



PREPARED FOR:

PREPARED BY:



CENTRAL WEBER SEWER  
IMPROVEMENT DISTRICT

JANUARY 2024

SEWER IMPACT FEE FACILITIES PLAN  
&  
SEWER IMPACT FEE ANALYSIS

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# SEWER IMPACT FEE FACILITIES PLAN

January 2024

Prepared for:



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## EXECUTIVE SUMMARY SEWER IMPACT FEE FACILITIES PLAN

The purpose of an Impact Fee Facilities Plan (IFFP) is to identify demands placed upon District facilities by future development and evaluate how these demands will be met by the District. The IFFP is also intended to outline the improvements which may be funded through impact fees.

### WHY IS AN IFFP NEEDED

The IFFP provides a technical basis for assessing updated impact fees throughout the District. This document addresses the future infrastructure needed to serve the District. The existing and future capital projects documented in this IFFP will ensure that level of service standards are maintained for all existing and future residents who reside within the service area. Local governments must pay strict attention to the required elements of the Impact Fee Facilities Plan which are enumerated in the Impact Fees Act.

### PROJECTED FUTURE GROWTH

Before evaluating system capacity, it is first necessary to calculate the demand associated with existing development and projected growth. Using available information for existing development and growth projections from the District's Collection System Master Plan, projected growth in system demand is summarized in Table ES-1 in terms of total flow and corresponding Equivalent Residential Units (ERUs).

**Table ES-1  
District Service Area Projections**

Year	Service Area ERUs <sup>1</sup>	Estimated Base Sanitary Flow (MGD <sup>3</sup> )	High Infiltration Max Month (MGD)	Estimated Dry Weather Sewer Flows (MGD)
2022	110,988	22.02	25.81	47.83
2025	119,960	23.80	26.18	49.98
2030	132,006	26.19	26.76	52.95
2032	136,643	27.11	26.98	54.09
2035	143,498	28.47	27.31	55.78
2040	153,931	30.54	27.82	58.36
2050	170,363	33.80	28.60	62.40
Buildout <sup>2</sup>	189,718	37.64	29.53	67.17

<sup>1</sup> Note that values are taken from Table 2-1 from the CWSID Wastewater Master Plan (March 2023, Bowen Collins & Associates) but vary slightly because some of the communities listed in Table 2-1 are not currently connected to the system.

<sup>2</sup> Buildout values shown do not include the potential Weber West 2 service area.

<sup>3</sup> MGD = Million Gallons per Day

An ERU represents the demand that a typical single-family residence places on the system. The basis of an ERU for historical flow rates is summarized in Table ES-2.

**Table ES-2  
Service Area Historic Flows**

Item	Value for Existing Conditions
Equivalent Residential Units (ERUs)	110,988
Domestic Wastewater Production (MGD)	22.02
Infiltration, Maximum Month (MGD)	25.81
Average Day, Maximum Month Flow (MGD)	47.83
<b>Flows per ERU in Gallons Per Day (gpd)</b>	
Domestic Wastewater Production (gpd/ERU)	198.4
Average Day, Maximum Month Flow (gpd/ERU)	430.9
Average Indoor Water Use (gpd/ERU)	220.4

### LEVEL OF SERVICE

Level of service is defined in the Impact Fees Act as “the defined performance standard or unit of demand for each capital component of a public facility within a service area”. Summary values for both existing and proposed levels of service are contained in Table ES-3.

**Table ES-3  
Level of Service for Various System Requirements**

	Existing Level of Service	Proposed Level of Service
<b>Pipeline Capacity</b>		
Maximum Ratio of Peak Flow <sup>1</sup> to Full-Pipe Flow / Percent of Collection System that Meets the Standard	0.75/97.98%	0.75/100%
<b>Treatment Capacity</b>		
Average Day, Maximum Month Flow (gpd/ERU)	430.9	231.4

<sup>1</sup> Peak hour, dry weather flow

### EXISTING CAPACITY AVAILABLE TO SERVE FUTURE GROWTH

Projected future growth will be met through a combination of available excess capacity in existing facilities and construction of additional capacity in new facilities. Defining existing system capacity in terms of a single number is difficult. To improve the accuracy of the analysis, the system was divided into two different components (collection and treatment). Excess capacity in each component of the system is summarized in Table ES-4.

**Table ES-4  
Available Excess Capacity**

<b>Use Category</b>	<b>Collection System Percent Use</b>	<b>Treatment Percent Use</b>	<b>Collection System Excess Capacity Cost</b>	<b>Treatment Excess Capacity Cost</b>
Existing Use	56.88%	87.98%	\$29,452,803	\$165,638,844
Use By 10-Year Growth	12.67%	6.86%	\$6,562,012	\$12,911,107
Use By Growth Beyond 10 years	30.45%	5.16%	\$15,769,785	\$9,714,267
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>\$51,784,599</b>	<b>\$188,264,218</b>

### **REQUIRED SYSTEM IMPROVEMENTS**

Beyond available existing capacity, additional improvements required to serve new growth are summarized in Table ES-5. To satisfy the requirements of state law, Table ES-5 provides a breakdown of the percentage of the project costs attributed to existing and future users. For future use, capacity has been divided between capacity to be used by growth within the 10-year planning horizon of this IFFP and capacity that will be available for growth beyond the 10-year horizon.

**Table ES-5  
Project Costs Allocated to Projected Development, 10 Year Planning Horizon**

Year	Project	Total Project Cost	Percent to Existing	Percent to 10 Year Growth	Percent to Growth 2033 through Buildout	Cost to Existing	Cost to 10 Year Growth	Cost to Growth 2033 through Buildout
<i>Collection System Projects</i>								
2024	West Haven Mainline	\$11,516,000	32.67%	29.76%	37.57%	\$3,761,855	\$3,427,223	\$4,326,922
2024	Hooper Lining Phase II	\$7,552,010	38.48%	10.97%	50.55%	\$2,905,718	\$828,541	\$3,817,751
2026	South Ogden Stubline	\$1,735,000	74.99%	12.40%	12.62%	\$1,301,003	\$215,117	\$218,880
2028	30 <sup>th</sup> St. Force Main	\$639,000	68.31%	14.35%	17.35%	\$436,483	\$91,679	\$110,838
2032	Ogden 30 <sup>th</sup> Street Mainline	\$8,879,000	44.99%	24.89%	30.12%	\$3,994,343	\$2,210,043	\$2,674,614
	<b>Subtotal - Collection</b>	<b>\$30,321,010</b>				<b>\$12,399,402</b>	<b>\$6,772,603</b>	<b>\$11,149,005</b>
<i>Treatment Plant Projects</i>								
2023-26	Phase 2 Improvements - Liquid Treatment Train	\$87,000,000	0.00%	57.06%	42.94%	\$0	\$49,646,308	\$37,353,692
2023-26	Phase 2 Improvements - UV Disinfection	\$6,000,000	81.34%	10.65%	8.01%	\$4,880,612	\$638,776	\$480,612
2029-30	Primary Clarifiers 3 & 4, raw sludge, primary sludge, and scum pumps	\$24,800,000	0.00%	0.00%	100.00%	\$0	\$0	\$24,800,000
2029-33	Gravity belt thickener No. 3 and progressive cavity cake pumps	\$2,000,000	0.00%	0.00%	100.00%	\$0	\$0	\$2,000,000
2029-33	Flare Relocation	\$750,000	81.34%	10.65%	8.01%	\$610,077	\$79,847	\$60,077
2029-33	TF Digesters and Digester Control Building Seismic Investigation	\$50,000	81.34%	10.65%	8.01%	\$40,672	\$5,323	\$4,005
2029-33	Recoat Dewatering Framing/Ceiling	\$150,000	81.34%	10.65%	8.01%	\$122,015	\$15,969	\$12,015
2029-33	Fermentation/Co-Thickening Study	\$150,000	81.34%	10.65%	8.01%	\$122,015	\$15,969	\$12,015
	<b>Subtotal - Treatment</b>	<b>\$120,900,000</b>				<b>\$5,775,391</b>	<b>\$50,402,192</b>	<b>\$64,722,416</b>
	<b>Total</b>	<b>\$151,221,010</b>				<b>\$18,174,793</b>	<b>\$57,174,795</b>	<b>\$75,871,422</b>



## IMPACT FEE FACILITIES PLAN

### INTRODUCTION

Central Weber Sewer Improvement District has retained Bowen Collins & Associates (BC&A) to prepare an Impact Fee Facilities Plan (IFFP) for sewer collection services provided by the District. The purpose of an IFFP is to identify demands placed upon District facilities by future development and evaluate how these demands will be met by the District. The IFFP is also intended to outline the improvements which may be funded through impact fees.

Much of the analysis forming the basis of this IFFP has been taken from the District's Wastewater Master Plan (March 2023, Bowen Collins & Associates and Carollo). The reader should refer to that document for additional discussion of planning and evaluation methodology beyond what is contained in this report.

### SERVICE AREA

For the purpose of impact fee calculations, the District system will be treated as a single service area. Use of a single service area is based on sound planning and engineering principles. Specifically, the District operates and administers the service area as a single system, it provides the same general level of service across its system, and there are no areas of the service area where extraordinary costs need to be considered separately.

### IMPACT FEE FACILITY PLAN COMPONENTS

Requirements for the preparation of an IFFP are outlined in Title 11, Chapter 36a of the Utah Code Annotated (the Impact Fees Act). Under these requirements, an IFFP shall accomplish the following for each facility:

1. Identify the existing level of service
2. Establish a proposed level of service
3. Identify excess capacity to accommodate future growth at the proposed level of service
4. Identify demands placed upon existing public facilities by new development
5. Identify the means by which demands from new development will be met
6. Consider the following additional issues
  - a. revenue sources to finance required system improvements
  - b. necessity of improvements to maintain the proposed level of service
  - c. need for facilities relative to planned locations of schools

The following sections of this report have been organized to address each of these requirements.

### **EXISTING LEVEL OF SERVICE – UTAH CODE ANNOTATED 11-36a-302(1)(a)(i)**

Level of service is defined in the Impact Fees Act as “the defined performance standard or unit of demand for each capital component of a public facility within a service area”. This section discusses the level of service being currently provided to existing users.

## Unit of Demand

For the purposes of this analysis, it is useful to define these various demands in terms of Equivalent Residential Units (ERUs). The number of ERUs in the District and the flow rate basis of an ERU for historic flows in million gallons per day (MGD) were calculated in the Wastewater Master Plan as summarized in Table 1.

**Table 1**  
**Service Area Historic Flows and Definition of an ERU**

Item	Value for Existing Conditions
Equivalent Residential Units (ERUs)	110,988
Base Sanitary Wastewater Production (MGD)	22.02
Infiltration, Maximum Month (MGD)	25.81
Average Day, Maximum Month Flow (MGD)	47.83
<b>Flows per ERU in Gallons Per Day (gpd)</b>	
Base Sanitary Wastewater Production (gpd/ERU)	198.4
Average Day, Maximum Month Flow (gpd/ERU)	430.9
Average Indoor Water Use (gpd/ERU)	220.4

Included in the table is the definition of an existing ERU in terms of both base sanitary flows and infiltration. While base sanitary flow is expected to be approximately the same for future conditions, historic infiltration is much higher than is expected in the future (as will be discussed subsequently). Dividing the flow between these components and projecting them independently allows the impact of future growth to be most accurately assessed.

Values in the table represent average day demands. Variability in base sanitary flow throughout the day means that peak flows will be much higher. This is important to understand because the flow value used to design and evaluate system components will vary depending on the nature of each component. For example, most wastewater treatment facility processes are designed based on average day, maximum month flow. Conversely, conveyance pipelines must be designed based on peak hour flow (function of daily flow and diurnal flow variation). Although peak flows have been calculated and used to evaluate the use of capacity in the system, peak flow values per ERC are not shown here because they vary throughout the system depending on the location and nature of each facility being evaluated (see Wastewater Master Plan for additional discussion of diurnal curves and peak flows).

## Performance Standard

Performance standards are those standards that are used to design and evaluate the performance of facilities. This section discusses the existing performance standards for the District.

To improve the accuracy of the analysis, this Impact Fee Facilities Plan has divided the system into two different components (pipeline capacity and treatment capacity). Each of these components has its own set of performance standards:

**Pipeline Capacity.** District engineering standards require that all sewer mains be designed such that the peak flow in the pipe is less than or equal to 75 percent of the pipe's capacity. For gravity

pipelines, pipe capacity is defined as the full-pipe flow using a Manning's roughness factor<sup>1</sup> of 0.013. For force mains, pipe capacity is defined as the flow at 7 feet per second. This design standard was used as the level of service for system evaluation.

**Wastewater Treatment Facility Capacity.** A wastewater treatment facility consists of a large number of different components. Each component may have different criteria for design depending on the nature of the component. For the majority of treatment related components, design is based on treating the average daily flow during the maximum month.

One important consideration is the upcoming total phosphorous permit requirements of the State that will be implemented January 1, 2025. As part of Phase 1 improvements completed in recent years, the District has constructed new improvements to utilize chemical additives (aluminum sulfate or ferric chloride) to effectively remove additional total phosphorous from the effluent stream. The District's Phase 1 improvements also successfully improved reliability and redundancy at its power plant, improved metering to its trickling filters and implemented UV disinfection. With the improvements, the existing performance standard can generally be described as providing treatment capacity sufficient to treat the historic maximum month, average day flow of 430.9 gpd/ERU as identified in Table 1, including treatment of all peak flows without exceeding the District's permit standards.

### Existing Level of Service Summary

Existing level of service values as discussed above are summarized in Table 2 below.

**Table 2**  
**Existing Level of Service for Various System Requirements**

	Existing Level of Service
<b>Pipeline Capacity</b>	
Maximum Ratio of Peak Flow <sup>1</sup> to Full-Pipe Flow / Percent of Collection System that Currently Meets the Standard	0.75/97.98%
<b>Treatment Capacity</b>	
Capacity Required for Existing Connections – Average Day, Maximum Month Flow (gpd/ERU)	430.9

<sup>1</sup> Peak hour

As shown in the table, a small percentage (2%) of the District's sewer pipeline system falls below the desired performance standard and indicates there is at least some deficiency in the existing system. However, this deficiency is associated with a small number of pipelines in the existing system and excess capacity still exists in other parts of the system. Excess capacity and curing of deficiencies will be discussed in subsequent sections of this report. Costs for projects to correct deficiencies that do not meet the required level of service will not be included as part of the impact fee, consistent with the Impact Fees Act.

<sup>1</sup> Manning's roughness is an empirical measure of roughness or friction used to calculate hydraulic capacity.

## **PROPOSED LEVEL OF SERVICE - UTAH CODE ANNOTATED 11-36a-302(1)(a)(ii)**

The proposed level of service is the performance standard used to evaluate system needs in the future. The Impact Fee Act indicates that the proposed level of service may:

1. diminish or equal the existing level of service; or
2. exceed the existing level of service if, independent of the use of impact fees, the District implements and maintains the means to increase the level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service.

The proposed future level of service will be equal to the desired performance standard in most cases. However, there are two changes in the proposed level of service that should be noted.

### **Increased Treatment Capabilities**

First, there are a couple of changes that will be implemented at the District's wastewater treatment facility that constitute an improvement to the existing level of service:

- **Flare Relocation:** The District will be relocating the flare to better meet ANSI/CSA safety guidelines.
- **Dewatering Corrosion Protection:** Joist and decking materials in the dewatering building will be coated to protect these areas from corrosion.

These projects constitute new level of service components in the plant that will benefit existing and future users alike. Increases in the level of service for the District will be funded in accordance with the requirements of the Impact Fees Act. As a result, projects associated with these improvements will be paid for by all users proportional to their use.

### **Reduced Infiltration for Future Connections**

As can be seen in Table 1, existing flows observed in the District's system include an unusually high amount of infiltration. The source of this infiltration is not exactly known. While some of it certainly comes from the District's pipelines, it is likely that the majority originates in the city and other local government retail collection systems served by the District.

Regardless of the exact point of origin, high infiltration in the area is not unexpected as the District serves a number of areas with high groundwater. It also has a development density lower than many other similarly sized districts which results in a higher amount of sewer pipe per ERU and a corresponding increase in infiltration per ERU. These issues aside, another large contributor to infiltration in the District is the age and condition of existing facilities. Much of the District was built before the advent of modern materials including manhole boots and pipe gaskets that limit the amount of infiltration that can get in the pipe. Regardless of the other challenges the District faces, future construction is expected to have a lower rate of infiltration as a result of new construction materials and techniques.

This reality was recognized in the Wastewater Master Plan and accounted for by reducing infiltration to the estimated infiltration rate for modern construction or approximately 33.0 gpd/ERU<sup>2</sup>. This reduces the Average Day, Maximum Month Flow from 430.9 gpd/ERU to 231.4 gpd/ERU.

<sup>2</sup> Based on an infiltration rate of 400 gpd/inch-mile of installed pipeline and average collection pipe densities for developed areas along the Wasatch Front.

## Proposed Level of Service Summary

The resulting proposed level of service for the District is summarized in Table 3.

**Table 3**  
**Proposed Level of Service for Various System Requirements**

	Proposed Level of Service
<b>Pipeline Capacity</b>	
Maximum Ratio of Depth <sup>1</sup> to Pipeline Diameter/Percent of Collection System that Meets the Standard	0.75/100%
<b>Treatment Capacity</b>	
Capacity Required for Future Connections – Average Day, Maximum Month Flow (gpd/ERU)	231.4

<sup>1</sup> Peak hour

## EXCESS CAPACITY TO ACCOMMODATE FUTURE GROWTH - UTAH CODE ANNOTATED 11-36a-302(1)(a)(iii)

Because most of the sewer collection facilities within the District have adequate or excess capacity through the long-term planning horizon of the District, capacity for most future growth will be met through available excess capacity in existing facilities. There are two components of assets to discuss within the District: collection system facilities and treatment facilities. Excess capacity in the collection and treatment facilities are described as follows:

### Collection

To calculate the percentage of existing capacity to be used by future growth in existing facilities, existing and future flows were examined in the system model for each collection pipeline. The method used to calculate excess capacity available for use by future flows is as follows:

- 1. Calculate Flows** – The peak flow in each facility was calculated in the model for both existing and future flows. The available capacity at 75 percent of full-flow capacity for gravity pipelines and 7 feet per second for force mains was also calculated.
- 2. Identify Available Capacity** – Where a facility has capacity in excess of projected flows at buildout, the available capacity in the facility was defined as the difference between existing flows and buildout flows. Where the facility has capacity less than projected flows at buildout, the available capacity in the facility was defined as the difference between existing flows and the facility's maximum capacity.
- 3. Eliminate Facilities without Excess Capacity** – For the 10-year planning horizon period, the projected growth in flow was compared against the facility's available capacity. Where the future flow exceeded the capacity of the facility, the available excess capacity was assumed to be zero. By definition, this corresponds to those facilities with deficiencies that are identified in the facilities plan. By assigning a capacity of zero, this eliminated double counting those facilities against new users.
- 4. Calculate Percent of Excess Capacity Used in Remaining Facilities** – Where the future flow was less than the capacity of the facility, the percent of excess capacity being used in each facility was calculated by dividing the growth in flow in the facility (future flow less

existing flow) by the total capacity (existing flow plus available capacity).

5. **Calculate Excess Capacity for the System as a Whole** – Each pipeline in the system has a different quantity of excess capacity to be used by future growth. To develop an estimate of excess capacity on a system wide basis, the capacities of each of these pipelines and their contribution to the system as a whole must be considered. To do this, each pipeline must first be weighted based on its relative capacity in the system. For this purpose, each pipeline has been weighted based on the product of its diameter and length. For example, a pipe that is 36 inches in diameter and is 4,000 feet long will cost proportionally more than a pipe that is 10 inches in diameter and 300 feet long. The excess capacity in the system as a whole can then be calculated as the sum of the weighted capacity used by future growth divided by the sum of total weighted capacity in the system.

Based on the method described above, the amount of excess capacity in existing facilities available to accommodate future growth and the demands placed on the existing facilities by new development activity has been calculated for each element in the system by BC&A. This is summarized in Table 4. It will be noted that separate values have been provided for multiple different components in the system. System facilities construction prior to 2018 have been grouped as the information needed to provide further breakdown by individual projects is not available. However, for projects completed since 2018, detailed information does exist for each facility and the excess capacity analysis has been broken out accordingly.

**Table 4  
Collection System Excess Capacity**

Facility	Asset Cost	Existing Use	Use by 10-Year Growth	Use By Growth Beyond 10 Years	Cost to Existing	Cost to 10-Year Growth	Cost to Growth 2033 through Build-Out
Pre 2018 System Improvements	\$35,489,790	66.65%	11.74%	21.62%	\$23,652,329	\$4,165,676	\$7,671,784
Burch Creek Improvement	\$2,105,194	80.51%	13.49%	6.00%	\$1,694,970	\$283,946	\$126,279
Farr West Force Main/Gravity Line Improvement	\$9,346,343	23.24%	15.37%	61.39%	\$2,172,404	\$1,436,161	\$5,737,778
Hooper Lining Phase I	\$4,843,272	39.91%	13.96%	46.12%	\$1,933,099	\$676,229	\$2,233,944
<b>Total</b>	<b>\$51,784,599</b>	<b>56.88%</b>	<b>12.67%</b>	<b>30.45%</b>	<b>\$29,452,803</b>	<b>\$6,562,012</b>	<b>\$15,769,785</b>

### Treatment

A number of years ago, the District needed to make some decisions regarding capacity at its treatment plant. After evaluating several options, the District opted to pursue a phased approach to meet projected treatment requirements. Under this approach, the first phase of the improvements has been using two treatment trains in tandem to meet both capacity needs and State of Utah requirements for nutrient removal. Most flow in the District is routed through an improved activated sludge system to remove nutrients with smaller flow directed to the trickling filter. The flows are then blended on the backside of the liquid treatment train and, with a little help from chemical treatment, are able to meet the State of Utah's discharge permit requirements under both dry and

wet weather conditions. Unfortunately, the existing facilities are at the very edge of their practical limit and must shortly be expanded as part of identified Phase 2 improvements.

As identified in the District's new master plan, the bottleneck for capacity in Phase 2 is the liquid treatment train. Phase 2 improvements will primarily involve construction of an additional activated sludge treatment train. Addition of these improvements will increase reliable capacity at the plant from the current planning flow of 47.83 mgd to a max month average day capacity of 58.8 mgd.

Based on this understanding and projected flows in the District service area, the existing treatment plant capacity components can be allocated by type of use as follows (summarized in Table 5).

- **Pre-2018 Treatment Plant Improvements – Headworks, Solids Treatment & Handling, and Ancillary Facilities:** Outside of the liquid treatment train (see below), the facilities at the plant have a reliable max month average day capacity of 58.8 mgd. Excess capacity can be calculated based on the proportional use of the 58.8 mgd of capacity. Historic costs associated with facilities at the plant (prior to 2018) are \$176,751,226<sup>3</sup>. It is estimated that approximately 40 percent<sup>4</sup> of this total (\$70.7 million) is associated with facilities in the liquid treatment train, leaving the remaining 60 percent of the plant value (\$106 million) associated with this category.
- **Pre-2018 Treatment Plant Improvements – Liquid Treatment Train:** The current liquid treatment train (including use of the trickling filters for a portion of flow) is just barely able to meet permit requirements at peak flow. Thus, the reliable max month average day capacity is functionally equal to the existing planning flow of 47.83 mgd. Correspondingly, there is not excess capacity associated with this category and no portion of these costs should be attributed to future growth.
- **Phosphorus Removal Facilities:** Since 2018, several improvements have been completed (historically referred to as Phase 1 improvements). The majority of these improvements have been for phosphorus removal in the liquid treatment and have been designed and constructed to serve the full future capacity of 58.8 mgd. Excess capacity can be calculated based on the proportional use of the 58.8 mgd of capacity.
- **Sludge Handling Expansion:** The other category of improvements completed as part of Phase 1 improvements was an expansion of the sludge handling system. This project includes costs associated with adding capacity for future growth in the solids treatment. The estimated capacity of the sludge handling facilities prior to the improvements was 43 mgd. Thus, allocation of capacity to the various user categories has been based on proportional use of the increase in capacity from 43 mgd to 58.8 mgd achieved through these improvements (i.e. 15.8 mgd expansion in capacity).

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<sup>3</sup> Based on documented purchase price of existing impact fee eligible assets. Excludes all assets programmed to be replaced or abandoned during the impact fee planning window.

<sup>4</sup> Based on industry estimates and BC&A experience with construction bid tabulations that contain a breakout of liquid treatment components.

**Table 5  
Wastewater Treatment Facility Excess Capacity**

	<b>Total Capacity / Asset Value</b>	<b>Existing Use of Capacity</b>	<b>Use by 10-Year Growth</b>	<b>Use By Growth Beyond 10 Years</b>
<b><i>Flows (mgd)</i></b>				
Pre-2018 Treatment Plant Improvements – Headworks, Solids Treatment & Handling, and Ancillary Facilities	58.8	47.83	6.26	4.71
Pre-2018 Treatment Plant Improvements – Liquid Treatment Train	47.83	47.83	0	0.0
Phosphorous Removal Facilities	58.8	47.83	6.26	4.71
Sludge Handling Expansion	15.8	4.83	6.26	4.71
<b><i>Percent Use of Capacity</i></b>				
Pre-2018 Treatment Plant Improvements – Headworks, Solids Treatment & Handling, and Ancillary Facilities	\$106,050,736	81.34%	10.65%	8.01%
Pre-2018 Treatment Plant Improvements – Liquid Treatment Train	\$70,700,490	100.00%	0.00%	0.00%
Phosphorous Removal Facilities	\$10,149,810	81.34%	10.65%	8.01%
Sludge Handling Expansion	\$1,363,183	30.57%	39.62%	29.81%
<b>Total</b>	<b>\$188,264,218</b>	<b>87.98%</b>	<b>6.86%</b>	<b>5.16%</b>

**DEMANDS PLACED ON FACILITIES BY NEW DEVELOPMENT - UTAH CODE ANNOTATED 11-36a-302(1)(a)(iv)**

Growth within the District's service area, and projections of sewer flows resulting from said growth is discussed in detail in the District's Master Plans. Growth in terms of both Equivalent Residential Units and corresponding sewer flows is summarized in Table 6.



**Table 6  
District Service Area Projections**

<b>Year</b>	<b>Service Area ERUs<sup>1</sup></b>	<b>Estimated Base Sanitary Flow (MGD)</b>	<b>High Infiltration Max Month (MGD)</b>	<b>Estimated Dry Weather Sewer Flows (MGD)</b>
2022	110,988	22.02	25.81	47.83
2025	119,960	23.80	26.18	49.98
2030	132,006	26.19	26.76	52.95
2032	136,643	27.11	26.98	54.09
2035	143,498	28.47	27.31	55.78
2040	153,931	30.54	27.82	58.36
2050	170,363	33.80	28.60	62.40
Buildout <sup>2</sup>	189,718	37.64	29.53	67.17

<sup>1</sup> Note that values are taken from Table 2-1 from the CWSID Wastewater Master Plan (March 2023, Bowen Collins & Associates) but vary slightly because some of the communities listed in Table 2-1 are not currently connected to the system.

<sup>2</sup> Buildout values shown do not include the potential Weber West 2 service area.

### **INFRASTRUCTURE REQUIRED TO MEET DEMANDS OF NEW DEVELOPMENT – UTAH CODE ANNOTATED 11-36a-302(1)(a)(v)**

To satisfy the requirements of state law, demands placed upon existing system facilities by future development was projected using the process outlined below. Each of the steps were completed as part of this plan's development and are discussed in greater detail in the Wastewater Master Plan:

1. **Existing Demand** – The demand existing development places on the District's system was estimated based on historic water use and flow records.
2. **Existing Capacity** – The capacities of existing collection system facilities were estimated using size data provided by the District and a hydraulic computer model.
3. **Existing Deficiencies** – Existing deficiencies in the system were looked for by comparing defined levels of service against calculated capacities. A few deficiencies were identified as summarized in the Wastewater Master Plan.
4. **Future Demand** - The demand future development will place on the system was estimated based on development projections.
5. **Future Deficiencies** - Future deficiencies in the collection system (portions of the system that are inadequate to accommodate the demand created by future growth) were identified using the defined level of service and results from a hydraulic computer model.
6. **Recommended Improvements** – Needed system improvements were identified to meet demands associated with future development.

The steps listed above “identify demands placed upon existing public facilities by new development activity at the proposed level of service; and... the means by which the political subdivision or private entity will meet those growth demands” (Section 11-36a-302(1)(a) of the Utah Code Annotated).

## 10 Year Improvement Plan

In the District's Wastewater Master Plan, capital facility projects needed to provide service to customers of the District were identified. Some of the projects identified in the master plan will not be needed within the next 10 years. Only infrastructure to be constructed within a 10-year horizon will be considered in the calculation of impact fees to avoid uncertainty surrounding improvements further into the future. Table 7, on the following page, summarizes the components of projects identified in the master plans that will need to be constructed within the next ten years.

### Project Cost Attributable to Future Growth

To satisfy the requirements of state law, Table 7 provides a breakdown of the capital facility projects and the percentage of the project costs attributed to existing and future users. As defined in Utah Code Annotated 11-36a-102(16), the Impact Fee Facilities Plan should only include the proportionate share of "the cost of public facilities that are roughly proportionate and reasonably related to the service demands and needs of any development activity." Some projects identified in the table are required solely to meet future growth, but some projects also provide a benefit to existing users. Projects that benefit existing users include those projects addressing existing capacity needs and maintenance related projects.

For many projects, the division of costs between existing and future users is easy because 100 percent of the project costs can be attributed to one category or the other (e.g. infrastructure needed solely to serve new development can be 100 percent attributed to new growth, while projects related to existing condition or capacity deficiencies can be 100 percent attributed to existing user needs). For projects needed to address both existing deficiencies and new growth or where a higher level of service is being proposed, costs have been divided proportionally between existing and future users based on their use of the facility. A few additional notes regarding specific projects are as follows:

- Pipeline Replacements (West Haven, South Ogden, 30<sup>th</sup> Street Force Main and Mainline) – Each of these projects include at least some portion of the reach with existing deficiencies. As a result, A portion of the project costs in each case have been attributed to existing users. However, additional capacity is also being added for future users. This additional capacity is reflected in the cost calculation.
- Hooper Lining – As part of its pipeline maintenance program, the District will be continuing a program to line the Hooper outfall. This is being done to protect the pipeline from hydrogen sulfide corrosion and extend its service life. While a large portion of this cost is obviously associated with maintaining capacity for existing users, it is also preserving excess capacity in these facilities for use by future connections. Thus, cost of the lining project associated with the proportional share of excess capacity to be used by future users has been assigned accordingly.
- Treatment Plant Phase 2 Capacity Improvements, Liquid Treatment Train – As discussed previously, most of the Phase 2 improvements are being built to expand the liquid treatment train from its current capacity of 47.83 mgd to a design capacity of 58.8 mgd. As a result, the costs of these improvements have been assigned proportionally to future growth based on the growth projections identified here.

**Table 7**  
**Project Costs Allocated to Projected Development, 10 Year Planning Horizon**

Year	Project	Total Project Cost	Percent to Existing	Percent to 10 Year Growth	Percent to Growth 2033 through Buildout	Cost to Existing	Cost to 10 Year Growth	Cost to Growth 2033 through Buildout
<i>Collection System Projects</i>								
2024	West Haven Mainline	\$11,516,000	32.67%	29.76%	37.57%	\$3,761,855	\$3,427,223	\$4,326,922
2024	Hooper Lining Phase II	\$7,552,010	38.48%	10.97%	50.55%	\$2,905,718	\$828,541	\$3,817,751
2026	South Ogden Stubline	\$1,735,000	74.99%	12.40%	12.62%	\$1,301,003	\$215,117	\$218,880
2028	30 <sup>th</sup> St. Force Main	\$639,000	68.31%	14.35%	17.35%	\$436,483	\$91,679	\$110,838
2032	Ogden 30 <sup>th</sup> Street Mainline	\$8,879,000	44.99%	24.89%	30.12%	\$3,994,343	\$2,210,043	\$2,674,614
	<b>Subtotal - Collection</b>	<b>\$30,321,010</b>				<b>\$12,399,402</b>	<b>\$6,772,603</b>	<b>\$11,149,005</b>
<i>Treatment Plant Projects</i>								
2023-26	Phase 2 Improvements - Liquid Treatment Train	\$87,000,000	0.00%	57.06%	42.94%	\$0	\$49,646,308	\$37,353,692
2023-26	Phase 2 Improvements - UV Disinfection	\$6,000,000	81.34%	10.65%	8.01%	\$4,880,612	\$638,776	\$480,612
2029-30	Primary Clarifiers 3 & 4, raw sludge, primary sludge, and scum pumps	\$24,800,000	0.00%	0.00%	100.00%	\$0	\$0	\$24,800,000
2029-33	Gravity belt thickener No. 3 and progressive cavity cake pumps	\$2,000,000	0.00%	0.00%	100.00%	\$0	\$0	\$2,000,000
2029-33	Flare Relocation	\$750,000	81.34%	10.65%	8.01%	\$610,077	\$79,847	\$60,077
2029-33	TF Digesters and Digester Control Building Seismic Investigation	\$50,000	81.34%	10.65%	8.01%	\$40,672	\$5,323	\$4,005
2029-33	Recoat Dewatering Framing/Ceiling	\$150,000	81.34%	10.65%	8.01%	\$122,015	\$15,969	\$12,015
2029-33	Fermentation/Co-Thickening Study	\$150,000	81.34%	10.65%	8.01%	\$122,015	\$15,969	\$12,015
	<b>Subtotal - Treatment</b>	<b>\$120,900,000</b>				<b>\$5,775,391</b>	<b>\$50,402,192</b>	<b>\$64,722,416</b>
	<b>Total</b>	<b>\$151,221,010</b>				<b>\$18,174,793</b>	<b>\$57,174,795</b>	<b>\$75,871,422</b>

- Treatment Plant Phase 2 Capacity Improvements, UV Disinfection – A small portion of Phase 2 improvements involves the installation of a new UV disinfection system. These new facilities will replace existing disinfection facilities and will be designed for the full Phase 2 design capacity of the plant (58.8 mgd). As a result, the costs of these improvements have been assigned proportionally to both existing and future growth based on the projected use of total capacity identified here.
- Treatment Plant Phase 3 Capacity Improvements – Several Phase 3 improvements are proposed to be completed in the planning window. Two of these (primary clarifiers and gravity belt thickeners) are being proposed to provide flexibility and reliability of operations but do not add capacity beyond 58.8 mgd on their own. They are more accurately identified as preliminary improvements in preparation for the next phase of expansion. As such, all of the costs associated with these projects have been assigned to growth beyond the 10-year planning window and will not contribute to current impact fees. The other identified Phase 3 improvements (Flare relocation, recoating dewatering framing, etc.) have been considered level of service improvements for all system users and have been allocated proportionally based on the overall plant capacity of 58.8 mgd.

It should be noted that Table 7 does not include bond costs related to paying for impact fee eligible improvements. These costs, if any, should be considered as part of the impact fee analysis.

### **Project Cost Attributable to 10 Year Growth**

Included in Table 7 is a breakdown of capacity use associated with growth both through buildout and through the next 10 years. This is necessary because the projects identified in the tables will be built with capacity to accommodate flows beyond the 10-year growth horizon. This has been done following the same general process as described above.

### **Basis of Construction Cost Estimates**

The costs of pipe and wastewater treatment facility projects have been based on engineering cost estimates contained in the Wastewater Master Plan.

## **ADDITIONAL CONSIDERATIONS**

### **MANNER OF FINANCING – UTAH CODE ANNOTATED 11-36a-302(2)**

The District may fund the infrastructure identified in this IFFP through a combination of different revenue sources.

#### **Federal and State Grants and Donations**

Impact fees cannot reimburse costs funded or expected to be funded through federal grants and other funds that the District has received for capital improvements without an obligation to repay. Future grants and donations are not currently contemplated in this analysis. If grants become available for constructing facilities, impact fees will need to be recalculated and an appropriate credit given. Any existing infrastructure funded through past grants will be removed from the system value during the impact fee analysis.

#### **Bonds**

None of the costs contained in this IFFP include the cost of bonding. The cost of bonding required to finance impact fee eligible improvements identified in the IFFP may be added to the calculation of the impact fee. This will be considered in the impact fee analysis.

#### **User Rate Revenue**

Because infrastructure must generally be built ahead of growth, there often arises situations in which projects must be funded ahead of expected impact fee revenues. In some cases, the solution to this issue will be bonding. In others, funds from existing user rate revenue will be used to complete initial construction of impact fee eligible projects and will be reimbursed later as impact fees are received. Consideration of potential use of user rate revenue to pay for impact fee eligible expenditures will be included in the impact fee analysis and should also be considered in subsequent accounting of impact fee expenditures.

#### **Impact Fees**

It is recommended that impact fees be used to fund growth-related capital projects as they help to maintain the proposed level of service and prevent existing users from subsidizing the capital needs for new growth. Based on this IFFP, an impact fee analysis will be able to calculate a fair and legal fee that new growth should pay to fund the portion of the existing and new facilities that will benefit new development.

#### **Developer Dedications and Exactions**

Developer exactions are not the same as grants. Developer exactions may be considered in the inventory of current and future infrastructure. If a developer constructs facilities or dedicates land within the development for the construction of facilities identified in this IFFP, the value of the dedication is credited against that particular developer's impact fee liability.

If the value of the dedication/exaction is less than the development's impact fee liability, the developer will owe the balance of the liability to the District. If the value of the improvements dedicated is worth more than the development's impact fee liability, the District must reimburse the difference to the developer from impact fee revenues collected from other developments.

It should be emphasized that the concept of impact fee credits pertains to system level improvements only. For project level improvement (i.e. projects not identified in the impact fee facility plan),

developers will be responsible for the construction of the improvements without credit against the impact fee.

### **NECESSITY OF IMPROVEMENTS TO MAINTAIN LEVEL OF SERVICE - UTAH CODE ANNOTATED 11-36a-302(3)**

According to State statute, impact fees cannot be used to correct deficiencies in the District's system and must be necessary to maintain the proposed level of service established for all users. Only those facilities or portions of facilities that are required to maintain the proposed level of service for future growth have been included in this IFFP. This will result in an equitable fee as future users will not be expected to fund any portion of the facilities that will benefit existing residents.

### **SCHOOL RELATED INFRASTRUCTURE - UTAH CODE ANNOTATED 11-36a-302(4)**

As part of the noticing and data collection process for this plan, information was gathered regarding future school district and charter school development. Where the District is aware of the planned location of a school, required public facilities to serve the school have been included in the impact fee analysis.

### **NOTICING AND ADOPTION REQUIREMENTS - UTAH CODE ANNOTATED 11-36a-502 & 17B-1-111**

The Impact Fees Act requires that entities must publish a notice of intent to prepare or modify any IFFP. If an entity prepares an independent IFFP rather than include a capital facilities element in the general plan, the actual IFFP must be adopted by enactment. Before the IFFP can be adopted, a reasonable notice must be provided as a class A notice under Section 63G-30-102 for at least 10 days before the date of a public hearing. A copy of the proposed IFFP and a summary designed to be understood by a lay person must be made available in each public library within the District during the 10-day noticing period for public review and inspection. The Utah Code also requires that the District make a copy of the Impact Fee Approval Resolution available to the public at least 10 days before the public hearing.

**IMPACT FEE CERTIFICATION - UTAH CODE ANNOTATED 11-36A-306(1)**

This IFFP has been prepared in accordance with Utah Code Annotated Title 11, Chapter 36a (the "Impact Fees Act"), which prescribes the laws pertaining to the imposition of impact fees in Utah. The accuracy of this IFFP relies in part upon planning, engineering, and other source data, provided by the District and its designees.

In accordance with Utah Code Annotated, 11-36a-306(1), Bowen Collins & Associates makes the following certification:

I certify that the attached Impact Fee Facilities Plan:

1. Includes only the costs of 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 the day on which each impact fee is paid;
  
2. Does not include:
  - a. costs of operation and maintenance of public facilities; or
  - 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; and
  
3. Complies in each relevant respect with the Impact Fees Act.



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Keith Larson, P.E.

# SEWER IMPACT FEE ANALYSIS

January 2024

Prepared for:



Prepared by:





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## EXECUTIVE SUMMARY

### INTRODUCTION

An impact fee is a one-time fee, not a tax, imposed upon new development activity as a condition of development approval to mitigate the impact of the new development on public infrastructure. The purpose of the Impact Fee Analysis (IFA) is to calculate the allowable impact fee that may be assessed to new development in accordance with Utah Code.

### WHY ASSESS AN IMPACT FEE?

Until new development utilizes the full capacity of existing facilities, the District can assess an impact fee to recover its cost of latent capacity available to serve future development. The general impact fee methodology divides the available capacity of existing and future capital projects between existing and future users. Capacity is measured in terms of Equivalent Residential Units, or ERUs, which represents the demand that a typical single family residence places on the system.

### HOW ARE IMPACT FEES CALCULATED?

A fair impact fee is calculated by dividing the cost of existing and future facilities by the amount of new growth that will benefit from the unused capacity. Only the capacity that is needed to serve the projected growth within in the next ten years is included in the fee. Costs used in the calculation of impact fees include:

- New facilities required to maintain (but not exceed) the proposed level of service identified in the Impact Fee Facilities Plan (IFFP); only those expected to be built within ten years are considered in the final calculations of the impact fee;
- Historic costs of existing facilities that will serve new development; and
- Cost of professional services for engineering, planning, and preparation of the impact fee facilities plan and impact fee analysis.

Costs not used in the impact fee calculation:

- Operational and maintenance costs;
- Cost of facilities constructed beyond 10 years;
- Cost associated with capacity not expected to be used within 10 years;
- Cost of facilities funded by grants, developer contributions, or other funds which the District is not required to repay; nor
- Cost of renovating or reconstructing facilities which do not provide new capacity or needed enhancement of services to serve future development.

### IMPACT FEE CALCULATION

Impact fees for this analysis were calculated by dividing the proportional cost of facilities required to service 10-year growth by the amount of growth expected over the next 10-years based on ERUs. This is done for both collection and treatment facilities, as well as applicable planning costs. Where applicable, a credit for future user fee payments benefiting existing users has also been included. Calculated impact fees by component are summarized in Table ES-1.

**Table ES-1  
Impact Fee Calculation per ERU – FY 2024**

<b>System Components</b>	<b>Total Cost of Component</b>	<b>% Serving 10-year Growth</b>	<b>Cost Serving 10-year Growth</b>	<b>10-year ERUs Served</b>	<b>Cost Per ERU</b>
<b>Collection Facilities</b>					
Existing Facilities	\$51,784,599	12.67%	\$6,562,012	25,655	\$255.78
Existing Facility Interest Costs	\$11,700,250	21.07%	\$2,465,135	25,655	\$96.09
10-year Projects	\$30,321,010	22.34%	\$6,772,603	25,655	\$263.99
10-Year Project Interest Costs	\$0	-	\$0	25,655	\$0.00
Credit for User Fees Paid Toward Existing					(\$33.77)
<b>Subtotal - Collection</b>	<b>\$93,805,859</b>		<b>\$15,799,750</b>		<b>\$582.08</b>
<b>Treatment Plant</b>					
Existing Facilities	\$188,264,218	6.86%	\$12,911,107	25,655	\$503.25
Existing Facility Interest Costs	\$88,622,346	9.89%	\$8,767,003	25,655	\$341.72
10-year Projects	\$120,900,000	41.69%	\$50,402,192	25,655	\$1,964.60
10-Year Project Interest Costs	\$24,761,668	41.69%	\$10,322,931	25,655	\$402.37
Credit for User Fees Paid Toward Existing					(\$287.70)
<b>Subtotal - Treatment</b>	<b>\$422,548,232</b>		<b>\$82,403,233</b>		<b>\$2,924.25</b>
<b>Studies</b>					
Master Plans and Impact Fee Studies	\$588,076	67.22%	\$395,289	12,828	\$30.82
<b>Subtotal - Studies</b>	<b>\$588,076</b>		<b>\$395,289</b>		<b>\$30.82</b>
<b>Total</b>	<b>\$516,942,168</b>		<b>\$98,598,272</b>		<b>\$3,537</b>

Per Table ES-1, the calculated impact fee in 2024 is \$3,537/ERU. This will change slightly over time as outstanding bonds are paid off and the user fee credit decreases. Calculated impact fees over the next six years are summarized in Table ES-2.

**Table ES-2  
Recommended Per ERU Impact Fee**

<b>Maximum Allowable Impact Fee (Per ERU, by year)</b>						
	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>
Base Impact Fee	\$3,859	\$3,859	\$3,859	\$3,859	\$3,859	\$3,859
Collection User Fee Credit	-\$34	-\$30	-\$26	-\$23	-\$19	-\$16
Treatment User Fee Credit	-\$288	-\$254	-\$222	-\$191	-\$162	-\$135
<b>Total Overall Fee</b>	<b>\$3,537</b>	<b>\$3,575</b>	<b>\$3,611</b>	<b>\$3,645</b>	<b>\$3,677</b>	<b>\$3,708</b>

This is the legal maximum amount that may be charged as an impact fee in a given year. A lower amount may be adopted if desired, but a higher fee is not allowable under the requirements of Utah Code. This is separate from any additional charges levied by the District for plan review or inspection costs or for other reasonable permit and application fees.

## IMPACT FEE ANALYSIS

### INTRODUCTION

Central Weber Sewer Improvement District (CWSID or District) has retained Bowen Collins & Associates (BC&A) to prepare an impact fee analysis (IFA) for its sewer system based on a recently completed impact fee facilities plan. An impact fee is a one-time fee, not a tax, imposed upon new development activity as a condition of development approval to mitigate the impact of the new development on public infrastructure. The purpose of an IFA is to calculate the allowable impact fee that may be assessed to new development in accordance with Utah Code.

### Service Areas

For the purpose of impact fee calculations, the District system will be treated as a single service area.

### Requirements

Requirements for the preparation of an IFA are outlined in Title 11, Chapter 36a of the Utah Code (the Impact Fees Act). Under these requirements, an IFA shall accomplish the following for each facility:

1. Identify the anticipated impact on or consumption of existing capacity by anticipated development activity
2. Identify the anticipated impact on system improvements required by anticipated development activity to maintain the established level of service
3. Demonstrate how the impacts are reasonably related to anticipated development activity
4. Estimate the proportionate share of:
  - a. Costs of existing capacity that will be recouped
  - b. Costs of impacts on system improvements that are reasonably related to the new development activity
5. Identify how the impact fee was calculated
6. Consider the following additional issues:
  - a. Other than impact fees, the manner of financing for each public facility
  - b. Dedication of system improvements
  - c. Extraordinary costs in servicing newly developed properties
  - d. Time-price differential

The following sections of this report have been organized to address each of these requirements.

### IMPACT ON SYSTEM - 11-36a-304(1)(a)&(b)

Growth within the District's service area, and projections of sewer flows resulting from said growth is discussed in detail in the District's Impact Fee Facilities Plan. For the purposes of impact fee calculation, growth in the system has been expressed in terms of equivalent residential units (ERUs). An ERU represents the demand that a typical single family residence places on the system. Growth in ERUs projected for the service area is summarized in Table 1.

**Table 1  
Projected Sewer System Growth**

Year	Service Area ERUs <sup>1</sup>	Estimated Base Sanitary Flow (MGD)	High Infiltration Max Month (MGD)	Estimated Dry Weather Sewer Flows (MGD)
2022	110,988	22.02	25.81	47.83
2025	119,960	23.80	26.18	49.98
2030	132,006	26.19	26.76	52.95
2032	136,643	27.11	26.98	54.09
2035	143,498	28.47	27.31	55.78
2040	153,931	30.54	27.82	58.36
2050	170,363	33.80	28.60	62.40
Buildout <sup>2</sup>	189,718	37.64	29.53	67.17

<sup>1</sup> Note that values area taken from Table 2-1 from the CWSID Wastewater Master Plan (March 2023, Bowen Collins & Associates) but vary slightly because some of the communities listed in Table 2-1 are not currently connected to the system.

<sup>2</sup> Buildout values shown do not include the potential Weber West 2 service area.

As indicated in the table, projected growth for the 10-year planning window of this impact fee analysis is 25,655 ERUs. In order to maintain the established level of service, projected future growth will be met through a combination of available excess capacity in existing facilities and construction of additional capacity in new facilities. Use of excess capacity and required system improvements are detailed in the Impact Fee Facilities Plan.

### **RELATION OF IMPACTS TO ANTICIPATED DEVELOPMENT - 11-36a-304(1)(c)**

To satisfy the requirements of state law, it is necessary to show that all impacts identified in the impact fee analysis are reasonably related to the anticipated development activity. This has been documented in detail in the Impact Fee Facilities Plan. In short, only that capacity directly associated with demand placed upon existing system facilities by future development has been identified as an impact of the development. The steps completed to identify the impacts of anticipated development are as follows.

1. **Existing Demand** – The demand existing development places on the system was estimated based on historic demand records.
2. **Existing Capacity** – The capacities of existing facilities were calculated based on the level of service criteria established for each type of facility in the Impact Fee Facilities Plan.
3. **Existing Deficiencies** – Existing deficiencies in the system were looked for by comparing defined levels of service against calculated capacities. If existing deficiencies exist, projects were identified to eliminate the deficiencies. Costs associated with existing deficiencies were not assigned to impacts of development.
4. **Future Demand** - The demand future development will place on the system was estimated based on development projections as discussed in the Impact Fee Facilities Plan.
5. **Future Demand Use of Existing Capacity** – Whenever possible, excess capacity in existing

facilities has been used to serve future demands. Where this occurs, the amount of capacity used by future growth has been calculated as described in detail in the Impact Fee Facilities Plan.

6. **Future Deficiencies** – Where excess capacity is inadequate to meet projected demands, future deficiencies in the system were identified using the same established level of service criteria used for existing demands.
7. **Recommended Improvements** – Needed system improvements were identified to meet demands associated with future development.

## PROPORTIONATE SHARE ANALYSIS - 11-36a-304(d)

A comprehensive proportionate share analysis associated with anticipated future development and its impact on the system was completed as part of the Impact Fee Facilities Plan. A summary of that analysis is contained here with additional discussion of the costs of facilities impacted by growth.

### Excess Capacity to Accommodate Future Growth

The amount of existing capacity used by each type of user was analyzed in detail as part of the Impact Fee Facilities Plan. Based on the analysis, the calculated percentage of existing capacity in system facilities used by existing users, growth during the 10-year planning window, and growth beyond the 10-year planning window for both collection and treatment facilities is summarized in Table 2.

**Table 2**  
**Use of Existing Capacity**

Use Category	Collection System Percent Use	Treatment Percent Use
Existing Use	57.01%	87.98%
Use By 10-Year Growth	12.66%	6.86%
Use By Growth Beyond 10 years	30.33%	5.16%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>

### Existing System Infrastructure Costs

To calculate the actual cost of excess capacity in the existing system, BC&A first looked at the actual cost of all existing facilities. Table 3 lists the actual construction costs of existing components of the District's wastewater system. These are not depreciated replacement costs, but the actual cost at the time of construction. These costs were assembled from the District's existing database of assets. These costs exclude the cost of any facility scheduled to be replaced or abandoned during the impact fee planning window. In this study, public facility costs already incurred by the District will be included in the impact fee only to the extent that new growth will be served by the previously constructed improvements.

**Table 3**  
**Existing Infrastructure Costs**

	Collection	Treatment
<b>Existing Infrastructure Costs</b>	\$51,748,599	\$188,264,218



## Reimbursement Agreements

There are no current reimbursement agreements existing within the system.

## Future Improvements

In addition to using available existing capacity, demand associated with projected future development will be met through the construction of additional capacity in new facilities. A primary focus of the Impact Fee Facilities Plan was the identification of projects required to serve new development. The results of the Impact Fee Facilities Plan are summarized in Table 4. Included in the table are the costs of each required project and the portion of costs associated with development.

**Table 4**  
**Impact Fee Eligible Capital Projects**

<b>Project</b>	<b>Total Project Cost</b>	<b>Percent to 10 Year Growth</b>	<b>Cost to 10 Year Growth</b>
<i>Collection System Projects</i>			
West Haven Mainline	\$11,516,000	29.76%	\$3,427,223
Hooper Lining Phase II	\$7,552,010	10.97%	\$828,541
South Ogden Stubline	\$1,735,000	12.40%	\$215,117
30 <sup>th</sup> St. Force Main	\$639,000	14.35%	\$91,679
Ogden 30 <sup>th</sup> Street Mainline	\$8,879,000	24.89%	\$2,210,043
<b>Subtotal - Collection</b>	<b>\$30,321,010</b>		<b>\$6,772,603</b>
<i>Treatment Plant Projects</i>			
Phase 2 Improvements - Liquid Treatment Train	\$87,000,000	57.06%	\$49,646,308
Phase 2 Improvements - UV Disinfection	\$6,000,000	10.65%	\$638,776
Primary Clarifiers (No. 3 & 4, Raw sludge pump station, and Primary sludge and scum pumps)	\$24,800,000	0.00%	\$0
Sludge Thickening (Gravity belt thickener No. 3, Progressive Cavity Cake Pumps)	\$2,000,000	0.00%	\$0
Flare Relocation	\$750,000	10.65%	\$79,847
TF Digesters and Digester Control Building Seismic Investigation	\$50,000	10.65%	\$5,323
Recoat Dewatering Framing/Ceiling	\$150,000	10.65%	\$15,969
Fermentation/Co-Thickening Study	\$150,000	10.65%	\$15,969
<b>Subtotal - Treatment</b>	<b>\$120,900,000</b>		<b>\$50,402,192</b>
<b>Total</b>	<b>\$151,221,010</b>		<b>\$57,174,795</b>

All cost estimates contained in this IFA have been taken directly from the IFFP. The basis of these estimates are documented in the IFFP.

**IMPACT FEE CALCULATION - 11-36a-304(1)(e)**

Using the information contained in the previous sections, impact fees can be calculated by dividing the proportional cost of facilities required to service 10-year growth by the amount of growth expected over the next 10 years. This is done for both collection and treatment system components as discussed previously. Calculated impact fees by component are summarized in Table 5.

**Table 5  
Impact Fee Calculation per ERU – FY 2024**

<b>System Components</b>	<b>Total Cost of Component</b>	<b>% Serving 10-year Growth</b>	<b>Cost Serving 10-year Growth</b>	<b>10-year ERUs Served</b>	<b>Cost Per ERU</b>
<b>Collection Facilities</b>					
Existing Facilities	\$51,784,599	12.67%	\$6,562,012	25,655	\$255.78
Existing Facility Interest Costs	\$11,700,250	21.07%	\$2,465,135	25,655	\$96.09
10-year Projects	\$30,321,010	22.34%	\$6,772,603	25,655	\$263.99
10-Year Project Interest Costs	\$0	-	\$0	25,655	\$0.00
Credit for User Fees Paid Toward Existing					(\$33.77)
<b>Subtotal - Collection</b>	<b>\$93,805,859</b>		<b>\$15,799,750</b>		<b>\$582.08</b>
<b>Treatment Plant</b>					
Existing Facilities	\$188,264,218	6.86%	\$12,911,107	25,655	\$503.25
Existing Facility Interest Costs	\$88,622,346	9.89%	\$8,767,003	25,655	\$341.72
10-year Projects	\$120,900,000	41.69%	\$50,402,192	25,655	\$1,964.60
10-Year Project Interest Costs	\$24,761,668	41.69%	\$10,322,931	25,655	\$402.37
Credit for User Fees Paid Toward Existing					(\$287.70)
<b>Subtotal - Treatment</b>	<b>\$422,548,232</b>		<b>\$82,403,233</b>		<b>\$2,924.25</b>
<b>Studies</b>					
Master Plans and Impact Fee Studies	\$588,076	67.22%	\$395,289	12,828	\$30.82
<b>Subtotal - Studies</b>	<b>\$588,076</b>		<b>\$395,289</b>		<b>\$30.82</b>
<b>Total</b>	<b>\$516,942,168</b>		<b>\$98,598,272</b>		<b>\$3,537</b>

**Bonding Interest Costs**

In addition to construction costs, Table 5 includes the cost of bond interest expense where applicable. This includes both interest costs on existing facilities where new growth will benefit from excess capacity and future interest costs for bonds required to build projects needed for growth as identified in the Impact Fee Facilities Plan. Similar to project construction costs, only that portion of interest expense associated with capacity for growth is included in the impact fee calculation.

In the case of the District wastewater system, there are significant bond interest costs associated with both past and future projects. In the case of past projects, the percentage of interest assigned to future growth is slightly higher than the percentage calculated for the actual facility capacity to reflect the amount of cash already contributed by existing users toward construction above their proportional obligation.

### **Credit for User Fees**

Because the District has faced a number of major costs associated with upgrades to its treatment plant, some of the cost associated with existing capacity has been (and will be) paid for through bonds. In this situation, user fees will be used to pay for the bond over its lifetime.

As currently structured, future users will pay for their portion of capacity via impact fees. They cannot also be expected to pay through user rates the portion of future bonds that will be used to build capacity for existing users. This creates the need for a credit for future users. Calculation of this credit is summarized in Tables 6 and 7. These tables include the following information:

- **Total Bond Payment** – For reference, this is the total loan payment each year. For convenience in accounting, this has been divided between past loans for existing facilities and programmed future loans for upcoming projects.
- **Existing Portion of Bond Paid Through User Fees** – This represents the total amount paid each year by the District toward the portion of the loan used to build capacity for existing users.
- **Cost Per ERU** – This column takes the amount paid toward existing capacity and divides it by the number of ERUs projected for each year. This represents the amount paid in each year by each ERU.
- **Present Value Cost per ERU** – This column takes into account the time value of money assuming a rate of return of 3 percent annually.
- **Total User Fee Credit** – At the bottom of the table, the present value costs for all future years are added together to develop the total user fee credit.

It will be noted that, because the user fee credit is the summation of user fees paid toward existing deficiencies in each year, a new user who joins the system in five or ten years will pay less toward existing deficiencies through user fees than someone who joins the system next year. Thus, the user fee credit will decrease over time. The appropriate user fee can be calculated by adding the present value cost for all years subsequent to a new user's connection to the system.

**Table 6**  
**Credit for User Fees Paid Toward Existing – Collection Costs**

<b>Fiscal Year</b>	<b>ERUs</b>	<b>Total Bond Payments (Existing Facilities)</b>	<b>Existing Portion of Bond Payments (Existing Facilities)</b>	<b>Total Bond Payments (Future Facilities)</b>	<b>Existing Portion of Bond Payments (Future Facilities)</b>	<b>Cost Per ERU</b>	<b>Present Value Cost Per ERU</b>
2024	116,969	\$2,894,934	\$468,646	\$0	\$0	\$4.01	\$3.89
2025	119,960	\$2,916,142	\$472,079	\$0	\$0	\$3.94	\$3.71
2026	122,369	\$2,939,669	\$475,888	\$0	\$0	\$3.89	\$3.56
2027	124,778	\$2,960,281	\$479,224	\$0	\$0	\$3.84	\$3.41
2028	127,188	\$2,982,997	\$482,902	\$0	\$0	\$3.80	\$3.28
2029	129,597	\$3,007,585	\$486,882	\$0	\$0	\$3.76	\$3.15
2030	132,006	\$2,863,371	\$463,536	\$0	\$0	\$3.51	\$2.86
2031	134,465	\$2,279,250	\$368,976	\$0	\$0	\$2.74	\$2.17
2032	136,643	\$2,280,000	\$369,097	\$0	\$0	\$2.70	\$2.07
2033	138,928	\$2,286,250	\$370,109	\$0	\$0	\$2.66	\$1.98
2034	141,213	\$2,287,500	\$370,311	\$0	\$0	\$2.62	\$1.89
2035	143,498	\$2,283,750	\$369,704	\$0	\$0	\$2.58	\$1.81
2036	145,585	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2037	147,671	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2038	149,758	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2039	151,845	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2040	153,931	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2041	155,575	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2042	157,218	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2043	158,861	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2044	160,504	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2045	162,147	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2046	163,790	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2047	165,433	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2048	167,077	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2049	168,720	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2050	170,363	\$0	\$0	\$0	\$0	\$0.00	\$0.00
<b>Total User Fee Credit</b>							<b>\$33.77</b>

**Table 7**  
**Credit for User Fees Paid Toward Existing – Treatment Costs**

Fiscal Year	ERUs	Total Bond Payments (Existing Facilities)	Existing Portion of Bond Payments (Existing Facilities)	Total Bond Payments (Future Facilities)	Existing Portion of Bond Payments (Future Facilities)	Cost Per ERU	Present Value Cost Per ERU
2024	116,969	\$6,385,375	\$3,833,551	\$4,981,450	\$237,964	\$34.81	\$33.79
2025	119,960	\$6,391,125	\$3,837,003	\$4,904,100	\$234,269	\$33.94	\$31.99
2026	122,369	\$6,396,625	\$3,840,305	\$4,820,150	\$230,258	\$33.26	\$30.44
2027	124,778	\$6,406,375	\$3,846,159	\$4,754,800	\$227,137	\$32.64	\$29.00
2028	127,188	\$6,409,625	\$3,848,110	\$4,677,250	\$223,432	\$32.01	\$27.61
2029	129,597	\$6,411,125	\$3,849,011	\$4,592,900	\$219,403	\$31.39	\$26.29
2030	132,006	\$6,382,675	\$3,831,930	\$4,516,950	\$215,775	\$30.66	\$24.93
2031	134,465	\$6,412,500	\$3,849,836	\$4,439,000	\$212,051	\$30.21	\$23.85
2032	136,643	\$6,404,750	\$3,845,183	\$3,884,050	\$185,541	\$29.50	\$22.61
2033	138,928	\$6,403,350	\$3,844,343	\$3,806,100	\$181,817	\$28.98	\$21.56
2034	141,213	\$3,102,750	\$1,862,780	\$3,726,750	\$178,027	\$14.45	\$10.44
2035	143,498	\$0	\$0	\$3,651,000	\$174,408	\$1.22	\$0.85
2036	145,585	\$0	\$0	\$3,568,650	\$170,474	\$1.17	\$0.80
2037	147,671	\$0	\$0	\$3,499,900	\$167,190	\$1.13	\$0.75
2038	149,758	\$0	\$0	\$3,419,150	\$163,333	\$1.09	\$0.70
2039	151,845	\$0	\$0	\$3,341,800	\$159,638	\$1.05	\$0.66
2040	153,931	\$0	\$0	\$3,026,400	\$144,571	\$0.94	\$0.57
2041	155,575	\$0	\$0	\$3,029,200	\$144,705	\$0.93	\$0.55
2042	157,218	\$0	\$0	\$1,750,000	\$83,597	\$0.53	\$0.30
2043	158,861	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2044	160,504	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2045	162,147	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2046	163,790	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2047	165,433	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2048	167,077	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2049	168,720	\$0	\$0	\$0	\$0	\$0.00	\$0.00
2050	170,363	\$0	\$0	\$0	\$0	\$0.00	\$0.00
<b>Total User Fee Credit</b>							<b>\$287.70</b>

### Recommended Impact Fee

The total calculated impact fees are summarized in Table 8. Included in this table is the appropriate user fee credits for both collection and treatment and corresponding overall fee. This is the legal maximum amount that may be charged as an impact fee. A lower amount may be adopted if desired, but a higher fee is not allowable under the requirements of Utah Code.

**Table 8**  
**Recommended Per ERU Impact Fee**

Maximum Allowable Impact Fee (Per ERU, by year <sup>a</sup> )						
	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Base Impact Fee	\$3,859	\$3,859	\$3,859	\$3,859	\$3,859	\$3,859
Collection User Fee	-\$34	-\$30	-\$26	-\$23	-\$19	-\$16
Treatment User Fee	-\$288	-\$254	-\$222	-\$191	-\$162	-\$135
<b>Total Overall Fee</b>	<b>\$3,537</b>	<b>\$3,575</b>	<b>\$3,611</b>	<b>\$3,645</b>	<b>\$3,677</b>	<b>\$3,708</b>

<sup>a</sup> The District operates on a fiscal year of July 1 through June 30.

As discussed previously, the calculated user fee credit associated with the impact fees will decrease over time. As a result, the allowable impact fee will increase over time as shown in the tables. Impact fees beyond 2023 can be calculated by reducing the user fee credit by the amount shown for each successive year in the credit calculation tables. This is separate from any additional charges levied by the District for plan review or inspection costs or for other reasonable permit and application fees.

### Calculation of Non-Standard Impact Fees

The calculations above have been based on an ERU. The Impact Fee Enactment should include a provision that allows for calculation of a fee for customers other than typical residential connections. Consistent with the level of service standards established in the Impact Fee Facilities Plan, the following formula may be used to calculate an impact fee for a non-standard user based on the calculated daily indoor water use for an average residential connection<sup>123</sup>.

$$\frac{\text{Estimated Indoor Water Use}}{220.4 \text{ gallons per day}} \times \text{Impact Fee per ERU} = \text{Impact Fee}$$

### Impact Fee Accounting

An important part of the Impact Fee Act is the future accounting of impact fees received and spent. As detailed in the Act, all collected funds must be spent or encumbered within six years after the impact fee is collected. A detailed ledger must be assembled to identify when and where the funds were collected and when and where they will be spent.

As discussed in the Act, a significant portion of the impact fee may be attributable to excess capacity in the existing system. Receipt of funds collected for this purpose should be documented in accordance with the Act but should then be transferred out of the impact fee fund account to reimburse the District for the benefit of existing users associated with the value of the excess capacity. This should also be documented in accordance with the Act. As with the overall fee, the value of the reimbursement will vary slightly depending on the remaining user fee credit (i.e. the reimbursement value should be reduced by any user fee credit associated with bonding on the

<sup>1</sup> Please note that this conversion assumes that water use patterns and peaking factors are similar between different users. Significant deviations from typical water use patterns may merit additional consideration.

<sup>2</sup> The defined water usage assumes 10% consumption of indoor water usage and a 90% return flow. This equates to an average base wastewater flow of 198.4 gpd/ERU entering the collection system. For customers where the consumption rate is known to be higher, the number of ERUs should account for an equivalent return flow.

<sup>3</sup> It is assumed that the bio-loading for an ERU is an average BOD of not more than 245 mg/L and TSS of not more than 258 mg/L. Increases in wastewater strength values will require adjustments to the ERU calculation.

existing infrastructure). The appropriate portion of the impact fee to be reimbursed for existing excess capacity is documented in Table 9.

**Table 9**  
**Excess Capacity Reimbursement Schedule**

Reimbursement Portion of Impact Fee (Per ERU, by year)						
	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Reimbursement for Excess Existing Capacity	\$927	\$963	\$997	\$1,029	\$1,060	\$1,089
Future Projects	\$2,610	\$2,612	\$2,614	\$2,616	\$2,617	\$2,619
<b>Total Overall Fee</b>	<b>\$3,537</b>	<b>\$3,575</b>	<b>\$3,611</b>	<b>\$3,645</b>	<b>\$3,677</b>	<b>\$3,708</b>

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## **ADDITIONAL CONSIDERATIONS - 11-36a-304(2)**

### **MANNER OF FINANCING - 11-36a-304(2)(a-e)**

As part of this Impact Fee Analysis, it is important to consider how each facility has been or will be paid for. Potential infrastructure funding includes a combination of different revenue sources.

#### **User Charges**

Because infrastructure must generally be built ahead of growth, there often arises situations in which projects must be funded ahead of expected impact fee revenues. In some cases, the solution to this issue will be bonding. In others, funds from existing user rate revenue will be loaned to the impact fee fund to complete initial construction of the project and will be reimbursed later as impact fees are received. Interfund loans should be considered in subsequent accounting of impact fee expenditures.

#### **Special Assessments**

Where special assessments exist, the impact fee calculation must take into account funds contributed. No special assessments currently exist in the District wastewater system.

#### **Pioneering Agreements**

Where pioneering agreements exist, the impact fee calculation must take into account payback requirements under each pioneering agreement. No pioneering agreements currently exist in the District wastewater system.

#### **Bonds**

None of the costs contained in the IFFP included bonding. Where District financial plans identify bonding will be required to finance impact fee eligible improvements, the portion of bond cost and interest expense attributable to future growth has been added to the calculation of the impact fee. This includes a new bond in 2023.

#### **General Taxes**

If taxes are used to pay for infrastructure, they should be accounted for in the impact fee calculation. Specifically, any contribution made by property owners through taxes should be credited toward their available capacity in the system. In this case, no taxes are proposed for the construction of infrastructure.

#### **Federal and State Grants and Donations**

Impact fees cannot reimburse costs funded or expected to be funded through federal grants and other funds that the District has received for capital improvements without an obligation to repay. Grants and donations are not currently contemplated in this analysis. If grants become available for constructing facilities, impact fees will need to be recalculated and an appropriate credit given. Any existing infrastructure funded through past grants has been removed from the system cost.

### **DEDICATION OF SYSTEM IMPROVEMENTS - 11-36a-304(2)(f)**

Developer exactions are not the same as grants. If a developer constructs a system improvement or dedicates land for a system improvement identified in this IFFP, or dedicates a public facility that is recognized to reduce the need for a system improvement, the developer may be entitled to an



appropriate credit against that particular developer's impact fee liability or a proportionate reimbursement.

If the value of the credit is less than the development's impact fee liability, the developer will owe the balance of the liability to the District. If the recognized value of the improvements/land dedicated is more than the development's impact fee liability, the District may be required to reimburse the difference to the developer.

It should be emphasized that the concept of impact fee credits pertains to system level improvements only. Developers will be responsible for the construction of project improvements (i.e. improvements not identified in the impact fee facilities plan) without credit against the impact fee.

### **EXTRAORDINARY COSTS - 11-36a-304(2)(g)**

The Impact Fees Act indicates the analysis should include consideration of any extraordinary costs of servicing newly developed properties. In cases where one area of potential growth may cost significantly more to service than other growth, a separate service area may be warranted. No areas with extraordinary costs have been identified as part of this analysis.

### **TIME-PRICE DIFFERENTIAL - 11-36a-304(2)(h)**

Utah Code allows consideration of time-price differential in order to create fairness for amounts paid at different times. To address time-price differential, this analysis includes a conversion to present value cost for future expenditures. In the case of future construction costs, it has been assumed that the return rate on investment will be roughly equivalent to construction inflation and current construction estimates have been used in the calculation of impact fees. Per the requirements of the Code, existing infrastructure cost is based on actual historical costs without adjustment.

**IMPACT FEE CERTIFICATION - 11-36a-306(2)**

This report has been prepared in accordance with Utah Code Title 11, Chapter 36a (the "Impact Fees Act"), which prescribes the laws pertaining to the imposition of impact fees in Utah. The accuracy of this IFFP relies in part upon planning, engineering, and other source data, provided by the District and its designees.

In accordance with Utah Code Annotated, 11-36a-306(2), Bowen Collins & Associates makes the following certification:

I certify that the attached impact fee analysis:

1. Includes only the costs of 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 the day on which each impact fee is paid;
2. Does not include:
  - a. costs of operation and maintenance of public facilities; or
  - 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;
3. Offsets costs with grants or other alternate sources of payment; and
4. Complies in each and every relevant respect with the Impact Fees Act.



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Keith J. Larson, P.E.

**CENTRAL WEBER SEWER IMPROVEMENT DISTRICT  
WASTEWATER MASTER PLAN  
MARCH 2023**

The Central Weber Sewer Improvement District Wastewater Master Plan (March 2023, Bowen Collins & Associates and Carollo Engineers) is incorporated into the IFFP and IFA by reference. Because of the size of this document, it is not provided here but can be accessed electronically at the District's website [www.centralweber.com](http://www.centralweber.com).

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