Phase 9 (8 lots)
73-3611			a37966		Velocity Development (1)	Brian Johnson, 1997 E Ravine Rd
73-3611			a37966		Velocity Development (1)	Velocity Homes, 2046 E Ravine Rd
73-3611			a37966		Velocity Development (13)	Ridge Phase 11 (13 lots)
73-3611			a37966		Velocity Development (1)	Spanish Trails, 4315 N Morgan Dr
73-3611			a37966		Velocity Development (11.097)	Ridge Phase 12a
73-3617	73-0046	1937	a37245	1	Lori N. Rowley	240 East 3600 North
73-3617	73-0046		a37245	18.25	Orton Investments, LLC	The Fields Subdivision
73-3647	73-3141	1963		15	Drake Properties	Phase 4 & 5 of Saddleback View
73-3798	73-0146	1934		90	Eller Development Inc.	Iron Mountain Subdivision Phases 1, 2, 5 (90 lots)
73-3799	73-2616	1944	a37245	3	Ron & Sheri L. Farish	2 lots in 4800 block on Wagon Wheel Dr
73-3799	73-2616		a37245			1 at 5648 N Enoch Rd (new home 2016)
73-3799	73-2616		a37245	1	John & Crystal Trujillo	5644 N Enoch Rd
73-3800	73-2626	1951	a37245	8	Gateway Project Development	Gateway Academy School Thoroughbred Way
73-3800	73-2626		a37245	4.13	Velocity Development	Phase 8 Ridge Subdivision
73-3801	73-2140	1944	a37245	3	Brett Farish	1-Neal Curtis Minor Subdivision
73-3801	73-2140		a37245			1- for 2.9 acre parcel Ravine Road
73-3801	73-2140		a37245			1- Stock watering 5600 North approx. 500 East
73-3802	73-2212	1953	a37245	4	Phillip C & Violet S Carter	Willow Glenn Bed & Breakfast/Residence
73-3808	73-528	1930	a37245	14	Arlen & Catherine S Grimshaw	(10) Cinnamon Hills Sub-Worth Grimshaw
73-3808	73-528		a37245			(1) for Chet Perkins-sold to Goebel future
73-3808	73-528		a37245			(1) Minor Lot subdivision Arlen 3-15-10 (spicer
73-3808	73-528		a37245			For lot at 515 E Churchfield Lane
73-3808	73-528		a37245	32	A & G LLC limited liability co	Legacy Estates Subdivision (Phase 3)
73-3808	73-528		a37245	10	A & G LLC limited liability co	Legacy Estates Subdivision (Phase 3 42 lots)
73-3808	73-528		a37245	1	Deanne Stubbs for Sharlet Mann	**575 E Churchfield Road (empty lot 1 future)**
73-3808	73-528		a37245	1	Mitchell Schoopmann (Trent Gleave)	2nd parcel for minor lot subdivision horseshoe dr
73-3809	73-2132	1937	a37245	2	George & Candy Klaybourne	1- 4934 N Tomahawk
73-3809	73-2132		a37245		Extra traded with Klaybourne	1- Set for Recreation Center watering
73-3813	73-0763	1934		1.33	Bruce M. Giffen	4316 N. Driftwood Ln (Paul Holyoak)
73-3813	73-0763			1	Bruce M. Giffen	4279 N Morgan Dr. (Djuana Curtis)
73-3813	73-0763			0.33	Bruce M. Giffen	4279 N Morgan Dr. (Djuana Curtis)
73-3813	73-0763			100	Monarch Investment Company	approx. 5400 N. Minersville Highway
73-3814	73-1770	1860		1	Boyd Fife, Trustee	The Ridge Subdivision, Phase 3 (1)
73-3814	73-1770			9	Boyd Fife, Trustee	Originally for Spring Hills Subdivision(defunk)
73-3814	73-1770			8	Ryan Brindley	**Purchased from Fifes, yet to be designated**
73-3814	73-1770			19	Boyd Fife, Trustee	19 acre feet purchase by Enoch City
73-3814	73-1770				Agreement Drake Properties (6)	6 for Saddleback Subdivision
73-3814	73-1770				Agreement Drake Properties (6)	6 for 3 Peaks Subdivision
73-3814	73-1770				Remaining from purchase (7)	7 for Rec Complex Old Highway 91
73-3814	73-1770			3	Boyd Fife, Trustee	3 Lot sub. Neal Curtis/Veterans Memorial
73-3815	73-2432	1963		80	Enoch 80, LLC	Enoch Point Subdivision
73-3817	73-46	1937		1	Arlan Carter	5185 N 600 E lot line adjustment
73-3817	73-46			9.2	Glenda Lee Grimshaw	DairyGlen Subdivision (Total 30 lots)
73-3818	73-148	1934		63.26	John C & Erma C Dalton	Sunview Sub (P1-14)
73-3819	73-149	1935		0.74	John C & Erma C Dalton	Sunview Sub (P1-14)
73-3820	73-187	1924		1	Hyrum Taylor & Erika M. Taylor	2389 E Village Green Road
73-3820	73-187			7.28	Eddie DeVon & Glenda Jo Childs	(.28) 303 E Midvalley Road (Tommy Leavitt)
73-3820	73-187					(7) Sagewood Subdivision (Tommy Leavitt)
73-3841	73-2400	1963	a37966	62.903	Velocity Development	**Rest of Ridge and Pinnacle Point Subdivision**
73-3841	73-2400		a37966		Mathew J & Jodie Muckerman (1)	1 acre foot to Block 4, lot 2 Village Green
73-3841	73-2400		a37966		Mathew J & Jodie Muckerman (1)	1 acre foot to Block 4, lot 3 Village Green
73-3841	73-2400		a37966		Velocity Development (6)	Block 2, lot 14A Village Green Sub amended
73-3841	73-2400		a37966			Block 2, lot 14B Village Green Sub amended
73-3841	73-2400		a37966			Block 2, lot 15A Village Green Sub amended

73-3841	73-2400		a37966			Block 2, lot 15B Village Green Sub amended
73-3841	73-2400		a37966			Block 2, lot 16A Village Green Sub amended
73-3841	73-2400		a37966			Block 2, lot 16B Village Green Sub amended
73-3841	73-2400		a37966		Velocity Development (.903)	The Ridge, Phase 12a, Lot 138
73-3841	73-2400		a37966	1	Ted & Vana Nelson for Lester Ross	3686 North 940 E (Lester Ross new home)
73-3841	73-2400		a37966	5.097	David & Mandy LeBaron	**Future - Parkview Subdivision**
73-3841	73-2400		a37966			Enoch Animal Shelter (1)
						Enoch Dog Park (4.097 ??)
73-3841	73-2400		a37966	2	Ted & Vana Nelson for 2 homes	4003 North & 4005 North Highway 91
73-3841	73-2400		a37966	2.5	Hilda H Grimshaw	1.5 Vern commercial, 1 stock watering
73-3845	73-2537	1934		31.75	Orton Investments, LLC	The Fields Subdivision
73-3846	73-2628	1934		26	David & Julee Weller	Nichols Landing Phase 1 (26 lots)
73-3846	73-2628			1	David & Julee Weller Lot line adjust	Donneybrook Brittney Jensen/Phillip Richins
73-3846	73-2628			28	Dave & Julee Weller	Nichols Landing Phase 2 & 3 (28 lots)
73-3847	73-2718	1931		5	Thomas O. Hansen	Rendezvous Subdivision Lots 3,4,5,6,7
73-3850	73-2893	1937	A12455	3	Jeffrey Lane (Enoch Development)	(1) 2678 East Pomeroy Green Road (Village Green)
73-3850	73-2893					(1) 2742 East Pomeroy Green Road (Village Green)
73-3850	73-2893					(1) 2760 East Pomeroy Green Road (Villlage Green)
73-3851	73-3078	1963	A35453	1	Roger Seegrist	77 West Thoroughbred Drive
73-3852	73-42	1934		102	Joe Burgess Construction, Inc	3 Peaks Subdivision, Phase 1 & 2
73-3852	73-42			1	Joe Burgess Construction, Inc	Duplexes/4256 N Wagon Wheel (Adair)
73-3852	73-42			20.8	Pearl Jones Halterman Family	DairyGlenn Subdivision
73-3852	73-42			18	Cheney Financial (Lin Drake)	3 Peaks Subdivision Phase 3 (18 lots)
73-3853	73-260	1931		1	Eric D & Andrea W Hanson	4544 N Mule Train
73-3855	73-254	1870		1	Steven C. Fales	5277 North 1575 East
73-3856	73-2269	1934		1.34	Randall & Lisa Hiatt	3871 N Old Highway 91/Aztek Development
73-3857	73-3349	1937		30	Hilda H Grimshaw	Ridge Subdivision Phase 6,7 **leaving 14 avail**
73-3857	73-3349			12	A & G, LLC A Limited Liability Co	Legacy Estates, Phase 1 (Aaron Alton)
73-3857	73-3349			1	Hilda H Grimshaw	85 E Midvalley Road (Shane Adair)
73-3857	73-3349			25	Hilda H Grimshaw	Legacy Estate, Phase 2 (Aaron Alton)
73-3857	73-3349			4	A & G, LLC A Limited Liability Co	Legacy Estates, Phase 2 (Aaron Alton)
73-3857	73-3349			1	A & G, LLC A Limited Liability Co	Commercial lot 600 East (Clark Industries)
73-3858	73-2442	1919		2	Rhett Shakespear	Lot division Village Green Farms 1B and 1C
73-3880	73-180	1929		1	Kenneth & Carrol Richardson	20 West Midvalley Road
73-3881	73-1443	1934		2	Jeffery Lynn Ditch	approx. 4570 N 175 West
73-3882	73-2133	1963		1	Bart & Heather Lambert	1070 East 5000 North
73-3882	73-2133			1	Shawn G. Stapel	1052 E. Little Eden Way
73-3888	73-3689	1930		34.903	David & Mandy LeBaron	**Future - Parkview Subdivision**
73-3889	73-149	1935		37.3501	Dixie & Anne Leavitt Foundation	**Future lots in Iron Mtn**
73-3890	73-1857	1963	a35767	1	A. Dewayne & Marilyn Alger	110 W Midvalley Road (Minor Lot Sub.#2)
73-3890	73-1857	1963		1	A. Dewayne & Marilyn Alger	88 W Midvalley Road (Durell & Becky Covington)
73-3935		1937		4	RHR Realty LLC	Renewed Hope Ranch
73-3986	73-2181	1944		1	Carlyle Bills	91 E Thoroughbred Way
73-3987	73-2281	1963		2	Salvatore Caruso	Traded for 71-1203/ 1219 & 1231 E. Midvalley
73-3988	73-3094	1944		2	Ryan & Brett Brindley	Village Green Blk 5, Lots 1,2, or 3?
73-3990	73-2133	1963		2	Infinity Builders	5000 North Little Eden
73-4000	73-2140	1944		4	Milton C Sant Jr Trust/Lance Groft	Milton Sant Minor Lot Subdivision
73-4003	73-3386	1965	a27990a	1	Ian C and Amy N Nielson	4905 N Horseshoe Dr
73-4005	73-2140	1944		1	Kenneth Alan & Valerie Wade	4833 N Hwy 91
73-4018	73-3363	1963		1	Matheson Family Trust	Next to lot 8 or 265 E Midvalley (4833 N Sagewood Ln)
73-4023	73-2202	1951		1	Grimshaw Drilling	5600 N 600 E
73-4029	73-45	1936		1	Nathan P & Hillary G Ellsworth	5230 N 600 E
73-4036	73-3922	1963		1	Gerald E Patten & Cathy L Patten	5057 N Lerae Lane
73-4043	73-3685	1930		24.578	Vern H & Janice J Grimshaw	**Purchased by Enoch City**
73-4069	73-133	1930		3	William R Grimshaw Family Trust	791 E Homestead Dr (1)
73-4069	73-133	1930			William R Grimshaw Family Trust	New lots north of Church--451 E Midvalley (2)
73-4071	73-1770	1860		4	Quinton Heather Hill Farm Revocable Trus	2027 E Midvalley Rd
73-4078	73-3685	1930		1	Bradley L Kidman	4937 Green Acres Circle
73-4107	73-0046	1937		1	Van & Laura Stapley	5125 N 500 E
73-4109	73-644	1930		1	Rhett & Teresa Taintor	N. Parcel next to 5599 N Enoch Rd
73-4120	73-1770	1860		1	Redcademan, Inc (Caden Dickson)	2316 E Village Green Rd
TOTAL				**3211.036**		

APPENDIX D – ENGINEER'S OPINION OF PROBABLE COST

SUNRISE ENGINEERING, INC.
11 North 300 West, Washington, Utah 84780
Tel: (435) 652-8450 Fax: (435) 652-8416

Engineer's Opinion of Probable Cost

Enoch Culinary Water Capital Improvements 23-Mar-19
Enoch City NW/SBH

NO.	DESCRIPTION	EST. QTY	UNIT	UNIT PRICE	AMOUNT
DISTRIBUTION SYSTEM GENERAL CONSTRUCTION					
1	Mobilization, Traffic Control, Dust Control, etc.	1	LS	$ 125,000.00	$ 125,000.00
2	8" C900 PVC, Fittings, Installation , Pipe Bedding, Trench Backfill	10,941	LF	$ 30.00	$ 328,230.00
3	10" C900 PVC, Fittings, Installation , Pipe Bedding, Trench Backfill	1,050	LF	$ 40.00	$ 42,000.00
4	12" C900 PVC, Fittings, Installation , Pipe Bedding, Trench Backfill	2,620	LF	$ 50.00	$ 131,000.00
5	16" C900 PVC, Fittings, Installation , Pipe Bedding, Trench Backfill	5,240	LF	$ 65.00	$ 340,600.00
6	8" Gate Valve Assembly	51	EA	$ 2,600.00	$ 132,600.00
7	10" Gate Valve Assembly	3	EA	$ 2,800.00	$ 8,400.00
8	12" Gate Valve Assembly	7	EA	$ 3,200.00	$ 22,400.00
9	16" Gate Valve Assembly	10	EA	$ 4,000.00	$ 40,000.00
10	Fire Hydrant Assembly w/Gate Valve	29	EA	$ 7,500.00	$ 217,500.00
11	Meter Setter Assembly w/Backflow Prevention	73	EA	$ 300.00	$ 21,900.00
12	Service Saddle W/Corp Stop	73	EA	$ 450.00	$ 32,850.00
13	Service Lateral Pipe	2,190	LF	$ 8.00	$ 17,520.00
14	6" Untreated Base Course	126,888	SF	$ 0.90	$ 114,199.20
15	3" Bituminous Asphalt (Patch)	65,832	SF	$ 3.00	$ 197,496.00
			SUBTOTAL		**$ 1,771,695.20**
			CONTINGENCY	20%	**$ 354,339.04**
			CONSTRUCTION TOTAL		**$ 2,126,000.00**
SOURCE GENERAL CONSTRUCTION					
1	Mobilization	1	LS	$ 32,000.00	$ 32,000.00
2	Pilot Well Test	1	LS	$ 32,000.00	$ 32,000.00
3	Conductor Casing	1	LS	$ 15,000.00	$ 15,000.00
4	20" Diameter Well Drilling	700	LF	$ 170.00	$ 119,000.00
5	Geophysical Logging	1	LS	$ 7,500.00	$ 7,500.00
6	12" Diameter Casing	450	LF	$ 50.00	$ 22,500.00
7	12" Diameter Stainless Steel Screen	250	LF	$ 165.00	$ 41,250.00
8	2" Galvanized Tremie Pipe	500	LF	$ 12.00	$ 6,000.00
9	Soil Sample Gradation Test	10	EA	$ 150.00	$ 1,500.00
10	Furnish and Install Fine Silica Sand	18	CY	$ 600.00	$ 10,800.00
11	Furnish and Install Pea Gravel (Disinfected)	18	CY	$ 100.00	$ 1,800.00
12	Conductor Casing Removal or Perforation	1	LS	$ 1,200.00	$ 1,200.00
13	Concrete Grout	6	CY	$ 600.00	$ 3,600.00
14	Packer	2	EA	$ 1,100.00	$ 2,200.00
15	Test Pump Furnishing, Installation and Removal	1	LS	$ 15,000.00	$ 15,000.00
16	Development Pumping	120	HR	$ 300.00	$ 36,000.00
17	Test Pumping	32	HR	$ 300.00	$ 9,600.00
18	Sampling and Testing for Culinary Water Quality	1	LS	$ 5,000.00	$ 5,000.00
19	Disinfection and Capping	1	LS	$ 800.00	$ 800.00
20	Well Driller's Report Preparation	1	LS	$ 1,500.00	$ 1,500.00
21	Well House	1	LS	$ 105,000.00	$ 105,000.00
22	Equip Well	1	LS	$ 30,000.00	$ 30,000.00
23	Electrical Equipment	1	LS	$ 70,000.00	$ 70,000.00
			SUBTOTAL		**$ 569,250.00**
			CONTINGENCY	20%	**$ 113,850.00**
			CONSTRUCTION TOTAL		**$ 683,000.00**
INCIDENTALS					
1	Funding & Adminstrative Services	0.8%	HR	$ 28,100.00	$ 28,100.00
2	Engineering Design	5.5%	LS	$ 184,500.00	$ 184,500.00
3	Bidding & Negotiating	0.6%	HR	$ 20,000.00	$ 20,000.00
4	Engineering Construction Services	6.7%	HR	$ 225,000.00	$ 225,000.00
5	Preliminary Engineering Report (PER)		EST	$ 20,000.00	$ 20,000.00
6	Environmental Assesment		EST	$ 20,000.00	$ 20,000.00
7	Water Conservation Plan		EST	$ 3,000.00	$ 3,000.00
8	SCADA Design		EST	$ 10,000.00	$ 10,000.00
9	GIS Mapping		EST	$ 15,000.00	$ 15,000.00
10	Bond Attorney Interim Financing Costs		EST	$ 10,000.00	$ 20,000.00
11	Well Siting Study		LS	$ 8,000.00	$ 8,000.00
			SUBTOTAL		**$ 546,000.00**
			TOTAL PROJECT COST		**$ 3,355,000.00**

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 to the accuracy of such opinions compared to bid or actual costs.

APPENDIX E – FIVE POINT ANALYSIS

Water Rights:

Current & Projected Required Water Right (2018-2058)					
Year	**ERC's**	**Avg. Usage (gpd/ERC)**	**Existing Water Rights (Ac-ft)**	**Required Water Rights (Ac-ft)**	**Surplus Water Rights (Ac-ft)**
2018	2444	544	3,211	1,489	1,722
2019	2517	544	3,211	1,534	1,677
2020	2593	544	3,211	1,580	1,631
2021	2671	544	3,211	1,627	1,584
2022	2751	544	3,211	1,676	1,535
2023	2833	544	3,211	1,726	1,485
2024	2918	544	3,211	1,778	1,433
2025	3006	544	3,211	1,831	1,380
2026	3096	544	3,211	1,886	1,325
2027	3189	544	3,211	1,943	1,268
2028	3285	544	3,211	2,001	1,210
2029	3383	544	3,211	2,061	1,150
2030	3485	544	3,211	2,123	1,088
2031	3589	544	3,211	2,187	1,024
2032	3697	544	3,211	2,252	959
2033	3808	544	3,211	2,320	891
2034	3922	544	3,211	2,390	821
2035	4040	544	3,211	2,461	750
2036	4161	544	3,211	2,535	676
2037	4286	544	3,211	2,611	600
2038	4414	544	3,211	2,689	522
2039	4547	544	3,211	2,770	441
2040	4683	544	3,211	2,853	358
2041	4823	544	3,211	2,939	272
2042	4968	544	3,211	3,027	184
2043	5117	544	3,211	3,118	93
2044	5271	544	3,211	3,211	0
2045	5429	544	3,211	3,308	-97
2046	5592	544	3,211	3,407	-196
2047	5759	544	3,211	3,509	-298
2048	5932	544	3,211	3,614	-403
2049	6110	544	3,211	3,723	-512
2050	6294	544	3,211	3,835	-624
2051	6482	544	3,211	3,949	-738
2052	6677	544	3,211	4,068	-857
2053	6877	544	3,211	4,190	-979
2054	7083	544	3,211	4,315	-1,104
2055	7296	544	3,211	4,445	-1,234
2056	7515	544	3,211	4,579	-1,368
2057	7740	544	3,211	4,716	-1,505
2058	7972	544	3,211	4,857	-1,646

Source Capacity:

Current & Projected Required Source Capacity (2018-2058):					
Year	Number of ERC's	Peak Day Usage (gpd/ERC)	Existing Source Capacity (gpm)	Required Source Capacity (gpm)	Surplus Source Capacity (gpm)
2018	2,444	1088	2765	1,846	919
2019	2,517	1088	2765	1,901	864
2020	2,593	1088	2765	1,959	806
2021	2,671	1088	2765	2,018	747
2022	2,751	1088	2765	2,078	687
2023	2,833	1088	2765	2,140	625
2024	2,918	1088	2765	2,204	561
2025	3,006	1088	2765	2,271	494
2026	3,096	1088	2765	2,339	426
2027	3,189	1088	2765	2,409	356
2028	3,285	1088	2765	2,482	283
2029	3,383	1088	2765	2,556	209
2030	3,485	1088	2765	2,633	132
2031	3,589	1088	2765	2,711	54
2032	3,697	1088	2765	2,793	-28
2033	3,808	1088	2765	2,877	-112
2034	3,922	1088	2765	2,963	-198
2035	4,040	1088	2765	3,052	-287
2036	4,161	1088	2765	3,143	-378
2037	4,286	1088	2765	3,238	-473
2038	4,414	1088	2765	3,335	-570
2039	4,547	1088	2765	3,435	-670
2040	4,683	1088	2765	3,538	-773
2041	4,823	1088	2765	3,644	-879
2042	4,968	1088	2765	3,753	-988
2043	5,117	1088	2765	3,866	-1,101
2044	5,271	1088	2765	3,982	-1,217
2045	5,429	1088	2765	4,101	-1,336
2046	5,592	1088	2765	4,224	-1,459
2047	5,759	1088	2765	4,351	-1,586
2048	5,932	1088	2765	4,481	-1,716
2049	6,110	1088	2765	4,616	-1,851
2050	6,294	1088	2765	4,755	-1,990
2051	6,482	1088	2765	4,897	-2,132
2052	6,677	1088	2765	5,044	-2,279
2053	6,877	1088	2765	5,195	-2,430
2054	7,083	1088	2765	5,351	-2,586
2055	7,296	1088	2765	5,512	-2,747
2056	7,515	1088	2765	5,677	-2,912
2057	7,740	1088	2765	5,847	-3,082
2058	7,972	1088	2765	6,022	-3,257

Storage Capacity:

Storage Capacity Analysis								
Year	Number of ERC's	Avg. Usage (gpd/ERC)	Storage Required	Fire Flow Stg Rqd	Emergency Supply (25%)	Existing Stg Capacity	Total Stg Rqd	Stg Surplus
2018	2,444	544	1,329,340	180,000	377,335	4,250,000	1,886,675	2,363,325
2019	2,517	544	1,369,046	180,000	387,262	4,250,000	1,936,308	2,313,692
2020	2,593	544	1,410,384	180,000	397,596	4,250,000	1,987,980	2,262,020
2021	2,671	544	1,452,810	180,000	408,202	4,250,000	2,041,012	2,208,988
2022	2,751	544	1,496,324	180,000	419,081	4,250,000	2,095,404	2,154,596
2023	2,833	544	1,540,925	180,000	430,231	4,250,000	2,151,156	2,098,844
2024	2,918	544	1,587,158	180,000	441,790	4,250,000	2,208,948	2,041,052
2025	3,006	544	1,635,023	180,000	453,756	4,250,000	2,268,779	1,981,221
2026	3,096	544	1,683,976	180,000	465,994	4,250,000	2,329,970	1,920,030
2027	3,189	544	1,734,560	180,000	478,640	4,250,000	2,393,201	1,856,799
2028	3,285	544	1,786,777	180,000	491,694	4,250,000	2,458,471	1,791,529
2029	3,383	544	1,840,081	180,000	505,020	4,250,000	2,525,101	1,724,899
2030	3,485	544	1,895,561	180,000	518,890	4,250,000	2,594,451	1,655,549
2031	3,589	544	1,952,128	180,000	533,032	4,250,000	2,665,160	1,584,840
2032	3,697	544	2,010,872	180,000	547,718	4,250,000	2,738,590	1,511,410
2033	3,808	544	2,071,247	180,000	562,812	4,250,000	2,814,059	1,435,941
2034	3,922	544	2,133,254	180,000	578,313	4,250,000	2,891,567	1,358,433
2035	4,040	544	2,197,436	180,000	594,359	4,250,000	2,971,795	1,278,205
2036	4,161	544	2,263,251	180,000	610,813	4,250,000	3,054,063	1,195,937
2037	4,286	544	2,331,241	180,000	627,810	4,250,000	3,139,051	1,110,949
2038	4,414	544	2,400,862	180,000	645,216	4,250,000	3,226,078	1,023,922
2039	4,547	544	2,473,204	180,000	663,301	4,250,000	3,316,504	933,496
2040	4,683	544	2,547,177	180,000	681,794	4,250,000	3,408,971	841,029
2041	4,823	544	2,623,325	180,000	700,831	4,250,000	3,504,157	745,843
2042	4,968	544	2,702,194	180,000	720,548	4,250,000	3,602,742	647,258
2043	5,117	544	2,783,238	180,000	740,809	4,250,000	3,704,047	545,953
2044	5,271	544	2,867,002	180,000	761,750	4,250,000	3,808,752	441,248
2045	5,429	544	2,952,941	180,000	783,235	4,250,000	3,916,176	333,824
2046	5,592	544	3,041,600	180,000	805,400	4,250,000	4,027,000	223,000
2047	5,759	544	3,132,434	180,000	828,109	4,250,000	4,140,543	109,457
2048	5,932	544	3,226,533	180,000	851,633	4,250,000	4,258,166	(8,166)
2049	6,110	544	3,323,350	180,000	875,838	4,250,000	4,379,188	(129,188)
2050	6,294	544	3,423,432	180,000	900,858	4,250,000	4,504,289	(254,289)
2051	6,482	544	3,525,689	180,000	926,422	4,250,000	4,632,111	(382,111)
2052	6,677	544	3,631,753	180,000	952,938	4,250,000	4,764,691	(514,691)
2053	6,877	544	3,740,537	180,000	980,134	4,250,000	4,900,671	(650,671)
2054	7,083	544	3,852,584	180,000	1,008,146	4,250,000	5,040,730	(790,730)
2055	7,296	544	3,968,439	180,000	1,037,110	4,250,000	5,185,549	(935,549)
2056	7,515	544	4,087,558	180,000	1,066,889	4,250,000	5,334,447	(1,084,447)
2057	7,740	544	4,209,940	180,000	1,097,485	4,250,000	5,487,425	(1,237,425)
2058	7,972	544	4,336,129	180,000	1,129,032	4,250,000	5,645,161	(1,395,161)

APPENDIX F – IMPACT FEE CERTIFICATION

CERTIFICATION OF IMPACT FEE ANALYSIS BY CONSULTANT

In accordance with Utah Code Annotated, § 11-36a-306 Joseph K. Phillips, P.E., on behalf of Sunrise Engineering, Inc., makes the following certification:

I certify that the attached impact fee facilities plan and impact fee analysis:

1. Includes only the costs for qualifying public facilities that are:
    a. Allowed under the Impact Fees Act; and
    b. Actually incurred; or
    c. Projected to be incurred or encumbered within six years after each impact fee is paid;
2. Does not include:
    a. costs of operation and maintenance of public facilities;
    b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
    c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and that methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. Offsets costs with grants or other alternate sources of payment (if grants or other sources of payment have been applied for and received and such information was made available when the Impact Fee Analysis was prepared); and
4. Complies in each and every relevant respect with the Impact Fees Act.

Joseph K. Phillips, P.E. makes this certification with the following qualifications:

1. All of the recommendations for implementations of the Impact Fee Facilities Plan ("IFFP") made in the IFFP documents or in the Impact Fee Analysis documents are followed in their entirety by Enoch City, Utah staff and elected officials.
2. If all or a portion of the IFFP's or Impact Fee Analyses are modified or amended, this certification is no longer valid.
3. All information provided to Sunrise Engineering, Inc., its contractors or suppliers is assumed to be correct, complete and accurate. This includes information provided by Enoch City, Utah and outside sources.

4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.
5. The foregoing Certification is an expression of professional opinion based on the undersigned's best knowledge, information and belief and shall not be construed as a warranty or guaranty of any fact or circumstance.
6. The foregoing certification is made only to Enoch City, Utah and may not be used or relied upon by any other person or entity without the expressed written authorization of the undersigned.

Sunrise Engineering, Inc.

By: _____

Dated: _____

APPENDIX G – CASH FLOW

Cashflow Analysis - Enoch City Impact Fee Analysis

	Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	***Revenues***												
2	Charges For Sales And Services	$ 694,982	$ 702,845	$ 740,363	$ 779,577	$ 800,679	$ 830,127	$ 855,031	$ 880,682	$ 907,102	$ 934,315	$ 962,345	$ 991,215
3	Other Operating Income	$ 174,838	$ 36,237	$ 43,593	$ 30,448	$ 27,949	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613
4	Interest Income	$ 2,954	$ 3,245	$ 3,972	$ 7,931	$ 17,860	$ 13,016	$ 15,044	$ 10,240	$ 14,054	$ 18,034	$ 22,269	$ 26,734
5	Connection Fees	$ 23,867	$ 16,964	$ 20,141	$ 22,113	$ 27,153	$ 25,550	$ 26,600	$ 27,300	$ 25,550	$ 28,000	$ 28,700	$ 29,750
6	Impact Fees Collected	$ 117,575	$ 145,804	$ 188,120	$ 230,047	$ 268,271	$ 318,188	$ 331,264	$ 339,981	$ 348,699	$ 357,416	$ 370,492	$ 383,569
7	**Total:**	$ 1,014,216	$ 905,095	$ 996,189	$ 1,070,116	$ 1,141,912	$ 1,249,494	$ 1,290,551	$ 1,320,816	$ 1,358,018	$ 1,400,378	$ 1,446,419	$ 1,493,881
8	*Annual Increase in Population*							3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
9	***Expenses***												
10	Personal Services	$ 186,915	$ 191,609	$ 191,229	$ 206,267	$ 284,871	$ 293,417	$ 302,220	$ 311,286	$ 320,625	$ 330,244	$ 340,151	$ 350,355
11	Utilities	$ 127,799	$ 116,637	$ 104,246	$ 140,984	$ 121,386	$ 122,210	$ 125,877	$ 129,653	$ 133,543	$ 137,549	$ 141,675	$ 145,926
12	Operating And Maintenance	$ 185,769	$ 131,658	$ 141,476	$ 188,092	$ 151,725	$ 211,744	$ 218,096	$ 224,639	$ 231,378	$ 238,320	$ 245,469	$ 252,833
13	Insurance	$ 2,500	$ 5,505	$ 7,220	$ 10,750	$ 9,822	$ 7,159	$ 7,374	$ 7,595	$ 7,823	$ 8,058	$ 8,300	$ 8,549
14	Interest On Long-term Debt	$ 51,281	$ 45,847	$ 40,842	$ 35,579	$ 30,135	$ 24,551	$ 15,756	$ 15,756	$ 15,756	$ 15,756	$ 15,756	$ 6,805
15	Long Term Debt (Principal)	$ 164,887	$ 175,059	$ 185,341	$ 191,736	$ 196,248	$ 169,394	$ 99,000	$ 99,000	$ 99,000	$ 99,000	$ 99,000	$ 93,966
16	Pension Expense	0.00	6,754.00	1,532.00	(5,083.00)	$ 4,111	$ 1,463	$ 1,507	$ 1,552	$ 1,598	$ 1,646	$ 1,696	$ 1,747
17	Total:	$ 719,151	$ 673,069	$ 671,886	$ 768,325	$ 798,298	$ 829,939	$ 769,830	$ 789,482	$ 809,724	$ 830,573	$ 852,047	$ 860,181
18	*Annual Increase in Expenses*		-6.8%	-0.2%	12.6%	3.8%	2.3%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
19	***Projects***												
20	Culinary System Improvements (Principal)							$ 25,181	$ 26,031	$ 26,909	$ 27,817	$ 28,756	$ 29,727
21	Culinary System Improvements (Interest)							$ 69,812	$ 68,962	$ 68,083	$ 67,175	$ 66,236	$ 65,266
22	Impact Fee Analysis Update (2023, 2028, 2033, 2038)										$ -	$ -	$ 55,344
23	Self Participation Reimbursement								$ 42,216	$ 42,216	$ 42,216	$ 42,216	$ 42,216
24	**Total:**							$ 94,993	$ 137,209	$ 137,208	$ 137,208	$ 137,208	$ 192,553
25	***Project Funds***												
26	From Impact Fees							$ 65,333.77	$ 94,368.53	$ 94,367.84	$ 94,367.84	$ 94,367.84	$ 149,712.85
27	From Revenue Fund							$ 429,659.23	$ 42,840.00	$ 42,839.68	$ 42,839.68	$ 42,839.68	$ 42,840.00
28													
29	***Revenue Fund Calculations***												
30	Net Annual Increase/Decrease						$ 101,368	$ (240,201)	$ 148,513	$ 156,756	$ 169,550	$ 181,040	$ 207,291
31	Self Participation Credit						$ -	$ -	$ 42,216	$ 42,216	$ 42,216	$ 42,216	$ 42,216
32	Revenue Fund w/ interest					$ 650,813	$ 752,181	$ 511,979	$ 702,707	$ 901,679	$ 1,113,444	$ 1,336,699	$ 1,586,206
33													
34	***Impact Fee Fund Calculations***												
35	Net Annual Increase/Decrease						$ 318,188	$ 265,930	$ 245,613	$ 254,331	$ 263,048	$ 276,125	$ 233,856
36	Impact Fee Fund est. interest (@2%)						$ -	$ 6,364	$ 11,810	$ 16,958	$ 22,384	$ 28,093	$ 34,177
37	Impact Fee Fund w/ interest						$ 318,188	$ 590,481	$ 847,904	$ 1,119,193	$ 1,404,625	$ 1,708,842	$ 1,976,875

	Cashflow Analysis - Enoch City Impact Fee Analysis														
	Year	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
1	***Revenues***													
2	Charges For Sales And Services	$ 1,020,952	$ 1,051,580	$ 1,083,127	$ 1,115,621	$ 1,149,090	$ 1,183,563	$ 1,219,069	$ 1,255,642	$ 1,293,311	$ 1,332,110	$ 1,372,073	$ 1,413,236	$ 1,455,633
3	Other Operating Income	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613	$ 62,613
4	Interest Income	$ 31,724	$ 37,515	$ 43,578	$ 49,351	$ 55,412	$ 63,240	$ 71,414	$ 79,931	$ 88,817	$ 98,079	$ 107,728	$ 117,785	$ 128,257
5	Connection Fees	$ 30,800	$ 31,500	$ 32,550	$ 33,600	$ 34,300	$ 35,700	$ 36,400	$ 37,800	$ 38,850	$ 39,900	$ 41,300	$ 42,350	$ 43,750
6	Impact Fees Collected	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
7	**Total:**	$ 1,146,089	$ 1,183,208	$ 1,221,869	$ 1,261,185	$ 1,301,415	$ 1,345,116	$ 1,389,496	$ 1,435,985	$ 1,483,591	$ 1,532,702	$ 1,583,714	$ 1,635,984	$ 1,690,253
8	*Annual Increase in Population*	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
9	***Expenses***													
10	Personal Services	$ 360,866	$ 371,692	$ 382,843	$ 394,328	$ 406,158	$ 418,343	$ 430,893	$ 443,820	$ 457,134	$ 470,848	$ 484,974	$ 499,523	$ 514,509
11	Utilities	$ 150,303	$ 154,812	$ 159,457	$ 164,241	$ 169,168	$ 174,243	$ 179,470	$ 184,854	$ 190,400	$ 196,112	$ 201,995	$ 208,055	$ 214,297
12	Operating And Maintenance	$ 260,418	$ 268,231	$ 276,278	$ 284,566	$ 293,103	$ 301,896	$ 310,953	$ 320,282	$ 329,890	$ 339,787	$ 349,981	$ 360,480	$ 371,294
13	Insurance	$ 8,805	$ 9,069	$ 9,341	$ 9,622	$ 9,910	$ 10,208	$ 10,514	$ 10,829	$ 11,154	$ 11,489	$ 11,833	$ 12,188	$ 12,554
14	Interest On Long-term Debt	$ 6,146	$ 6,146	$ 6,146	$ 6,146	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
15	Long Term Debt (Principal)	$ 67,600	$ 67,600	$ 67,600	$ 67,600	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	Pension Expense	$ 1,799	$ 1,853	$ 1,909	$ 1,966	$ 2,025	$ 2,086	$ 2,148	$ 2,213	$ 2,279	$ 2,347	$ 2,418	$ 2,490	$ 2,565
17	Total:	$ 855,938	$ 879,404	$ 903,574	$ 928,469	$ 880,364	$ 906,775	$ 933,978	$ 961,998	$ 990,858	$ 1,020,583	$ 1,051,201	$ 1,082,737	$ 1,115,219
18	*Annual Increase in Expenses*	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
19	***Projects***													
20	Culinary System Improvements (Principal)	$ 30,730	$ 31,767	$ 32,839	$ 33,948	$ 35,093	$ 36,278	$ 37,502	$ 38,768	$ 40,076	$ 41,429	$ 42,827	$ 44,272	$ 45,767
21	Culinary System Improvements (Interest)	$ 64,263	$ 63,226	$ 62,153	$ 61,045	$ 59,899	$ 58,715	$ 57,491	$ 56,225	$ 54,916	$ 53,564	$ 52,166	$ 50,720	$ 49,226
22	Impact Fee Analysis Update (2023, 2028, 2033, 2038)			$ -					$ -					$ -
23	Self Participation Reimbursement	$ 42,216	$ 42,216											
24	**Total:**	$ 137,209	$ 137,209	$ 94,992	$ 94,993	$ 94,992	$ 94,993	$ 94,993	$ 94,993	$ 94,992	$ 94,993	$ 94,993	$ 94,992	$ 94,993
25	***Project Funds***													
26	From Impact Fees	$ 94,368.53	$ 94,368.53	$ 65,333.08	$ 65,333.77	$ 65,333.08	$ 65,333.77	$ 65,333.77	$ 65,333.77	$ 65,333.08	$ 65,333.77	$ 65,333.77	$ 65,333.08	$ 65,333.77
27	From Revenue Fund	$ 42,840.00	$ 42,840.00	$ 29,658.92	$ 29,659.23	$ 29,658.92	$ 29,659.23	$ 29,659.23	$ 29,659.23	$ 29,658.92	$ 29,659.23	$ 29,659.23	$ 29,658.92	$ 29,659.23
28														
29	***Revenue Fund Calculations***													
30	Net Annual Increase/Decrease	$ 247,310	$ 260,963	$ 288,636	$ 303,057	$ 391,392	$ 408,681	$ 425,859	$ 444,328	$ 463,075	$ 482,459	$ 502,854	$ 523,588	$ 545,374
31	Self Participation Credit	$ 42,216	$ 42,216	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
32	Revenue Fund w/ interest	$ 1,875,732	$ 2,178,910	$ 2,467,546	$ 2,770,603	$ 3,161,995	$ 3,570,677	$ 3,996,535	$ 4,440,864	$ 4,903,938	$ 5,386,398	$ 5,889,252	$ 6,412,840	$ 6,958,215
33														
34	***Impact Fee Fund Calculations***													
35	Net Annual Increase/Decrease	$ (94,369)	$ (94,369)	$ (65,333)	$ (65,334)	$ (65,333)	$ (65,334)	$ (65,334)	$ (65,334)	$ (65,333)	$ (65,334)	$ (65,334)	$ (65,333)	$ (65,334)
36	Impact Fee Fund est. interest (@2%)	$ 39,537	$ 38,441	$ 37,322	$ 36,762	$ 36,191	$ 35,608	$ 35,013	$ 34,407	$ 33,788	$ 33,157	$ 32,514	$ 31,858	$ 31,188
37	Impact Fee Fund w/ interest	$ 1,922,044	$ 1,866,116	$ 1,838,105	$ 1,809,534	$ 1,780,391	$ 1,750,665	$ 1,720,345	$ 1,689,418	$ 1,657,873	$ 1,625,697	$ 1,592,877	$ 1,559,402	$ 1,525,256