Sewer Rate Study

January 2019

Prepared for:

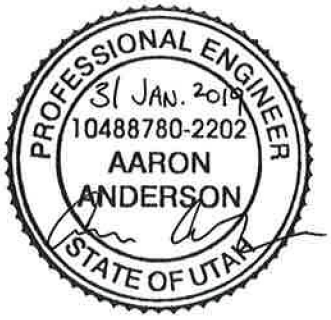
IVINS CITY UTAH

Prepared by:

BOWEN COLLINS & ASSOCIATES

SEWER RATE STUDY

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EXECUTIVE SUMMARY

INTRODUCTION

Ivins City has retained Bowen, Collins & Associates (BC&A) to update its sewer rates for users. The purpose of this study is to update the City's sewer rates based on changes in system development patterns and revenue requirements that have occurred since the current rates were established. The rate study calculates detailed rates for the next six years and presents a longer term finance plan to achieve the City's primary objectives of:

- Maintaining high quality, reliable sewer service at affordable prices for customers;
- Maintaining stable revenue generation adequate to fund system needs; and
- Minimizing the City's long-term costs by avoiding debt where possible.

Implementing the recommendations contained in this report will help Ivins City keep its sewer utility system adequately funded to maintain its current infrastructure and keep pace with its currently approved capital improvements plan.

SEWER RATE ANALYSIS

The primary objective of this sewer rate analysis is to establish fair and equitable rates that will be sufficient to meet revenue requirements for the City. To accomplish this goal, this analysis focused on 3 major tasks:

1. **Projecting Growth:** In order to estimate revenue generated through rates and other non-rate revenue, future growth in the City has been estimated. Growth projections used for the Ivins City Sewer Master Plan were based on the growth projections established in the City's 2013 Culinary Water Master Plan. These projections include a relatively high amount of growth to occur in Ivins over the next 5-10 years, but for the purpose of this rate study, a more moderate annual growth rate of 3.0% has been assumed. This was done to avoid potentially excessive rate increases from occurring too far in advance.

2. **Calculating Revenue Requirements:** Total revenue requirements for the City were projected for the next several years. This includes operations and maintenance costs, capital improvement costs, facilities rehabilitation/replacement costs, and debt service. Revenue generated outside of sewer rates (impact fees, interest income, penalty fees) was deducted from the total to give the net revenue requirement to be recovered from service charges.

3. **Sewer Rate Design:** Sewer rates were calculated to generate the revenue to meet funding requirements. The City's current sewer rates were adjusted to bring the rate structure more in line with a cost-of –service approach. The essential principle of this method is that sewer rates should be recovered from customers in proportion to the cost of serving customers.

The recommended modifications to the City's existing rate structure are shown in Table ES-1. It is recommended that the proposed rate changes be adopted by the City. The proposed rates should

be re-evaluated within the next 3 to 5 years to ensure that the City's revenue requirements and goals are being met.

Table ES-1
Recommended Monthly Sewer Rates (per ERU)

Monthly Sewer Rate	Current Sewer Rate	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Residential	$24.23	$24.47	$24.72	$24.96	$25.46	$26.10	$26.88
% Increase		1.0%	1.0%	1.0%	2.0%	2.5%	3.0%
Commercial/Institutional (per ERU)*	$29.00	$24.47	$24.72	$24.96	$25.46	$26.10	$26.88
% Increase		-15.6%	1.0%	1.0%	2.0%	2.5%	3.0%
Volume Rate (per 1,000 gallons after 7,000)							
Commercial/Institutional	$1.41	$2.45	$2.47	$2.50	$2.55	$2.61	$2.69
% Increase		74%	0.8%	1.2%	2.0%	2.4%	3.1%

1 ERU = 7,000 gallons of indoor water usage per month

SEWER RATE ANALYSIS

INTRODUCTION

Ivins City has retained Bowen, Collins & Associates (BC&A) to update its sewer rates for users. The purpose of this study is to update the City's sewer rates based on changes in system development patterns and revenue requirements that have occurred since the current rates were established. The rate study calculates detailed rates for the next six years and presents a longer term finance plan to achieve the City's primary objectives of:

- Maintaining high quality, reliable sewer service at affordable prices for customers;
- Maintaining stable revenue generation adequate to fund system needs; and
- Minimizing the City's long-term costs by avoiding debt where possible.

Implementing the recommendations contained in this report will help Ivins City keep its sewer utility system adequately funded to maintain its current infrastructure and keep pace with its currently approved capital improvements plan.

PROJECTED REVENUE NEEDS

Before calculating detailed sewer rates, it is important to consider the overall plan for meeting the future revenue needs of the City. The first step in this process is to project future expenditures. Historic and projected expenditures for the City for years 2015 through 2027 are shown in Figure 1.

Tables containing the values used to generate Figure 1 are contained in Appendix A. Future expenditures can be grouped into four categories:

- **Operation and Maintenance Expenditures –** These are the annual costs of operating and maintaining the system. They include items such as salary and benefit costs for City staff, equipment and supplies, power costs, and all other costs associated with doing business throughout the year. Operation and maintenance (O&M) costs are relatively constant from year to year and tend to follow the rate of inflation.

- **Debt Service Expenditures –** These are the costs paid toward bonds taken out by the City in previous years. These costs are easily predictable because they are tied to set payment schedules for each bond.

- **Capital Expenditures –** These are costs for constructing new facilities within the City. This can include completely new facilities or replacement of existing facilities. Capital improvement expenditures are usually the most volatile of expenditure categories. Because O&M and debt service costs are basically fixed, budgets are usually balanced by increasing or decreasing capital improvement expenditures as necessary. While some fluctuation in the funding of capital improvements is acceptable from year to year, the overall health of the system will depend on adequately funding this portion of the budget over the long term. A detailed list of Capital Facilities Projects can be found in the City's Sewer Master Plan.

- **Funds to Cash Reserves –** After all expenses have been paid, any remaining funds are placed in the City's reserve fund. The reserve fund can be used to covers future system costs. Different cities or sewer districts treat reserve funds differently, but as a general rule of thumb, it is a good idea to maintain **at least** 6 months' worth of O&M in cash reserves.

10-YEAR BUDGET PLAN

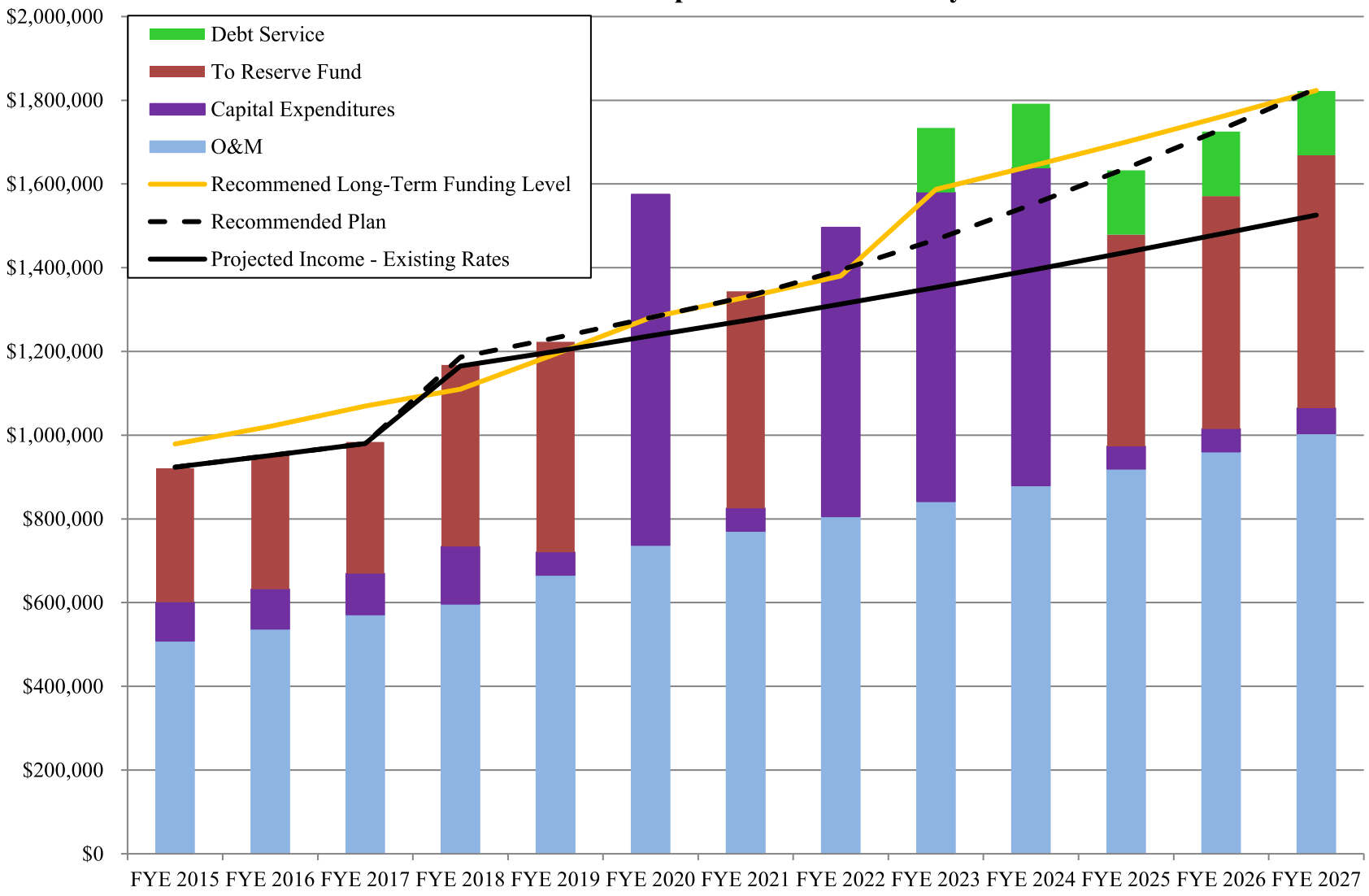
With the expected expenditures previously outlined, it is possible to prepare a future budget plan. A budget plan has been developed for the sewer utility and is shown on top of projected expenditures in Figure 1. The process of creating this budget plan was as follows:

1. **Identify projected revenue based on existing sewer rates –** Using the City's existing sewer rates, BC&A calculated the revenue the City could expect to receive over the next 10 years if no changes are made to existing rates. These projections include consideration of future system growth (i.e. increased rate revenue as more users are added to the system).
2. **Identify recommended level of funding based on long-term system needs** – As with most things, each component of sewer system has a finite service life. As such, it is necessary to continually budget money for the rehabilitation or replacement of these system components. If adequate funds are not set aside for regular system renewal, the system will fall into a state of disrepair and be incapable of providing the level of service customers in the City have come to expect.

   To maintain the utility in good operating condition, it is recommended that the City's annual investment into the system be approximately equal to the replacement value of the system divided by its estimated service life. The estimated replacement value of the City's sewer system is $41 million. Based on an approximate service life of 80 years, the ideal annual system investment budget for the sewer system is approximately 1.25 percent of the total estimated replacement cost of the system (which currently would be $513,000). While a large portion of this total can be used toward constructing those projects identified in the Capital Facilities Plan (if projects are needed for future growth, funds paid out of reserve accounts will be replenished as impact fees are collected), the remaining amount will be available for rehabilitation and replacement of existing facilities.

   Based on this approach, the City's recommended long-term level of funding based on all O&M and system investment needs is shown in Figure 1. As can be seen in the figure, the City's current revenue is below the long-term recommendation. It is recommended that the City increase its rates gradually in order to keep up with inflation and continue to meet the City's long-term system investment needs.
3. **Create a plan to transition from existing revenue to revenue adequate to support long-term system needs** – It is recommended that the City modify its rates in order to implement its Capital Facilities Plan and meet long-term funding goals. It is recommended that rates be adjusted gradually in order to reach and maintain the long-term level of funding. Following the rate schedule recommended in this report will result in sufficient income to accomplish the City's goals as shown in Figure 1.

Figure 1
10-Year Revenue and Expenditures - Ivins City Sewer



RATE CALCULATION METHODOLOGY

Based on the recommended 10-year budget plan presented previously, detailed rates can be calculated.

This analysis focuses on three major tasks:

1. **Projecting Future Connections:** Future sewer connections were estimated by examining current development and by projecting system growth for the next several years.
2. **Calculating Revenue Requirements:** Total revenue requirements for the system were projected for the next several years based on the budget plan outlined in the previous section. Non-rate revenue (including impact fee revenue) was deducted from the total to give the net revenue requirement to be recovered from rate payers.
3. **Rate Design:** Rates were calculated to generate the required revenue.

Ivins City charges a flat base rate to residential users (independent of the actual volume or strength of wastewater produced). Non-residential customers are charged a base rate plus a volume rate for every 1,000 gallons used in excess of 7,000 gallons per month (the typical indoor water use for an Equivalent Residential Unit, or ERU). The City has expressed interest in modifying its rate schedule to put all users on the same flat base rate (rate per ERU) and updating its volume rates for non-residential users to bring rates more in line with a "cost-of-service" approach. When user rates are comprised of more than one component, such as a base rate plus a volumetric usage charge or a wastewater strength charge, a cost-of-service methodology can be used to determine how each of these components is accounted for in the total user rate. While this rate evaluation does not use a full cost-of-service approach, cost-of-service principles have been employed in the development of the new rate structure.

The remainder of this report details the results of each of these three major tasks. Detailed rate tables from the model used to develop the rate recommendations are located in Appendix A.

KEY ASSUMPTIONS

The results presented in this report are based on the following assumptions:

1. The sewer fund will continue to be an enterprise-type fund.

2. This rate study is based on projections of future system operation, maintenance, and improvement costs. These projections are based on current economic conditions and regulatory requirements. Because conditions may change over time, it is recommended that Ivins City review the rates annually to determine if adjustments are needed to provide a revenue stream that will adequately fund operation and maintenance costs as well as needed capital improvements. It is also recommended that a comprehensive review and updating of sewer rates be undertaken every three to five years so that the basic analytical foundations of this study can be re-evaluated.

PROJECTING SEWER SYSTEM USE

Existing Accounts

Ivins City provides sewer service to over 3,000 accounts as shown in Table 1. The majority of sewer service customers are residential users.

Table 1
Summary of Ivins Sewer Accounts (FYE 2018)

Customer Class	# of Accounts (FYE 2016)	Total 2016 Indoor Water Use (kgal)	ERUs
Residential[1]	3,035	196,687	3,035
Multi[2]	211	10,628	160
Commercial	43	19,247	297
Institutional	68	17,044	263
Total	**3,357**	**243,606**	**3,755**

[1]From culinary water billing accounts. Note that approximately 20 residential connections are on septic systems
[2] The "Multi" category represents users behind a master meter (i.e. multiple units using a single combined meter).

Projected Accounts

Growth projections used for the Ivins City Sewer Master Plan were based on the growth projections established in the City's 2013 Culinary Water Master Plan. These projections include a relatively high amount of growth to occur in Ivins over the next 5-10 years, but for the purpose of this rate study, a more moderate annual growth rate of 3.0% has been assumed. This was done to avoid potentially excessive rate increases from occurring too far in advance. Projected growth rates and number of accounts by customer type are summarized in Table 2.

Table 2
Projected Accounts Summary[1]

	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
	3.00%	**3.00%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**
Residential	3,126	3,220	3,317	3,417	3,520	3,626
Multi	211	211	211	211	211	211
Commercial	45	46	48	49	50	52
Institutional	70	72	74	76	78	80
Total	**3,452**	**3,549**	**3,650**	**3,753**	**3,859**	**3,969**

[1]The Ivins City Sewer Master Plan estimates annual growth rates greater than 3.0%. However, this rate study has assumed a more moderate growth rate in order to avoid potentially excessive rate increases.

CALCULATING REVENUE REQUIREMENTS

There are two methods for determining a sewer utility's revenue requirements. One is called the Cash Basis of revenue requirements. The other method is called the Utility Basis of revenue requirements. The revenue requirements for each approach are summarized below.

Cash Basis	**Utility Basis**
Operation and Maintenance Costs	Operation and Maintenance Cost
Plus: Debt Service	Plus: Depreciation
Cash-Financed Capital Outlays	Return on Investment
Taxes (if applicable)	Taxes (if applicable)
Net Additions to Reserves	
Total Requirements	Total Requirements
Less: Non-Rate Revenues	Less: Non-Rate Revenues
Equals: Net Requirements from Rates	Equals: Net Requirements from Rates

The cash basis of revenue requirements is based on the actual cash expenditures of the system. Its goal is to make sure revenues match the cash needs of the system. In public utilities, this method generally matches the budgetary expenditures for the period. It has the additional advantage of being more understandable to most ratepayers and more directly meets any debt service coverage requirements that the system might need to comply with.

The utility basis approach simulates the financial requirements of private sector companies. It ensures that revenue requirements reflect the depreciation incurred by the system, as well as a return on the investment in rate base by system owners. In the municipal utility setting, the utility basis is most often used when there is significant utility service to customers outside the jurisdictional boundaries of the system owners. It allows the system owners (i.e., City residents) to earn a return from the investments to serve the customers outside the City.

Ivins City does not have any significant customers outside its jurisdictional boundaries. As a result, rates in this study were developed under the **cash basis**.

Non-Rate Revenue

The projected non-rate revenue for the planning period is summarized in Table 3. Non-Rate Revenue may include items such as impact fees, service connection fees, net interest income, lease income, and gain/loss on disposal of assets. It should be noted that revenue shown in the table takes into account the recently adopted update to the City's sewer impact fees.

Table 3
Projected Non-Rate Revenue

Item	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Operation Non-Rate Revenue	$69,398	$72,521	$75,785	$79,195	$82,759	$85,241
Non-Operations Non-Rate Revenue	$61,780	$64,538	$66,193	$67,848	$70,606	$72,261
Total Non-Rate Revenue	**$131,178**	**$137,059**	**$141,978**	**$147,043**	**$153,365**	**$157,502**

City Expenditures

The projected City expenditures for the planning period are summarized in Table 4. Included in the table are the projected total costs for the three major categories of expenditures: operations and maintenance, debt service, and capital expenditures. Each of these categories is discussed in more detail in following sections.

Table 4
Projected Revenue Requirements

Item	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
O&M	$665,924	$737,819	$771,021	$805,717	$841,974	$879,863
Debt Services[1]	$0	$0	$0	$0	$153,930	$153,930
Capital Improvements (Net of Bonds)	$557,272	$544,615	$572,764	$602,481	$479,732	$511,662
Total Revenue Requirement	**$1,223,196**	**$1,282,434**	**$1,343,785**	**$1,408,198**	**$1,475,636**	**$1,545,455**

[1]Debt service shown in FYE 2023 for municipal bond for new Public Works Yard

Operation and Maintenance Costs

The projected operation and maintenance (O&M) costs for the City have been taken from the City's budget year for the year 2017. A detailed list of all O&M budget categories is included as part of the rate model in Appendix A. Beyond 2017, it has been assumed that most of these O&M cost categories will increase at a rate equal to half the system growth rate in each year and an assumed inflation rate of 3.0 percent (e.g. budget growth = 3.0 %/2 + 3% = 4.5%). Per the direction of City staff, the O&M budget has also been increased in FYE 2019 and FYE 2020 to account for 2 new public works system operators that the City is planning to hire in these respective years.

Debt Service Costs

The Ivins City wastewater fund currently has no debt service. However, the City has planned to use a municipal bond to fund the design and construction of a new public works yard in 2023. Per the direction of the City, 25% of the cost of the new public works yard has been allocated to the sewer fund.

Capital Improvement Costs

There are a number of sewer system capital projects which will be completed during the next 6 years. The list of projects proposed to be completed in the next 6 years along with a cost for each project is shown in the City's Sewer Master Plan.

Included under the capital improvements budget is a section for the transfer of funds to or from the City's reserve fund. As noted previously, it is recommended that the City invest approximately $513,000 annually (increased each year with an assumed inflation rate of 3.0%) into the system. Any money not spent on projects in the capital facility plan should be spent on other system rehabilitation and replacement projects. However, if specific rehabilitation and replacement projects are not immediately needed, these funds should be deposited in the utility's reserve balance for later use. To facilitate the option of paying for improvements without bonding, it is expected that there will be years in which excess funds are generated and added to the reserve, only to be drawn out in subsequent years for large projects. From a long-term perspective, the City should continue to invest the recommended amount into projects in the system such that the reserve fund's overall size does not appreciably increase due to these transfers.

CURRENT SEWER RATE STRUCTURE AND REVENUE

Existing wastewater rates for each customer class are shown in Table 5. The monthly base charge is the amount charged to existing users to be connected to the system, regardless of the amount of wastewater produced. Volumetric charges are those charges assessed based on the amount of wastewater generated by the customer (as estimated based on metered indoor water use). It should be emphasized that this charge is based on indoor water use and not actual wastewater production. This is because Ivins, like most cities, does not measure wastewater production directly, but does collect data on water use. Winter water meter data is used to estimate indoor water use (when irrigation is not occurring).

Table 5
Current Ivins City Sewer Rates

Customer Class	Current Base Rate ($/month)
Residential	$22.11
Commercial/Institutional	$29.00
Customer Class	**Volume Rate ($/1,000)**
Residential	NA
Commercial/Institutional	$1.41

Total annual projected rate revenues based on existing sewer rates are shown in Table 6. It can be seen that the City's current rate schedule is meeting revenue requirements almost exactly. However, the gap between revenue requirements and revenue generated through existing rates widens in future years.

Table 6
Projected Revenue Based on Existing Sewer Rates

	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYW 2023	FYE 2024
Projected Rate Revenue - Existing Rates	$1,199,852	$1,237,052	$1,273,946	$1,312,879	$1,352,925	$1,393,969
Projected Rate Revenue Requirements	$1,193,542	$1,280,738	$1,329,514	$1,380,331	$1,587,186	$1,642,813
Projected Difference	$6,310	($43,686)	($55,568)	($67,452)	($234,261)	($248,844)

RECOMMENDED FUTURE RATES

Based on projected revenue requirements for the City, calculated sewer rates are shown in Table 7. Included in Table 7 is a breakdown of the monthly ERU rate as well as the volume rate for non-residential connections. The adjustment to the non-residential volume rate has been recommended in order to bring the rate more in line with the actual cost to serve these connections (cost-of-service approach). The volume rate has been set equal to 70% of the "equivalent rate" per 1,000 gallons for a typical ERU rate as outlined below:

$$2019\ Rate\ per\ ERU = \frac{\$24.47}{7} = \$3.53\ per\ 1{,}000\ gal \rightarrow \$3.53\ x\ 70\%$$
$$= \$2.45\ per\ 1{,}000\ gallons\ used\ above\ 7{,}000\ gallons$$

It is recommended that the City continue to assess non-residential sewer volume rates based on a winter month water use meter reading, and that this be updated annually.

Table 7
Recommended Monthly Sewer Rates (per ERU)

Monthly Sewer Rate	Current Sewer Rate	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Residential	$24.23	$24.47	$24.72	$24.96	$25.46	$26.10	$26.88
% Increase		1.0%	1.0%	1.0%	2.0%	2.5%	3.0%
Commercial/Institutional (per ERU)*	$29.00	$24.47	$24.72	$24.96	$25.46	$26.10	$26.88
% Increase		-15.6%	1.0%	1.0%	2.0%	2.5%	3.0%
Volume Rate (per 1,000 gallons after 7,000)							
Commercial/Institutional	$1.41	$2.45	$2.47	$2.50	$2.55	$2.61	$2.69
% Increase		74%	0.8%	1.2%	2.0%	2.4%	3.1%

1 ERU = 7,000 gallons of indoor water usage per month

CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis contained in the previous sections of this report, BC&A would recommend the following actions:

Adopt a Change to the Sewer Rate Structure: As outlined in this report, and through coordination with City personnel, it is recommended that the City modify its sewer rate structure to shift a more appropriate cost onto the volume rate for non-residential users. After this change, it is recommended that the City implement small annual rate increases to keep up with inflation and maintain funding at the recommended level.

For comparison purposes, Table 8 shows the existing rates for other communities throughout Utah. As shown in the table, Ivins City sewer rates are on par with other sewer rates in Washington County.

Table 8
Sewer Monthly Rate Comparison

Entity	Monthly Rate ($/month/residence)
Hildale	$ 55.20
Enterprise	$ 44.00
Washington	$ 37.63
Mesquite, NV	$ 26.67
Panguitch	$ 25.00
Ash Creek SSD*	$ 25.00
Ivins	**$ 24.47**
Cedar City	$ 23.00
Springdale/Rockville	$ 21.56
Santa Clara	$ 19.40
Kanab	$ 12.56
St. George	$ 10.68

*Includes Hurricane, La Verkin, and Toquerville

Update This Rate Study Periodically: After the implementation of any change to the rate structure, BC&A suggests that the City monitor customer responses and demand patterns for a period of one or two years. Following this initial observation period, the change should be re-examined to determine if there should be any subsequent adjustments. A comprehensive review of this rate study should also be performed in three to five years. The projections, assumptions, and data contained in this report may need to be revised over time. For these reasons, it is prudent to update sewer rates to ensure they are sufficient to meet system requirements.

APPENDIX A
RATE MODEL TABLES

Table A
10-Year Budget Plan - Sewer

	Historic Years			Projected Years									
	FYE 2015	**FYE 2016**	**FYE 2017**	**FYE 2018**	**FYE 2019**	**FYE 2020**	**FYE 2021**	**FYE 2022**	**FYE 2023**	**FYE 2024**	**FYE 2025**	**FYE 2026**	**FYE 2027**
Total ERUs	3,424	3,347	3,650	3,755	3,862	3,974	4,088	4,206	4,328	4,453	4,582	4,715	4,851
% Growth from Previous Year	-	-2.2%	9.0%	2.9%	2.8%	2.9%	2.9%	2.9%	2.9%	3.0%	3.0%	3.0%	3.0%
Expenditures													
O&M	$509,074	$537,213	$571,411	$597,124	$665,924	$737,819	$771,021	$805,717	$841,974	$879,863	$919,457	$960,832	$1,004,070
Debt Service	$0	$0	$0	$0	$0	$0	$0	$0	$153,930	$153,930	$153,930	$153,930	$153,930
Total Capital Expenditures	$92,007	$94,767	$97,610	$137,000	$54,000	$837,000	$54,000	$2,892,000	$738,000	$758,000	$54,000	$54,000	$60,524
Total Expenditures	*$601,081*	*$631,980*	*$669,021*	*$734,124*	*$719,924*	*$1,574,819*	*$825,021*	*$3,697,717*	*$1,733,904*	*$1,791,793*	*$1,127,387*	*$1,168,762*	*$1,218,523*
Capital Expenditures from Loan Proceeds	$0	$0	$0	$0	$0	$0	$0	$2,202,000	$0	$0	$0	$0	$0
Capital Expenditures from Reserve Funds	$92,007	$94,767	$97,610	$137,000	$54,000	$837,000	$54,000	$690,000	$738,000	$758,000	$54,000	$54,000	$60,524
System Investment Goal	$469,836	$483,805	$498,189	$513,000	$527,618	$542,919	$558,494	$574,615	$591,282	$609,020	$627,291	$646,110	$665,493
Recommended Long-Term Level of Funding	*$978,910*	*$1,021,018*	*$1,069,600*	*$1,110,124*	*$1,193,542*	*$1,280,738*	*$1,329,514*	*$1,380,331*	*$1,587,186*	*$1,642,813*	*$1,700,678*	*$1,760,872*	*$1,823,493*
Income													
Operations Non-Rate	$60,593	$62,411	$64,283	$66,410	$69,398	$72,521	$75,785	$79,195	$82,759	$85,241	$87,799	$90,433	$93,146
Other Non-Rate (Impact Fees)	$76,002	$78,283	$80,631	$78,557	$80,681	$84,739	$87,220	$90,886	$94,640	$97,936	$101,881	$105,931	$109,540
Sales - Existing Rates	$787,068	$810,680	$835,000	$1,020,459	$1,049,772	$1,079,793	$1,110,942	$1,142,798	$1,175,526	$1,210,792	$1,247,116	$1,284,529	$1,323,065
Projected Income - Existing Rates	*$923,663*	*$951,373*	*$979,914*	*$1,165,426*	*$1,199,852*	*$1,237,052*	*$1,273,946*	*$1,312,879*	*$1,352,925*	*$1,393,969*	*$1,436,796*	*$1,480,893*	*$1,525,751*
Sales Revenue With Rate Increase			$835,000	$1,041,270	$1,082,165	$1,123,478	$1,167,605	$1,224,202	$1,289,823	$1,366,843	$1,447,980	$1,533,996	$1,625,185
Projected Income - Recommended Rates			$979,914	$1,186,237	$1,232,245	$1,280,738	$1,330,609	$1,394,284	$1,467,222	$1,550,020	$1,637,660	$1,730,359	$1,827,870

Table A1
Ivins City – Sewer Rate Study
Historic Indoor Water Use

	July 2014 - Jun 2015				July 2015 - Jun 2016				July 2016 - Jun 2017					
	FYE 2015				*FYE 2016*				*FYE 2017*					
Customer Class	**Use (kgal)**	**Flow ERUs**	**Accounts**	**Use per ERU (kgal)**	**Use (kgal)**	**Flow ERUs**	**Accounts**	**Use per ERU (kgal)**	**Use (kgal)**	**Flow ERUs**	**Accounts**	**Use/ERU (kgal/year)**	**Use/Acct. (kgal/year)**	**Use/Acct. (kgal/month)**
Residential	184,544	2,755	2,755	67.0	182,294	2,861	2,861	63.7	187,762	2,947	2,947	63.7	63.7	5.3
Multi	10,172	152	211	67.0	7,940	125	211	63.7	10,172	160	211	63.7	48.2	4.0
Commercial	18,344	274	41	67.0	13,852	217	41	63.7	18,344	288	42	63.7	434.4	36.2
Institutional	16,264	243	64	67.0	9,188	144	64	63.7	16,264	255	66	63.7	246.7	20.6
Total	**229,324**	**3,424**	**3,071**	**67.0**	**213,274**	**3,347**	**3,177**	**63.7**	**232,542**	**3,650**	**3,266**	**63.7**	**71.2**	**5.9**

Table A2a
Ivins City - Sewer Rate Study
Projected Flow ERUs

		Number of ERUs					
Customer Class	**Year**	**FYE 2018**	**FYE 2019**	**FYE 2020**	**FYE 2021**	**FYE 2022**	**FYE 2023**
	% Growth	**3.00%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**
Residential		3,035	3,126	3,220	3,317	3,416	3,519
Multi		160	160	160	160	160	160
Commercial		297	305	315	324	334	344
Institutional		263	271	279	287	296	305
Total		**3,755**	**3,862**	**3,974**	**4,088**	**4,206**	**4,328**

Table A2b
Ivins City - Sewer Rate Study
Projected Accounts

Customer Class	Year	Number of Accounts						
		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
	% Growth	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Residential		3,035	3,126	3,220	3,317	3,417	3,520	3,626
Multi		211	211	211	211	211	211	211
Commercial		43	45	46	48	49	50	52
Industrial		68	70	72	74	76	78	80
Total		**3,357**	**3,452**	**3,549**	**3,650**	**3,753**	**3,859**	**3,969**

Table A3
Ivins City - Sewer Rate Study
Projected Annual Indoor Water Use

Customer Class	Avg. Use/ERU/year	Amount (kgal)						
		FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Residential	64.8	196,687	202,584	208,676	214,962	221,378	228,053	234,923
Multi	64.8	10,369	10,369	10,369	10,369	10,369	10,369	10,369
Commercial	64.8	19,247	19,766	20,414	20,997	21,645	22,293	22,941
Institutional	64.8	17,044	17,562	18,081	18,599	19,183	19,766	20,349
Total		**243,347**	**250,282**	**257,540**	**264,928**	**272,575**	**280,481**	**288,582**

Table A4
Ivins City - Sewer Rate Study
Projected Daily Total Wastewater Flow

	2017
Peak Month Wastewater Flow (mgd) =	**0.62**

Customer Class		Amount (mgd) FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Residential		0.50	0.51	0.53	0.55	0.56	0.58	0.60
Multi		0.03	0.03	0.03	0.03	0.03	0.03	0.03
Commercial		0.05	0.05	0.05	0.05	0.06	0.06	0.06
Institutional		0.04	0.04	0.05	0.05	0.05	0.05	0.05
Total		**0.62**	**0.64**	**0.66**	**0.68**	**0.70**	**0.72**	**0.74**

Table A5
Ivins City - Sewer Rate Study
Peaking Factors

Customer Class	Est. Peak Hour Factor
Residential	2.05
Multi	2.05
Commercial	2.05
Institutional	2.05

Table A6
Ivins City - Sewer Rate Study
Projected Flow Peaking Characteristics

Customer Class	Estimated Peak Hour (mgd) FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Residential	1.02	1.05	1.09	1.12	1.15	1.19	1.22
Multi	0.05	0.06	0.06	0.06	0.06	0.06	0.06
Commercial	0.10	0.10	0.11	0.11	0.11	0.12	0.12
Institutional	0.09	0.09	0.09	0.10	0.10	0.10	0.11
Total	**1.27**	**1.31**	**1.34**	**1.38**	**1.43**	**1.47**	**1.51**

Customer Class	Peak Hour Excess Over Average Day (mgd) FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Residential	0.52	0.54	0.56	0.57	0.59	0.61	0.63
Multi	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Commercial	0.05	0.05	0.05	0.06	0.06	0.06	0.06
Institutional	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Total	**0.65**	**0.67**	**0.69**	**0.71**	**0.73**	**0.75**	**0.77**

Table A7
Ivins City - Sewer Rate Study
Strength

Customer Class	BOD[1] (mg/L)	TSS[1] (mg/L)
Residential	250	250
Multi	250	250
Commercial	250	250
Institutional	250	250
Approximate Cost Division	50%	50%

Table A8
Ivins City - Sewer Rate Study
Projected Strength Characteristics

	BOD (lbs/year)						
Customer Class	**FYE 2018**	**FYE 2019**	**FYE 2020**	**FYE 2021**	**FYE 2022**	**FYE 2023**	**FYE 2024**
Residential	380,194	391,600	403,348	415,449	427,912	440,749	453,972
Multi	20,043	20,644	21,264	21,902	22,559	23,236	23,933
Commercial	37,205	38,321	39,471	40,655	41,875	43,131	44,425
Institutional	32,946	33,934	34,952	36,001	37,081	38,193	39,339
Total	**470,388**	**484,499**	**499,035**	**514,007**	**529,427**	**545,309**	**561,669**

	TSS (lbs/year)						
Customer Class	**FYE 2018**	**FYE 2019**	**FYE 2020**	**FYE 2021**	**FYE 2022**	**FYE 2023**	**FYE 2024**
Residential	380,194	391,600	403,348	415,449	427,912	440,749	453,972
Multi Family	20,043	20,644	21,264	21,902	22,559	23,236	23,933
Commercial	37,205	38,321	39,471	40,655	41,875	43,131	44,425
Institutional	32,946	33,934	34,952	36,001	37,081	38,193	39,339
Total	**470,388**	**484,499**	**499,035**	**514,007**	**529,427**	**545,309**	**561,669**

	Weighted Average (lbs/year)						
Customer Class	**FYE 2018**	**FYE 2019**	**FYE 2020**	**FYE 2021**	**FYE 2022**	**FYE 2023**	**FYE 2024**
Residential	380,194	391,600	403,348	415,449	427,912	440,749	453,972
Multi Family	20,043	20,644	21,264	21,902	22,559	23,236	23,933
Commercial	37,205	38,321	39,471	40,655	41,875	43,131	44,425
Institutional	32,946	33,934	34,952	36,001	37,081	38,193	39,339
Total	**470,388**	**484,499**	**499,035**	**514,007**	**529,427**	**545,309**	**561,669**

Table A9
Ivins City - Sewer Rate Study
Impact Fee Revenue

Size of Meter	Impact Fee ($/ERU)		Projected FYE 2018	Projected FYE 2019	Projected FYE 2020	Projected FYE 2021	Projected FYE 2022	Projected FYE 2023	Projected FYE 2024
Collections Impact Fee	$551.61		$58,124	$59,022	$61,780	$62,884	$65,090	$67,296	$68,951
Total Impact Fee Revenue			**$58,124**	**$59,022**	**$61,780**	**$62,884**	**$65,090**	**$67,296**	**$68,951**

Table B1
Ivins City - Sewer Rate Study
Non-Rate Revenue (Including Impact Fees)

Assumed Inflation Rate = 3.0%

Item	2017 Budget	Projected FYE 2018	Projected FYE 2019	Projected FYE 2020	Projected FYE 2021	Projected FYE 2022	Projected FYE 2023	Projected FYE 2024
Operations Non-Rate Revenue								
Sewer Connection Fees	$63,550	$66,410	$69,398	$72,521	$75,785	$79,195	$82,759	$86,483
Total Operations Non-Rate Revenue	$63,550	$66,410	$69,398	$72,521	$75,785	$79,195	$82,759	$86,483
Non-Operations Non-Rate Revenue								
Impact Fees	$60,000	$58,124	$59,022	$61,780	$62,884	$65,090	$67,296	$68,951
Interest Earnings	$3,798	$3,550	$3,763	$3,989	$4,228	$4,482	$4,751	$5,036
Miscellaneous	$16,833	$16,883	$17,896	$18,970	$20,108	$21,314	$22,593	$23,949
Total Non-Operations Non-Rate Revenue	$80,631	$78,557	$80,681	$84,739	$87,220	$90,886	$94,640	$97,936
Total Non-Rate Revenue	**$144,181**	**$144,967**	**$150,079**	**$157,260**	**$163,004**	**$170,081**	**$177,399**	**$184,419**

Table B2
Ivins City – Sewer Rate Study
Non-Rate Revenue (Including Impact Fees)

Item	2017 Budget	Projected FYE 2018	Projected FYE 2019	Projected FYE 2020	Projected FYE 2021	Projected FYE 2022
Operating Expenses						
Salaries & Wages	$131,325	$137,235	$169,675	$203,575.57	$212,736	$222,310
Overtime	$3,947	$4,125	$5,100	$6,118.51	$6,394	$6,682
Employee Benefits	$60,415	$63,134	$78,058	$93,653.29	$97,868	$102,272
Employee Taxes	$13,956	$14,584	$18,032	$21,634.12	$22,608	$23,625
Uniform & Safety Equipment	$1,038	$1,085	$1,134	$1,185	$1,238	$1,294
Outside Counsel - Legal	$1,907	$1,993	$2,082	$2,176	$2,274	$2,376
Books, Subscripts, Memberships	$2,109	$2,204	$2,303	$2,407	$2,515	$2,628
Software	$6,914	$7,225	$7,550	$7,890	$8,245	$8,616
Public notices	$2,158	$2,255	$2,357	$2,463	$2,573	$2,689
Travel & Lodging	$1,780	$1,860	$1,944	$2,031	$2,123	$2,218
Office Supplies	$5,787	$6,047	$6,320	$6,604	$6,901	$7,212
Equipment - Supplies & Maint	$2,277	$2,379	$2,487	$2,598	$2,715	$2,838
Equipment Rental	$3,350	$3,501	$3,658	$3,823	$3,995	$4,175
Vehicle Maintenance	$1,419	$1,483	$1,550	$1,619	$1,692	$1,768
Gas/Oil/Diesel	$5,626	$5,879	$6,144	$6,420	$6,709	$7,011
Bldgs & Grounds - Supplies/Mnt	$3,245	$3,391	$3,544	$3,703	$3,870	$4,044
Utilities	$3,244	$3,390	$3,543	$3,702	$3,869	$4,043
Telephone	$4,805	$5,021	$5,247	$5,483	$5,730	$5,988
Professional & Technical	$8,819	$9,216	$9,631	$10,064	$10,517	$10,990
Accounting Services	$3,180	$3,323	$3,473	$3,629	$3,792	$3,963
Contract Services	$8,788	$9,183	$9,597	$10,029	$10,480	$10,951
St. George Sewer Treatment Plant	$279,106	$291,666	$304,791	$318,506	$332,839	$347,817
Education & Training	$2,339	$2,444	$2,554	$2,669	$2,789	$2,915
Materials & Supplies	$857	$896	$936	$978	$1,022	$1,068
Insurance & Surety Bonds	$6,875	$7,184	$7,508	$7,846	$8,199	$8,568
Miscellaneous	$1,845	$1,928	$2,015	$2,105	$2,200	$2,299
Bankcard Fees	$4,300	$4,494	$4,696	$4,907	$5,128	$5,359
Newsletter	$0	$0	$0	$0	$0	$0
Total O&M	**$571,411**	**$597,124**	**$665,924**	**$737,819**	**$771,021**	**$805,717**

Debt Service						
Interest on Capital Lease	$0	$0	$0	$0	$0	$0
Public Works Building Debt Service	$0	$0	$0	$0	$0	$0
Total Debt Service	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Expansion and Replacement	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022
Collection System Rehab and Replacement	$0	$0	$0	$0	$0	$0
Capital Outlay - Equipment	$56,600	$50,000	$50,000	$50,000	$50,000	$50,000
Capital Outlay - Other	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000
Capital Outlay - Vehicles	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Sewer Master Plan	$50,000	$0	$0	$0	$0	$60,000
Tuachan Wash Sewer Transmission Line Repairs	$0	$83,000	$0	$0	$0	$0

Table A17
Ivins City - Sewer Rate Study
Existing Rates and Projected Revenue

Base Rate / Month	Existing	Accounts	ERUs	Effective Rate Per ERU	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023
Residential	$ 24.23	3,035	2,947	$ 24.95	$ 24.23	$ 24.23	$ 24.23	$ 24.23	$ 24.23
Multi Family	$ 24.23	211	160	$ 32.02	$ 24.23	$ 24.23	$ 24.23	$ 24.23	$ 24.23
Commercial	$ 29.00	43	288	$ 4.33	$ 29.00	$ 29.00	$ 29.00	$ 29.00	$ 29.00
Institutional	$ 29.00	68	255	$ 7.73	$ 29.00	$ 29.00	$ 29.00	$ 29.00	$ 29.00

Meter Size	FYE 2018
Residential	$ 882,
Multi Family	$ 61,
Commercial	$ 14,
Institutional	$ 23,

Volume Rate / kgal	Existing				FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023
Residential	$ -				$ -	$ -	$ -	$ -	$ -
Multi	$ -				$ -	$ -	$ -	$ -	$ -
Commercial	$ 1.41				$ 1.41	$ 1.41	$ 1.41	$ 1.41	$ 1.41
Institutional	$ 1.41				$ 1.41	$ 1.41	$ 1.41	$ 1.41	$ 1.41

	FYE 2018
Residential	$
Multi Family	$
Commercial	$ 22,
Institutional	$ 15,

Revenue - Existing Rates										Revenue - Existing Rates	$ 1,020,
Revenue Required										Net Revenue Required from Rates	$ 1,020,
Surplus/(Shortfall)										Revenue Surplus/(Shortfall)	$

Table A18
Ivins City – Sewer Rate Study
Recommended Monthly Sewer Rates (per ERU)

Monthly Sewer Rate	Current Sewer Rate	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Residential	$24.23	$24.47	$24.72	$24.96	$25.46	$26.10	$26.88
% Increase		1.0%	1.0%	1.0%	2.0%	2.5%	3.0%
Commercial/Institutional (per ERU)*	$29.00	$24.47	$24.72	$24.96	$25.46	$26.10	$26.88
% Increase		-15.6%	1.0%	1.0%	2.0%	2.5%	3.0%
Volume Rate (per 1,000 gallons after 7,000)							
Commercial/Institutional	$1.41	$2.45	$2.47	$2.50	$2.55	$2.61	$2.69
% Increase		74%	0.8%	1.2%	2.0%	2.4%	3.1%

1 ERU = 7,000 gallons of indoor water usage per month

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