

## SECTION 5: WASTEWATER COLLECTION IFFP AND IFA

Impact fees are calculated based on many variables centered on proportionality and LOS. Future demands were identified previously in this document, and this section will discuss the existing and proposed level of service, the availability of excess capacity, the needed future facilities to serve new development, and the appropriate impact fee to be assessed to new development to maintain the existing LOS. The Logan Sewer Collection Master Plan adopted July 2018 provides much of the information for this Section.

### DEMAND

The primary demand unit related to the wastewater IFA is ERUs. It is anticipated that 9,153 ERUs will be added to the system in the next six years.

### EXISTING FACILITIES

The wastewater collection system collects wastewater flows from Logan City as well as Smithfield, Hyde Park, North Logan, River Heights, Providence, and Nibley. The existing system consists of approximately 895,000 lineal feet of pipe, both pressure and gravity, ranging from 4" -60" diameter. The City currently operates multiple lift stations, some of which are City owned and some are privately owned, as well as manholes throughout the collection system. A total of \$21,086,764 in original system value is included in this analysis when determining buy-in value.

### LEVEL OF SERVICE

Impact fees cannot be used to finance an increase in the LOS to current or future users of capital improvements. Therefore, it is important to identify the wastewater LOS to ensure that the new capacities of projects financed through impact fees do not exceed the established standard. The established LOS is 245 GPD per ERU.

### EXCESS CAPACITY

It is difficult to quantify excess capacity in a wastewater collection system. New pipes added to the system typically tie into the existing pipelines and system. Additionally, excess capacity varies throughout the system depending on line sizes and the amount of development in close proximity to all of the wastewater lines. Therefore, a buy-in component is considered in this analysis, with the existing lines being shared across all development, both existing and future. This is the best way to ensure a fair allocation of costs to all development in the Service Area.

### MANNER OF FINANCING EXISTING PUBLIC FACILITIES

The City's existing wastewater infrastructure has been funded through a combination of utility rate revenues and other governmental funds.

### FUTURE CAPITAL FACILITIES ANALYSIS

The City's Sewer Collection Master Plan Update includes an extensive review and analysis of the current collection system, evaluates future development within the Service Area, and details the improvements necessary to maintain and expand the collection system in order to serve the entire service area through ultimate build-out. The Capital Improvement Plan in the Master Plan provides a prioritized list of capital improvements needed now, and for years 2020, 2025, and build-out.

This analysis will consider only projects needed to serve the service area in the next six years. Therefore, TABLE 5.3 summarizes the City's plans to cure existing system deficiencies and create additional capacity within the system to address the City's projected needs through 2025. The line-upsize construction year costs shown include only the cost to upsize existing lines and exclude the replacement portion of the construction cost.

TABLE 5.1: PROJECTED GROWTH IN DEMAND UNITS

YEAR	ERUS (SEWER)
2018	55,918
<b>2019</b>	<b>57,316</b>
2020	58,749
2021	60,218
2022	61,723
2023	63,267
2024	64,848
<b>2025</b>	<b>66,469</b>
<b>IFFP Growth</b>	<b>9,153</b>

TABLE 5.2: EXISTING LEVEL OF SERVICE

Residential GPD/Capita	70
Avg. HH Size	3.50
GPD per ERU	245.00

Source: Logan City Public Works Department, 2018 Sewer Collection Master Plan p.36

TABLE 5.3: FIVE-YEAR ALLOCATION OF CAPITAL IMPROVEMENTS BY COMPONENT

	Construction Year Cost	% to Growth	Total Eligible Cost
<b>Existing System Condition Improvements</b>			
Replace existing pipe at 400 N (Main to 700 E) & 700 E (400 N to 600 N)	\$4,200,121	0%	\$0
Replace existing pipe at Country Club Dr	\$71,991	0%	\$0
Replace existing pipe at 1000 N	\$443,019	0%	\$0
Replace existing pipe at 200 S	\$321,522	0%	\$0
Replace existing pipe at 500 N	\$90,977	0%	\$0
Replace existing pipe at 600 E and 1150 N	\$190,582	0%	\$0
<b>Total Existing System Condition Improvements</b>	<b>\$5,318,211</b>		<b>\$0</b>
<b>Existing System Capacity Improvements</b>			
Purchase of Ford F650 Sewer Line Grout Truck	\$696,661	0%	\$0
1800 N from 800 W to 1000 W	\$80,549	100%	\$80,549
Install new 15" pipe at 300 S from 300 E to Main	\$719,821	0%	\$0
Install new pumps at Airport lift station	\$14,853	100%	\$14,853
800 N; 150 W – 200 W Canal Crossing	\$159,135	0%	\$0
1100 N; 1200 E – 1600 E	\$371,315	0%	\$0
Install new 8" line 900 W to 1000 W at 1230 S	\$60,498	100%	\$60,498
US 89/91 Logan Corridor Sewer Line	\$213,607	100%	\$213,607
<b>Total Existing System Capacity Improvements</b>	<b>\$2,316,439</b>		<b>\$369,507</b>
<b>Year 2020 System Capacity Improvements</b>			
Add a parallel 15" main line at 1200 S	\$254,472	100%	\$254,472
<b>Total Year 2020 System Capacity Improvements</b>	<b>\$254,472</b>		<b>\$254,472</b>
<b>Total All Projects</b>	<b>\$7,889,122</b>		<b>\$623,979</b>

## PROPOSED WASTEWATER COLLECTION IMPACT FEE

### PLAN BASED IMPACT FEE CALCULATION

Impact fees can be calculated based on a defined set of costs specified for future development, usually defined within the Master Plan, Capital Improvement Plan and/or IFFP. The total project costs are divided by the total demand units the projects are designed to serve. Under this methodology, it is important to identify the existing level of service and determine any excess capacity in existing facilities that could serve new growth. Impact fees are then calculated based on many variables centered on proportionate share and LOS.

The wastewater impact fees proposed in this analysis will be assessed within the Service Area. The table below illustrates the appropriate impact fee to maintain the existing LOS, based on the assumptions within this document. The fee below represents the maximum allowable impact fee assignable to new development. The total fee per ERU is \$203.

TABLE 5.4: COLLECTION IMPACT FEE PER ERU

	Total Cost	% to IF Eligible	Total Impact Fee Eligible Cost	ERUs Served	Cost per ERU
Existing Facilities	\$21,086,764	6%	\$1,223,541	9,153	\$134
Future Facilities	\$7,889,122	8%	\$623,979	9,153	\$68
Professional Expense	\$7,425	100%	\$7,425	9,153	\$1
<b>Total</b>	<b>\$28,983,311</b>		<b>\$1,854,945</b>		<b>\$203</b>

### WASTEWATER COLLECTION IMPACT FEE BY WATER METER SIZE

TABLE 5.5 shows the maximum allowable impact fee per meter size.

TABLE 5.5: WASTEWATER COLLECTION IMPACT FEE BY WATER METER SIZE

METER SIZE	ERU MULTIPLIER	FEE PER ERU
1" Displacement Meter	1.0	\$203
2" Displacement/Compound Meter	3.2	\$650
4" Compound Meter	10.0	\$2,030
Collection Impact Fees for meters larger than 4" will be calculated using this equation: (estimated usage/245 gpd) * \$203		

### NON-STANDARD IMPACT FEES

The City reserves the right under the Impact Fees Act<sup>8</sup> to assess an adjusted fee that more closely matches the true impact that the land use will have upon the sanitary sewer system. This adjustment could result in a lower impact fee if evidence suggests a particular user will create a different impact than what is standard for its category. The formula for a non-standard impact fee calculation is shown below.

NON-STANDARD IMPACT FEE FORMULA

**Estimated ERUs x \$203 = Impact Fee**

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<sup>8</sup> 11-36a-402(1)(c)

## SECTION 6: WASTEWATER TREATMENT IFFP AND IFA

Impact fees are calculated based on many variables centered on proportionality and LOS. Future demands were previously identified in this document, and this section will discuss the existing and proposed LOS, the availability of excess capacity, the needed future facilities to serve new development, and the appropriate impact fee to be assessed to new development to maintain the existing LOS. The Logan Sewer Collection Master Plan adopted July 2018 provides some of the information for this Section.

### DEMAND

The primary demand unit related to the wastewater treatment IFA is existing flow and ERUs. Current estimated flows are 13.7 MGD, for a total of 55,918 ERUs. Using the high growth scenario, it is anticipated that 16,053 ERUs will be added to the system in the next ten years.

### EXISTING FACILITIES

The wastewater treatment system has the capacity to treat 18 MGD annual average demand. The system treats sewer flows from Logan City as well as Smithfield, Hyde Park, North Logan, River Heights, Providence, and Nibley. The Environmental Department's existing regional wastewater treatment system consists of 460 acres of lagoons, and 240 acres of wetlands to treat and further polish wastewater. A total of \$16,561,911 in original system value is included in this analysis when determining buy-in value. This includes pump stations, land, and improvements.

### LEVEL OF SERVICE

Impact fees cannot be used to finance an increase in the LOS to current or future

users of capital improvements. Therefore, it is important to identify the wastewater LOS to ensure that the new capacities of projects financed through impact fees do not exceed the established standard. The established LOS is 245 GPD per ERU.

### EXCESS CAPACITY

While the construction of the new treatment facility is needed to further treat for phosphorus and ammonia removal, existing facilities will continue to be utilized to provide storage facilities to existing and future ERUs to account for max day flows. This analysis includes a buy-in to existing facilities to account for this capacity. The capacity of the lagoon system is applied to the total treatment capacity of the system, or 18 MGD.

### MANNER OF FINANCING EXISTING PUBLIC FACILITIES

There is currently no outstanding debt related to the wastewater treatment system. This analysis assumes future growth-related facilities will be funded through a combination of utility revenues, impact fee revenues and debt financing.

### FUTURE CAPITAL FACILITIES ANALYSIS

The estimated costs attributed to new growth were analyzed based on existing development versus future development patterns. From this analysis, a portion of future development costs were attributed to new growth and included in this impact fee analysis as shown in **Table 6.3**. Capital projects related to curing existing deficiencies were not included in the calculation of the impact fees. The costs of projects related to curing existing deficiencies cannot be funded through impact fees.

TABLE 6.1: PROJECTED GROWTH IN DEMAND UNITS

YEAR	FLOW (MODERATE GROWTH RATE 1.5%)	ERUS	FLOW (HIGH GROWTH RATE 2.5%)	ERUS
2018	13,700,000	55,918	13,700,000	55,918
2019	13,905,500	56,757	14,042,500	57,316
2020	14,114,083	57,609	14,393,563	58,749
2021	14,325,794	58,473	14,753,402	60,218
2022	14,540,681	59,350	15,122,237	61,723
2023	14,758,791	60,240	15,500,293	63,267
2024	14,980,173	61,144	15,887,800	64,848
2025	15,204,874	62,061	16,284,995	66,469
2026	15,432,948	62,992	16,692,120	68,131
2027	15,664,443	63,937	17,109,423	69,834
2028	15,899,409	64,896	17,537,158	71,580
2029	16,137,900	65,869	17,975,587	73,370
2030	16,379,969	66,857	18,424,977	75,204
IFFP Growth (2019-2029)	2,232,400	9,112	3,933,087	16,053

Source: LYRB projections, based on data from Logan City, and the 2018 Sewer Collection Master Plan.

TABLE 6.2: EXISTING LEVEL OF SERVICE

Residential GPD/Capita	70
Avg. HH Size	3.50
GPD per ERU	245.00

Source: Logan City Public Works Department, 2018 Sewer Collection Master Plan p.36

Logan City is in the process of updating the lagoons to a mechanical plant in order to accommodate more stringent ammonia and phosphorous standards, as well as future total nitrogen limits. Construction is estimated to be completed and the plant operational by the end of the year 2022. Based on capacity of the proposed improvements, the treatment facility can serve an additional 4.3 MGD, which represent 24 percent of the total capacity of the facility. Based on the existing LOS, this will serve an additional 17,551 ERUs.

TABLE 6.3: ILLUSTRATION OF CAPITAL IMPROVEMENTS SCHEDULED TO BE COMPLETED

FUTURE FACILITIES	TOTAL CONSTRUCTION YEAR COST	% TO GROWTH	COST TO GROWTH	% CITY FUNDED	TOTAL IMPACT FEE ELIGIBLE COST
New Treatment Facility	\$150,271,315	24%	\$35,898,147	100%	\$35,898,147
Interest	\$11,875,235	24%	\$2,836,862	100%	\$2,836,862
<b>Total</b>	<b>\$162,146,550</b>		<b>\$38,735,009</b>		<b>\$38,735,009</b>

The treatment facility is anticipated to cost a total of \$162,146,550. \$38,735,009, or 24 percent of the total cost, is considered impact fee eligible capital cost.

## FUNDING OF FUTURE FACILITIES

The Impact Fee Act does allow for the inclusion of debt financing in the calculation of the impact fee for growth related costs of expanding public facilities. The City has determined it will be necessary to fund a portion of the wastewater treatment facility in this manner. The City has acquired low interest loans from the Utah Division of Water Quality, the State of Utah's Community Impact Board, and cash reserves or tax-exempt bonding in the public markets for the balance of the project. In addition, utility rate revenue and fund balances will be used to fund the project. Impact fees can be used to pay the proposed debt service, pay back existing rate payers and replenish the fund balance for the growth-related portions of the project. Future financing costs are illustrated in **Table 6.4**. A total of \$11.8M in interest cost is included in this analysis and added to the total cost found in **Table 6.3**.

TABLE 6.4: ILLUSTRATION OF PROPOSED FINANCING MECHANISMS

FISCAL YEAR	2016 TAXABLE SEWER TREATMENT REVENUE BONDS		2018A STATE SEWER REVENUE BONDS		2018B CIB SEWER REVENUE BONDS	
	INTEREST	PRINCIPAL	INTEREST	PRINCIPAL	INTEREST	PRINCIPAL
2019-20	-	-	23,504	-	94,941	-
2020-21	-	-	300,000	532,000	150,000	430,000
2021-22	-	3,257,000	292,020	540,000	143,550	435,000
2022-23	500,573	3,282,000	283,920	549,000	137,025	440,000
2023-24	475,958	3,306,000	275,685	557,000	130,425	445,000
2024-25	451,163	3,331,000	267,330	565,000	123,750	455,000
2025-26	426,180	3,356,000	258,855	574,000	116,925	465,000
2026-27	401,010	3,381,000	250,245	582,000	109,950	470,000
2027-28	375,653	3,406,000	241,515	591,000	102,900	480,000
2028-29	350,108	3,432,000	232,650	600,000	95,700	490,000
2029-30	324,368	3,458,000	223,650	609,000	88,350	495,000
2030-31	298,433	3,484,000	214,515	618,000	80,925	500,000
2031-32	272,303	3,510,000	205,245	627,000	73,425	510,000
2032-33	245,978	3,536,000	195,840	637,000	65,775	520,000
2033-34	219,458	3,563,000	186,285	646,000	57,975	530,000
2034-35	192,735	3,589,000	176,595	656,000	50,025	535,000
2035-36	165,818	3,616,000	166,755	666,000	42,000	545,000
2036-37	138,698	3,643,000	156,765	676,000	33,825	550,000
2037-38	111,375	3,671,000	146,625	686,000	25,575	560,000
2038-39	83,843	3,698,000	136,335	696,000	17,175	570,000
2039-40	56,108	3,726,000	125,895	707,000	8,625	575,000
2040-41	28,163	3,755,000	115,290	718,000	-	-
2041-42	-	-	104,520	729,000	-	-
2042-43	-	-	93,585	740,000	-	-
2043-44	-	-	82,485	751,000	-	-
2044-45	-	-	71,220	762,000	-	-
2045-46	-	-	59,790	774,000	-	-
2046-47	-	-	48,180	785,000	-	-

FISCAL YEAR	2016 TAXABLE SEWER TREATMENT REVENUE BONDS		2018A STATE SEWER REVENUE BONDS		2018B CIB SEWER REVENUE BONDS	
	INTEREST	PRINCIPAL	INTEREST	PRINCIPAL	INTEREST	PRINCIPAL
2047-48	-	-	36,405	797,000	-	-
2048-49	-	-	24,450	809,000	-	-
2049-50	-	-	12,315	821,000	-	-
<b>Total</b>	<b>\$5,117,925</b>	<b>\$70,000,000</b>	<b>\$5,008,469</b>	<b>\$20,000,000</b>	<b>\$1,748,841</b>	<b>\$10,000,000</b>

## PROPOSED WASTEWATER TREATMENT IMPACT FEE

Impact fees are calculated based on many variables centered on proportionality and LOS. This section identified the future demand, the existing and proposed LOS, the availability of excess capacity and the needed future facilities to serve new development. The following identifies the appropriate impact fee to be assessed to new development to maintain the existing LOS.

Impact fees can be calculated based on a defined set of costs specified for future development, usually defined within the Master Plan, Capital Improvement Plan and IFFP. The total project costs are divided by the total demand units the projects are designed to serve. Under this methodology, it is important to identify the existing LOS and determine any excess capacity in existing facilities that could serve new growth. Impact fees are then calculated based on many variables centered on proportionality share and LOS.

The wastewater treatment impact fees proposed in this analysis will be assessed within the Service Area. The table below illustrates the appropriate impact fee to maintain the existing LOS, based on the assumptions within this document. The fee below represents the maximum allowable impact fee assignable to new development. The total fee per ERU is **\$2,433**.

TABLE 6.5: IMPACT FEE PER ERU

	TOTAL COST	% TO GROWTH	COST TO IFFP	ERUS SERVED	COST PER ERU
Existing Facilities (Buy-In)	\$16,561,911	24%	\$3,956,456	17,551	\$225
Future Facilities	\$162,146,550	24%	\$38,735,009	17,551	\$2,207
Professional Expense	\$13,050	100%	\$13,050	17,551	\$1
Impact Fee Fund Balance	-	100%	-	17,551	-
<b>Total per ERU</b>			<b>\$42,704,516</b>		<b>\$2,433</b>

TABLE 6.6 shows the maximum allowable impact fee per meter size.

TABLE 6.6: WASTEWATER TREATMENT IMPACT FEE BY WATER METER SIZE

METER SIZE	ERU MULTIPLIER	FEE PER ERU
1" Displacement Meter	1.0	\$2,433
2" Displacement/Compound Meter	3.2	\$7,786
4" Compound Meter	10.0	\$24,327

Collection Impact Fees for meters larger than 4" will be calculated using this equation: (estimated usage/245 gpd) \* \$2,433

### NON-STANDARD IMPACT FEES

The City reserves the right under the Impact Fees Act<sup>9</sup> to assess an adjusted fee that more closely matches the true impact that the land use will have upon the wastewater system. This adjustment could result in a lower impact fee if evidence suggests a particular user will create a different impact than what is standard for its category. The formula for a non-standard impact fee calculation is shown below.

#### NON-STANDARD IMPACT FEE FORMULA

$$\text{Estimated Flow}/245 \text{ GPD} \times \$2,433 = \text{Impact Fee}$$

<sup>9</sup> 11-36a-402(1)(c)