

Water Impact Fee Analysis and *DRAFT* Wastewater Analysis

Prepared for

North Logan City

By

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SUMMARIES

Water Impact Fee Summary

Components of the Water Impact Fee

The water impact fee is comprised of two components: a cost per connection for growth related system improvements and a debt service credit.

Cost per connection for growth related water system improvements. Due to anticipated growth in North Logan City, the city has completed a five-year capital facilities plan that includes improvements necessitated by the demands of new development. The cost per connection for the planned improvements is \$5,027.

Debt Service Credit per connection. North Logan City will need to bond for the projects in the five-year capital facilities plan. Current and future residents will pay for this debt through monthly user charges. For future users, however, their share of this debt was already included in the cost per connection for planned improvements. If new development pays an impact fee that includes the cost of the facilities and then pays a monthly user fee to service the debt for those facilities, then the new development is charged twice. To avoid double-charging new development, an appropriate amount (called the *debt service credit*) is subtracted in the calculation of the impact fee. The debt service credit per connection is \$785.

Calculation of the Impact Fee. The following formula is used to calculate the water impact fee: *Cost per connection for growth related water system improvements – Debt Service Credit per connection = Impact Fee.* Or $\$5,027 - \$785 = \$4,242$.

The impact fee is based on the size of the water meter. The impact fee calculated above is for a standard residential connection (3/4"). The impact fees for non-residential connections are based on the capacity ratio of the desired meter size to the 3/4-inch standard. For example, a 1-inch meter has 1.67 times the capacity of the 3/4-inch meter. To calculate the impact fee for a 1-inch meter, the standard impact fee is multiplied by 1.67. $\$4,242 \times 1.67 = \$7,084$.

Wastewater Impact Fee Summary

Components of the Wastewater Impact Fee

The wastewater impact fee is comprised of three components: a cost per connection for existing wastewater facilities, a cost per connection for growth related system improvements, and a debt service credit.

Cost per connection for existing wastewater facilities. The current wastewater system in North Logan City has capacity to accommodate new growth. Cities may charge new development for their share of the existing system. The cost per connection for existing wastewater facilities is \$3,469 for the northwest service area and \$1,282 for the remainder of the city.

Cost per connection for growth related wastewater system improvements. Due to anticipated growth in North Logan City, the city has completed a five-year capital facilities plan that includes improvements necessitated by the demands of new development. The cost per connection for the planned improvements is \$1,884.

Debt Service Credit per connection. North Logan City has two outstanding wastewater bonds that will be retired in 2021. The projects these bonds served are included in the cost of existing wastewater facilities. If new development pays an impact fee that includes the cost of the facilities and then pays a monthly user fee to service the debt for those facilities, then the new development is charged twice. To avoid double-charging new development, an appropriate amount (called the *debt service credit*) is subtracted in the calculation of the impact fee. The debt service credit per connection is \$39.

Calculation of the Impact Fee. The following formula is used to calculate the wastewater impact fee: *Cost per connection for existing wastewater facilities + Cost per connection for growth related wastewater system improvements – Debt Service Credit = Impact Fee.* The calculation is $\$3,469 + \$1,884 - 39 = \$5,314$ in the Northwest Service Area and $\$1,282 + \$1,884 - 39 = \$3,127$ in the remainder of the city.

The impact fee is based on the size of the sewer pipe. The impact fee calculated above is for a residential connection (4 inch pipe). The impact fees for non-residential connections are based on the capacity ratio of the desired pipe size to the 4-inch standard. For example, a 6-inch pipe has 2.25 times the capacity of the 4-inch pipe. To calculate the impact fee for a 6-inch pipe, the standard impact fee is multiplied by 2.25. $\$3,127 \times 2.25 = \$7,036$.

STEPS FOR CALCULATING THE IMPACT FEE

As outlined in the Impact Fees Act, the following steps are taken to calculate an impact fee:

- Step 1: Calculate new development's share of existing public facilities.
- Step 2: Calculate new development's share of system improvements for each public facility by:
 - A. Identifying the established level of service for each public facility, and;
 - B. Identifying the impact on system improvements required to maintain the established level of service.
- Step 3: Other than impact fees, determine the manner of financing each public facility.
- Step 4: Determine whether impact fees are necessary to achieve an equitable allocation to the costs borne in the past and to be borne in the future, in comparison to the benefits already received and yet to be received.
- Step 5: Assess the relative extent to which properties in North Logan City have already contributed to the cost of existing public facilities.
- Step 6: Assess the relative extent to which development activity will contribute to the cost of existing public facilities and system improvements in the future.
- Step 7: Assess the extent to which the development activity is entitled to a credit against impact fees because the development activity will dedicate system improvements or public facilities that will offset the demand for system improvements and assess any extraordinary costs in servicing the newly developed properties.
- Step 8: Based on the above steps and the requirements of Utah Code, Title 11 Chapter 36, identify how the impact fee is calculated.

WATER IMPACT FEE ANALYSIS

The following assumptions are used in the Water Impact Fee Analysis:

- The number of water Equivalent Residential Connections (ERCs) in 2020 in North Logan City is 3,875, with 2,349 of those connections being residential and 1,526 being commercial or industrial¹.
- The annual growth rate will be 3.87% for residential connections and 2.50% for commercial and industrial connections².

Step 1: Calculate New Development's Share of Existing Public Facilities

North Logan City currently receives culinary water from seven sources, which are sufficient for the water demand of existing residents. The city also has four reservoirs, totaling 3.0 MG of water storage, which is also sufficient for the demands of existing residents. Although the existing water system meets the demand of current residents, it does not have excess capacity for new growth. For this reason, none of the costs of the existing water system is included in the impact fee calculation.

Step 2: Calculate New Development's Share of System Improvements

Identifying the Established Level of Service

The current level of water service is outlined in the North Logan City Water Master Plan 2020. The current water supply is 15.73 cubic feet per second³. With 3,875 ERCs, the level of service is 0.0041 cfs per ERC ($15.73/3,875 = 0.0041$). There are 3.0 MG of water storage⁴. With 3,875 ERCs, the existing level of service for water storage is 0.77 MG per 1,000 ERCs ($1,000 \times 3.0 / 3,875$).

Identifying the Impact on System Improvements Required to Maintain the Established Level of Service

The North Logan city water system is currently at capacity. As new development is added to the system, the current level of service will be degraded if additional water system projects are not completed. The planned improvements in the water capital facilities plan are designed to maintain the existing level of service within the city. Table 2 shows the planned improvements to the water system that are required by new development over the next five years. The expected cost of each improvement is multiplied by the percent of the project allocated to new growth and then divided by the number of new ERCs the project can serve, yielding the cost per ERC. The Impact Fees Act also allows cities to recoup the cost of conducting an impact fee analysis. The

¹ Zac Root, North Logan City Utilities Division Manager

² North Logan City Water Master Plan 2020

³ North Logan City Water Master Plan 2020

⁴ City of North Logan, Utah, 2010 Culinary Water System Master Plan, December 2010, page 21.

total cost of the analysis (\$8,000) is divided by the expected number of new ERCs in six years (845) to yield the analysis cost per ERC of \$10.

Table 1: Planned Improvements

Improvement	Expected Cost	Percent Allocated to New Growth	New ERCs Project Can Serve	Cost per ERC
2200 N 400 E - 600 E	\$198,000	35%	90	\$770
PRV at 2200 N 600 E	\$65,000	35%	90	\$253
3 Million Gallon Storage Tank	\$2,800,000	100%	1,580	\$1,772
Distribution to new tank	\$675,000	100%	1,580	\$427
New Pump Station - Green Canyon	\$425,000	100%	1,580	\$269
New Well	\$1,500,000	100%	1,400	\$1,071
Upsizing water lines with new development	\$250,000	100%	550	\$455
Total Cost per ERC				\$5,017
Cost of Water Impact Fee Analysis per new ERC				\$10
Total Cost for Planned Improvements per ERC				\$5,027

Step 3: Other Than Impact Fees, Determine the Manner of Financing Each Public Facility

There are no outstanding water bonds, but the city plans to bond to pay for water system improvements. Other than impact fees, the city plans to use water enterprise fund monies to pay for this loan.

Step 4: Determine Whether Impact Fees are Necessary

The Utah Impact Fees Act requires cities to determine whether impact fees are necessary to achieve an equitable allocation to the costs borne in the past and to be borne in the future, in comparison to the benefits already received and yet to be received.

Current and past city residents have already paid for the existing water system. Without an impact fee, existing residents would bear the cost of projects for new development. The impact fee achieves an equitable balance so that new development pays for itself.

Step 5: Assess the Relative Extent of Contributions by Undeveloped Properties to the Cost of Existing Facilities

No monies from undeveloped properties, such as through property taxes, have been used to finance any water improvements included in this analysis. Therefore, undeveloped properties have not contributed to the cost of existing facilities included in the analysis.

Step 6: Relative Extent of Future Contributions to Cost of Existing Facilities

The city plans to bond in the amount of \$5,400,000 to pay for planned water improvements. Assuming a 2.375% interest rate and a 30-year term, a repayment schedule can be generated.

Current and future residents will pay for this bond through monthly user charges. For future users only, however, their share of this debt was already included in the cost per connection for planned improvements (Table 1). If new development pays an impact fee that includes the cost of the facilities and then pays a monthly user fee to service the debt for those facilities, then the new development is charged twice. To avoid double-charging new development, a debt service credit is calculated as follows. First, the total debt payments for each year are divided by the estimated number of connections in that year, using a 3.87% growth rate for residential connections and a 2.50% growth rate for commercial and industrial connections. This calculation yields the debt payment per connection. Then, the present value of the debt payment per connection is calculated, using a 5% discount rate. This ensures that the credit is given in 2020 dollars. Finally, the payments over the life of the loans are summed to find the total amount new development will contribute to the payment of this debt until the debt is retired. This is the debt service credit (Table 2).

Table 2: Debt Service Credit

Year	Series 2012 Bond	Number of ERCs	Debt per ERC	Present Value
2020	\$308,250	4,004	\$77	\$77
2021	\$303,975	4,138	\$73	\$70
2022	\$299,700	4,276	\$70	\$64
2023	\$295,425	4,419	\$67	\$58
2024	\$291,150	4,567	\$64	\$52
2025	\$286,875	4,720	\$61	\$48
2026	\$282,600	4,878	\$58	\$43
2027	\$278,325	5,042	\$55	\$39
2028	\$274,050	5,212	\$53	\$36
2029	\$269,775	5,387	\$50	\$32
2030	\$265,500	5,569	\$48	\$29
2031	\$261,225	5,757	\$45	\$27
2032	\$256,950	5,952	\$43	\$24
2033	\$252,675	6,153	\$41	\$22
2034	\$248,400	6,362	\$39	\$20
2035	\$244,125	6,578	\$37	\$18
2036	\$239,850	6,801	\$35	\$16
2037	\$235,575	7,033	\$33	\$15
2038	\$231,300	7,272	\$32	\$13
2039	\$227,025	7,520	\$30	\$12
2040	\$222,750	7,777	\$29	\$11
2041	\$218,475	8,043	\$27	\$10
2042	\$214,200	8,318	\$26	\$9
2043	\$209,925	8,603	\$24	\$8
2044	\$205,650	8,898	\$23	\$7
2045	\$201,375	9,204	\$22	\$6
2046	\$197,100	9,520	\$21	\$6
2047	\$192,825	9,848	\$20	\$5
2048	\$188,550	10,188	\$19	\$5
2049	\$184,275	10,539	\$17	\$4
Debt Service Credit (Present Value of Future Debt Payments)				\$785

Step 7: Calculation of Credit Entitlements and Extraordinary Costs

New development may be entitled to a credit when the development provides common facilities inside or outside the proposed development when similar facilities have been funded through general taxation or other means in other parts of the municipality. Credits must be determined by the city on a per-development basis. Extraordinary

costs should be evaluated by the city on a per-development basis. This procedure should also be addressed in the impact fee ordinance.

Step 8: Calculation of Impact Fee

The recommended maximum water impact fee is calculated by subtracting the debt service credit from the cost per ERC for planned improvements (Table 3).

Table 3: Impact Fee Calculation

Costs for Planned Improvements (from Table 1)	\$5,027
Debt Service Credit (from Table 2)	-\$785
Recommended Standard Water Impact Fee	\$4,242

Recommended Impact Fee Schedule

The impact fee is based on the size of the water meter. The impact fee calculated above is for a standard residential connection (3/4"). The impact fees for non-residential connections are based on the capacity ratio of the desired meter size to the 3/4-inch standard. For example, a 1-inch meter has 1.67 times the capacity of the 3/4-inch meter. To calculate the impact fee for a 1-inch meter, the standard impact fee is multiplied by 1.67. $\$4,242 \times 1.67 = \$7,085$.

Recommended Water Impact Fee Schedule			
Meter Size in Inches	Capacity, GPM	Capacity Ratio to Standard Meter	Recommended Fee
3/4	30	1.00	\$4,242
1	50	1.67	\$7,085
1.5	100	3.33	\$14,127
2	160	5.33	\$22,612
3	450	15.00	\$63,635
4	1000	33.33	\$141,397

Changing the Impact Fee Over Time

The water impact fee shown in Step 8 is based on 2020 dollar values. The impact fee in subsequent years should be different because the present value of the existing system increases and the debt services credit decreases. See the appendix for a recommended schedule of impact fees over the next six years.

WASTEWATER IMPACT FEE ANALYSIS

The following assumptions are used in the Wastewater Impact Fee Analysis:

- The number of water Equivalent Residential Connections (ERCs) in 2020 in North Logan City is 3,875, with 2,349 of those connections being residential and 1,526 being commercial or industrial⁵.
- The annual growth rate will be 3.87% for residential connections and 2.50% for commercial and industrial connections⁶.
- It is appropriate to divide the wastewater collection system into two service areas: Northwest and the remainder of the city⁷.

Step 1: Calculate New Development's Share of Existing Public Facilities

The original wastewater collection system was designed to accommodate 11,405 ERCs, well over the number of existing ERCs of 3,875. The cost of this excess capacity may be assigned to new growth. In more recent years there have been additional system improvements to the wastewater system that were built to meet the needs of new growth. These include a lift station and new lines in the northwest area of the city, built in 2005. This improvement only benefits development within that area. When system improvements are clearly serving only one area of the city, it is appropriate to designate that area as a service area. For North Logan City, there are two service areas: the northwest service area served by the northwest lift station, and the remainder of the city.

The existing wastewater system cost per ERC is calculated by dividing the present value of system improvements by the number of ERCs the improvement is designed to serve⁸. The present value is calculated using a 5% discount rate⁹.

Logan City's treatment facilities, used by North Logan residents, are not included in this impact fee analysis.

⁵ Zac Root, North Logan City Utilities Division Manager

⁶ North Logan City Water Master Plan 2020

⁷ Lance Anderson, City Engineer, Cache Landmark Engineers

⁸ All ERC calculations by Lance Anderson, City Engineer, Cache Landmark Engineers

⁹ Discount rates are subjective. There is no definitive discount rate for present value calculations. Rates of 3%, 5%, 6%, and 10% are widely found in economic literature. To be conservative, a discount rate of 5% has been employed, which is the same interest rate the city expects to obtain on the land loan.

Table 4: Existing Wastewater System

City-wide System Improvements					
Year	Original Collection System Improvements	Cost	Present Value	ERCs	Present Value per ERC
1985	Collection System Improvements	\$236,682	\$1,305,542	11,405	\$114
1986	Collection System Improvements	\$35,056	\$184,161	11,405	\$16
1987	Collection System Improvements	\$73,627	\$368,370	11,405	\$32
1988	Collection System Improvements	\$34,208	\$162,999	11,405	\$14
1989	Collection System Improvements	\$33,557	\$152,283	11,405	\$13
1990	Collection System Improvements	\$29,892	\$129,192	11,405	\$11
1991	Collection System Improvements	\$13,740	\$56,556	11,405	\$5
1992	Collection System Improvements	\$5,000	\$19,601	11,405	\$2
1993	Collection System Improvements	\$4,135	\$15,438	11,405	\$1
1994	Collection System Improvements	\$209,735	\$745,749	11,405	\$65
1996	Collection System Improvements	\$101,466	\$327,238	11,405	\$29
Cost per ERC					\$304
Year	City-wide System Improvements	Cost	Present Value	ERCs	Present Value per ERC
2011	2200 North, 21" sewer	\$200,090	\$310,405	7,401	\$42
2015	400 East, 18" sewer	\$85,000	\$108,484	1,250	\$87
2015	200 East, 10" sewer and stubs under road	\$423,708	\$540,771	650	\$832
2019	400 East Roundabout	\$70,000	\$73,500	4,250	\$17
Cost per ERC					\$978
Northwest Service Area System Improvements					
Year	Northwest Service Area System Improvements	Cost	Present Value	ERCs	Present Value per ERC
2005	NW Lift station and lines	\$203,000	\$422,022	193	\$2,187
Northwest Service Area Total Cost per ERC					\$3,469
Remaining City Service Area Total Cost per ERC					\$1,282

Step 2: Calculate New Development's Share of System Improvements

Identifying the Established Level of Service

There are currently 3,875 existing wastewater ERCs. An analysis by Cache Landmark Engineers shows that an additional **XXX ERCs** may be added before the level of service declines for existing users.

Identifying the Impact on System Improvements Required to Maintain the Established Level of Service

Although the North Logan City wastewater system has excess capacity, there are system improvements planned to ensure the level of service is maintained for existing residents as well as new growth. The planned improvements in the wastewater capital facilities plan are required for existing as well as new development. In Table 5, the expected cost is multiplied by the percent allocated to new growth then divided by the number of new ERCs the project can serve to yield a total cost per ERC of \$1,874. The Impact Fees Act also allows cities to recoup the cost of conducting an impact fee analysis. The total cost of the analysis (\$8,000) is divided by the expected number of new ERCs in six years (845) to yield the analysis cost per ERC of \$10. The total cost for planned improvements per ERC is \$1,884.

Table 5: Wastewater Planned Improvements

Improvement	Expected Cost	Percent Allocated to New Growth	New ERCs Project Can Serve	Cost per ERC
Main trunk line, shared with Logan	\$6,000,000	77%	7,401	\$627
2200 N 400 E - 600 E	\$330,000	100%	7,401	\$45
200 N 200 E - 400 W	\$1,056,000	77%	7,401	\$110
Meter station	\$250,000	77%	7,401	\$26
Upsize or main line extension with new development	\$250,000	100%	250	\$1,000
1800 N 400 E	\$82,500	100%	1,250	\$66
Total Cost per ERC				\$1,874
Cost of Wastewater Impact Fee Analysis per new ERC				\$10
Total Cost for Planned Improvements per ERC				\$1,884

Step 3: Other Than Impact Fees, Determine the Manner of Financing Each Public Facility

North Logan City used RDA funds to partially fund two improvements included in the cost of existing wastewater facilities.

There are two outstanding wastewater bonds. Other than impact fees, the city plans to use wastewater enterprise fund monies to pay for the bonds.

Step 4: Determine Whether Impact Fees are Necessary

The Utah Impact Fees Act requires cities to determine whether impact fees are necessary to achieve an equitable allocation to the costs borne in the past and to be borne in the future, in comparison to the benefits already received and yet to be received.

Current and past city residents have already paid for the existing wastewater collection and treatment system. Because the system has excess capacity, that means they have also paid for the oversizing of that system. Without an impact fee, new development would receive the benefit of the existing system without the cost associated with that benefit. Additionally, the planned improvements to the system will be oversized and new development should pay their fair share of those systems as well. An impact fee achieves that equitable balance.

Step 5: Assess the Relative Extent of Contributions by Undeveloped Properties to the Cost of Existing Facilities

No monies from undeveloped properties, such as through property taxes, have been used to finance any wastewater improvements included in this analysis. Therefore, undeveloped properties have not contributed to the cost of existing facilities.

Step 6: Relative Extent of Future Contributions to Cost of Existing Facilities

There are two outstanding wastewater loans, one of which will be retired this year and the other in 2021. Current and future residents will pay for this debt through monthly user charges. For future users, however, their share of this debt was already included in the cost per connection for existing wastewater facilities. If new development pays an impact fee that includes the cost of the facilities and then pays a monthly user fee to service the debt for those facilities, then the new development is charged twice. To avoid double-charging new development, a debt service credit is calculated as follows. First, the total debt payments for each year are divided by the estimated number of connections in that year, using a 3.87% growth rate for residential connections and a 2.50% growth rate for commercial and industrial connections. This calculation yields the

debt payment per connection. Then, the present value of the debt payment per connection is calculated, using a 5% discount rate. This ensures that the credit is given in 2020 dollars. Finally, the payments over the life of the loans are summed to find the total amount new development will contribute to the payment of this debt until the debt is retired. This is the debt service credit (Table 6).

Table 6: Wastewater Debt Service Credit

Year	GMAC 560	GMAC 1000	Number of ERCs	Debt per ERC	Present Value
2020	\$43,470	\$57,960	4,004	\$25	\$25
2021		\$58,600	4,138	\$14	\$13
Debt Service Credit (Present Value of Future Debt Payments)					\$39

Step 7: Calculation of Credit Entitlements and Extraordinary Costs

New development may be entitled to a credit when the development provides common facilities inside or outside the proposed development when similar facilities have been funded through general taxation or other means in other parts of the municipality. Credits must be determined by the city on a per development basis. Extraordinary costs should be evaluated by the city on a per development basis. This procedure should also be addressed in the impact fee ordinance.

Step 8: Calculation of Impact Fee

The recommended maximum wastewater impact fee is calculated by adding the existing facilities cost per ERC to the cost per ERC for planned improvements and subtracting the debt service credit (Table 7).

Table 7: Wastewater Impact Fee Calculation

Northwest Service Area Existing Facilities Cost per ERC (from Table 4)	\$3,469
Remaining City Service Area Existing Facilities Cost per ERC (from Table 4)	\$1,282
Costs for Planned Improvements (from Table 5)	\$1,884
Debt Service Credit (from Table 6)	-\$39
Northwest Service Area Recommended Standard Wastewater Impact Fee	\$5,314
Remaining City Service Area Recommended Standard Wastewater Impact Fee	\$3,127

Recommended Impact Fee Schedule

The impact fee is based on the size of the sewer pipe. The impact fee calculated above is for a residential connection (4 inch pipe). The impact fees for non-residential connections are based on the capacity ratio of the desired pipe size to the 4-inch standard. For example, a 6-inch pipe has 2.25 times the capacity of the 4-inch pipe. To

calculate the impact fee for a 6-inch pipe, the standard impact fee is multiplied by 2.25.
 $\$3,127 \times 2.25 = \$7,036$

North Service Area			
Pipe Size in Inches	GPM (at 2' per second velocity)	Capacity Ratio to 4" Sewer Pipe	Recommended Fee
4	30	1.00	\$5,314
6	50	2.25	\$11,956
8	100	4.00	\$21,255
12	160	9.00	\$47,824
South Service Area			
Pipe Size in Inches	GPM (at 2' per second velocity)	Capacity Ratio to 4" Sewer Pipe	Recommended Fee
4	30	1.00	\$3,127
6	50	2.25	\$7,036
8	100	4.00	\$12,509
12	160	9.00	\$28,144

Changing the Impact Fee Over Time

The wastewater impact fee shown in Step 8 is based on 2020 dollar values. The impact fee in subsequent years should be different because the present value of the existing system increases and the debt services credit decreases. See the appendix for a recommended schedule of impact fees over the next 6 years.

APPENDIX

Appendix A: Water Debt Service Credit over Time

Year	Series 2012 Bond	Number of ERCs	Debt per ERC	Present Value (2020)	Present Value (2021)	Present Value (2022)	Present Value (2023)	Present Value (2024)	Present Value (2025)
2020	\$308,250	0	\$77	\$77					
2021	\$303,975	0	\$73	\$70	\$73				
2022	\$299,700	0	\$70	\$64	\$67	\$70			
2023	\$295,425	0	\$67	\$58	\$61	\$64	\$67		
2024	\$291,150	0	\$64	\$52	\$55	\$58	\$61	\$64	
2025	\$286,875	0	\$61	\$48	\$50	\$53	\$55	\$58	\$61
2026	\$282,600	0	\$58	\$43	\$45	\$48	\$50	\$53	\$55
2027	\$278,325	0	\$55	\$39	\$41	\$43	\$45	\$48	\$50
2028	\$274,050	0	\$53	\$36	\$37	\$39	\$41	\$43	\$45
2029	\$269,775	0	\$50	\$32	\$34	\$36	\$37	\$39	\$41
2030	\$265,500	0	\$48	\$29	\$31	\$32	\$34	\$36	\$37
2031	\$261,225	0	\$45	\$27	\$28	\$29	\$31	\$32	\$34
2032	\$256,950	0	\$43	\$24	\$25	\$27	\$28	\$29	\$31
2033	\$252,675	0	\$41	\$22	\$23	\$24	\$25	\$26	\$28
2034	\$248,400	0	\$39	\$20	\$21	\$22	\$23	\$24	\$25
2035	\$244,125	0	\$37	\$18	\$19	\$20	\$21	\$22	\$23
2036	\$239,850	0	\$35	\$16	\$17	\$18	\$19	\$20	\$21
2037	\$235,575	0	\$33	\$15	\$15	\$16	\$17	\$18	\$19
2038	\$231,300	0	\$32	\$13	\$14	\$15	\$15	\$16	\$17
2039	\$227,025	0	\$30	\$12	\$13	\$13	\$14	\$15	\$15
2040	\$222,750	0	\$29	\$11	\$11	\$12	\$12	\$13	\$14
2041	\$218,475	0	\$27	\$10	\$10	\$11	\$11	\$12	\$12
2042	\$214,200	0	\$26	\$9	\$9	\$10	\$10	\$11	\$11
2043	\$209,925	0	\$24	\$8	\$8	\$9	\$9	\$10	\$10
2044	\$205,650	0	\$23	\$7	\$8	\$8	\$8	\$9	\$9
2045	\$201,375	0	\$22	\$6	\$7	\$7	\$7	\$8	\$8
2046	\$197,100	0	\$21	\$6	\$6	\$6	\$7	\$7	\$7
2047	\$192,825	0	\$20	\$5	\$6	\$6	\$6	\$6	\$7
2048	\$188,550	0	\$19	\$5	\$5	\$5	\$5	\$6	\$6
2049	\$184,275	0	\$17	\$4	\$4	\$5	\$5	\$5	\$5
Debt Service Credit (Present Value of Future Debt Payments)				\$785	\$743	\$703	\$665	\$628	\$592

Appendix B: Water Impact Fee Calculation over Time

2020	
Costs for Planned Improvements (from Table 1)	\$5,027
Debt Service Credit (from Table 2)	-\$785
Recommended Standard Water Impact Fee	\$4,242
2021	
Costs for Planned Improvements (from Table 1)	\$5,027
Debt Service Credit (from Table 2)	-\$743
Recommended Standard Water Impact Fee	\$4,284
2022	
Costs for Planned Improvements (from Table 1)	\$5,027
Debt Service Credit (from Table 2)	-\$703
Recommended Standard Water Impact Fee	\$4,324
2023	
Costs for Planned Improvements (from Table 1)	\$5,027
Debt Service Credit (from Table 2)	-\$665
Recommended Standard Water Impact Fee	\$4,362
2024	
Costs for Planned Improvements (from Table 1)	\$5,027
Debt Service Credit (from Table 2)	-\$628
Recommended Standard Water Impact Fee	\$4,399
2025	
Costs for Planned Improvements (from Table 1)	\$5,027
Debt Service Credit (from Table 2)	-\$592
Recommended Standard Water Impact Fee	\$4,435

Appendix C: Existing Wastewater System over Time

2020					
City-wide System Improvements					
Year	Original Collection System Improvements	Cost	Present Value (2020)	ERCs	Present Value per ERC
1985	Collection System Improvements	\$236,682	\$1,305,542	11,405	\$114
1986	Collection System Improvements	\$35,056	\$184,161	11,405	\$16
1987	Collection System Improvements	\$73,627	\$368,370	11,405	\$32
1988	Collection System Improvements	\$34,208	\$162,999	11,405	\$14
1989	Collection System Improvements	\$33,557	\$152,283	11,405	\$13
1990	Collection System Improvements	\$29,892	\$129,192	11,405	\$11
1991	Collection System Improvements	\$13,740	\$56,556	11,405	\$5
1992	Collection System Improvements	\$5,000	\$19,601	11,405	\$2
1993	Collection System Improvements	\$4,135	\$15,438	11,405	\$1
1994	Collection System Improvements	\$209,735	\$745,749	11,405	\$65
1996	Collection System Improvements	\$101,466	\$327,238	11,405	\$29
Cost per ERC					\$304
Year	City-wide System Improvements	Cost	Present Value (2020)	ERCs	Present Value per ERC
2011	2200 North, 21" sewer	\$200,090	\$310,405	7,401	\$42
2015	400 East, 18" sewer	\$85,000	\$108,484	1,250	\$87
2015	200 East, 10" sewer, stubs under road	\$423,708	\$540,771	650	\$832
2019	400 East Roundabout	\$70,000	\$73,500	4,250	\$17
Cost per ERC					\$978
Northwest Service Area System Improvements					
Year	Northwest Service Area System Improvements	Cost	Present Value (2020)	ERCs	Present Value per ERC
2005	NW Lift station and lines	\$203,000	\$422,022	193	\$2,187
Northwest Service Area Total Cost per ERC					\$3,469
Remaining City Service Area Total Cost per ERC					\$1,282

2021					
City-wide System Improvements					
Year	Original Collection System Improvements	Cost	Present Value (2021)	ERCs	Present Value per ERC
1985	Collection System Improvements	\$236,682	\$1,370,819	11,405	\$120
1986	Collection System Improvements	\$35,056	\$193,369	11,405	\$17
1987	Collection System Improvements	\$73,627	\$386,788	11,405	\$34
1988	Collection System Improvements	\$34,208	\$171,149	11,405	\$15
1989	Collection System Improvements	\$33,557	\$159,897	11,405	\$14
1990	Collection System Improvements	\$29,892	\$135,651	11,405	\$12
1991	Collection System Improvements	\$13,740	\$59,383	11,405	\$5
1992	Collection System Improvements	\$5,000	\$20,581	11,405	\$2
1993	Collection System Improvements	\$4,135	\$16,210	11,405	\$1
1994	Collection System Improvements	\$209,735	\$783,036	11,405	\$69
1996	Collection System Improvements	\$101,466	\$343,600	11,405	\$30
Cost per ERC					\$319
Year	City-wide System Improvements	Cost	Present Value (2021)	ERCs	Present Value per ERC
2011	2200 North, 21" sewer	\$200,090	\$325,926	7,401	\$44
2015	400 East, 18" sewer	\$85,000	\$113,908	1,250	\$91
2015	200 East, 10" sewer, stubs under road	\$423,708	\$567,809	650	\$874
2019	400 East Roundabout	\$70,000	\$77,175	4,250	\$18
Cost per ERC					\$1,027
Northwest Service Area System Improvements					
Year	Northwest Service Area System Improvements	Cost	Present Value (2021)	ERCs	Present Value per ERC
2005	NW Lift station and lines	\$203,000	\$443,124	193	\$2,296
Northwest Service Area Total Cost per ERC					\$3,642
Remaining City Service Area Total Cost per ERC					\$1,346

2022					
City-wide System Improvements					
Year	Original Collection System Improvements	Cost	Present Value (2022)	ERCs	Present Value per ERC
1985	Collection System Improvements	\$236,682	\$1,439,360	11,405	\$126
1986	Collection System Improvements	\$35,056	\$203,038	11,405	\$18
1987	Collection System Improvements	\$73,627	\$406,128	11,405	\$36
1988	Collection System Improvements	\$34,208	\$179,707	11,405	\$16
1989	Collection System Improvements	\$33,557	\$167,892	11,405	\$15
1990	Collection System Improvements	\$29,892	\$142,434	11,405	\$12
1991	Collection System Improvements	\$13,740	\$62,353	11,405	\$5
1992	Collection System Improvements	\$5,000	\$21,610	11,405	\$2
1993	Collection System Improvements	\$4,135	\$17,020	11,405	\$1
1994	Collection System Improvements	\$209,735	\$822,188	11,405	\$72
1996	Collection System Improvements	\$101,466	\$360,780	11,405	\$32
Cost per ERC					\$335
Year	City-wide System Improvements	Cost	Present Value (2022)	ERCs	Present Value per ERC
2011	2200 North, 21" sewer	\$200,090	\$342,222	7,401	\$46
2015	400 East, 18" sewer	\$85,000	\$119,604	1,250	\$96
2015	200 East, 10" sewer, stubs under road	\$423,708	\$596,200	650	\$917
2019	400 East Roundabout	\$70,000	\$81,034	4,250	\$19
Cost per ERC					\$1,078
Northwest Service Area System Improvements					
Year	Northwest Service Area System Improvements	Cost	Present Value (2022)	ERCs	Present Value per ERC
2005	NW Lift station and lines	\$203,000	\$465,280	193	\$2,411
Northwest Service Area Total Cost per ERC					\$3,824
Remaining City Service Area Total Cost per ERC					\$1,413

2023					
City-wide System Improvements					
Year	Original Collection System Improvements	Cost	Present Value (2023)	ERCs	Present Value per ERC
1985	Collection System Improvements	\$236,682	\$1,511,328	11,405	\$133
1986	Collection System Improvements	\$35,056	\$213,190	11,405	\$19
1987	Collection System Improvements	\$73,627	\$426,434	11,405	\$37
1988	Collection System Improvements	\$34,208	\$188,692	11,405	\$17
1989	Collection System Improvements	\$33,557	\$176,287	11,405	\$15
1990	Collection System Improvements	\$29,892	\$149,555	11,405	\$13
1991	Collection System Improvements	\$13,740	\$65,470	11,405	\$6
1992	Collection System Improvements	\$5,000	\$22,690	11,405	\$2
1993	Collection System Improvements	\$4,135	\$17,871	11,405	\$2
1994	Collection System Improvements	\$209,735	\$863,298	11,405	\$76
1996	Collection System Improvements	\$101,466	\$378,819	11,405	\$33
Cost per ERC					\$352
Year	City-wide System Improvements	Cost	Present Value (2023)	ERCs	Present Value per ERC
2011	2200 North, 21" sewer	\$200,090	\$359,333	7,401	\$49
2015	400 East, 18" sewer	\$85,000	\$125,584	1,250	\$100
2015	200 East, 10" sewer, stubs under road	\$423,708	\$626,010	650	\$963
2019	400 East Roundabout	\$70,000	\$85,085	4,250	\$20
Cost per ERC					\$1,132
Northwest Service Area System Improvements					
Year	Northwest Service Area System Improvements	Cost	Present Value (2023)	ERCs	Present Value per ERC
2005	NW Lift station and lines	\$203,000	\$488,544	193	\$2,531
Northwest Service Area Total Cost per ERC					\$4,015
Remaining City Service Area Total Cost per ERC					\$1,484

2024					
City-wide System Improvements					
Year	Original Collection System Improvements	Cost	Present Value (2024)	ERCs	Present Value per ERC
1985	Collection System Improvements	\$236,682	\$1,586,894	11,405	\$139
1986	Collection System Improvements	\$35,056	\$223,849	11,405	\$20
1987	Collection System Improvements	\$73,627	\$447,756	11,405	\$39
1988	Collection System Improvements	\$34,208	\$198,126	11,405	\$17
1989	Collection System Improvements	\$33,557	\$185,101	11,405	\$16
1990	Collection System Improvements	\$29,892	\$157,033	11,405	\$14
1991	Collection System Improvements	\$13,740	\$68,744	11,405	\$6
1992	Collection System Improvements	\$5,000	\$23,825	11,405	\$2
1993	Collection System Improvements	\$4,135	\$18,765	11,405	\$2
1994	Collection System Improvements	\$209,735	\$906,463	11,405	\$79
1996	Collection System Improvements	\$101,466	\$397,760	11,405	\$35
Cost per ERC					\$370
Year	City-wide System Improvements	Cost	Present Value (2024)	ERCs	Present Value per ERC
2011	2200 North, 21" sewer	\$200,090	\$377,300	7,401	\$51
2015	400 East, 18" sewer	\$85,000	\$131,863	1,250	\$105
2015	200 East, 10" sewer, stubs under road	\$423,708	\$657,310	650	\$1,011
2019	400 East Roundabout	\$70,000	\$89,340	4,250	\$21
Cost per ERC					\$1,189
Northwest Service Area System Improvements					
Year	Northwest Service Area System Improvements	Cost	Present Value (2024)	ERCs	Present Value per ERC
2005	NW Lift station and lines	\$203,000	\$512,971	193	\$2,658
Northwest Service Area Total Cost per ERC					\$4,216
Remaining City Service Area Total Cost per ERC					\$1,558

2025					
City-wide System Improvements					
Year	Original Collection System Improvements	Cost	Present Value (2025)	ERCs	Present Value per ERC
1985	Collection System Improvements	\$236,682	\$1,666,239	11,405	\$146
1986	Collection System Improvements	\$35,056	\$235,042	11,405	\$21
1987	Collection System Improvements	\$73,627	\$470,144	11,405	\$41
1988	Collection System Improvements	\$34,208	\$208,033	11,405	\$18
1989	Collection System Improvements	\$33,557	\$194,356	11,405	\$17
1990	Collection System Improvements	\$29,892	\$164,885	11,405	\$14
1991	Collection System Improvements	\$13,740	\$72,181	11,405	\$6
1992	Collection System Improvements	\$5,000	\$25,016	11,405	\$2
1993	Collection System Improvements	\$4,135	\$19,703	11,405	\$2
1994	Collection System Improvements	\$209,735	\$951,786	11,405	\$83
1996	Collection System Improvements	\$101,466	\$417,648	11,405	\$37
Cost per ERC					\$388
Year	City-wide System Improvements	Cost	Present Value (2025)	ERCs	Present Value per ERC
2011	2200 North, 21" sewer	\$200,090	\$396,165	7,401	\$54
2015	400 East, 18" sewer	\$85,000	\$138,456	1,250	\$111
2015	200 East, 10" sewer, stubs under road	\$423,708	\$690,176	650	\$1,062
2019	400 East Roundabout	\$70,000	\$93,807	4,250	\$22
Cost per ERC					\$1,248
Northwest Service Area System Improvements					
Year	Northwest Service Area System Improvements	Cost	Present Value (2025)	ERCs	Present Value per ERC
2005	NW Lift station and lines	\$203,000	\$538,619	193	\$2,791
Northwest Service Area Total Cost per ERC					\$4,427
Remaining City Service Area Total Cost per ERC					\$1,636

Appendix D: Wastewater Debt Service Credit over Time

Year	GMAC 560	GMAC 1000	Number of ERCs	Debt per ERC	Present Value (2020)	Present Value (2021)
2020	\$43,470	\$57,960	4,004	\$25	\$25	
2021		\$58,600	4,138	\$14	\$13	\$14
Debt Service Credit (Present Value of Future Debt Payments)					\$39	\$14

Appendix E: Wastewater Impact Fee Calculation

2020	
Northwest Service Area Existing Facilities Cost per ERC (from Table 4)	\$3,469
Remaining City Service Area Existing Facilities Cost per ERC (from Table 4)	\$1,282
Costs for Planned Improvements (from Table 5)	\$1,884
Debt Service Credit (from Table 6)	-\$39
Northwest Service Area Recommended Standard Wastewater Impact Fee	\$5,314
Remaining City Service Area Recommended Standard Wastewater Impact Fee	\$3,127
2021	
Northwest Service Area Existing Facilities Cost per ERC (from Table 4)	\$3,642
Remaining City Service Area Existing Facilities Cost per ERC (from Table 4)	\$1,346
Costs for Planned Improvements (from Table 5)	\$1,884
Debt Service Credit (from Table 6)	-\$14
Northwest Service Area Recommended Standard Wastewater Impact Fee	\$5,512
Remaining City Service Area Recommended Standard Wastewater Impact Fee	\$3,216
2022	
Northwest Service Area Existing Facilities Cost per ERC (from Table 4)	\$3,824
Remaining City Service Area Existing Facilities Cost per ERC (from Table 4)	\$1,413
Costs for Planned Improvements (from Table 5)	\$1,884
Debt Service Credit (from Table 6)	\$0
Northwest Service Area Recommended Standard Wastewater Impact Fee	\$5,708
Remaining City Service Area Recommended Standard Wastewater Impact Fee	\$3,297
2023	
Northwest Service Area Existing Facilities Cost per ERC (from Table 4)	\$4,015
Remaining City Service Area Existing Facilities Cost per ERC (from Table 4)	\$1,484
Costs for Planned Improvements (from Table 5)	\$1,884
Debt Service Credit (from Table 6)	\$0
Northwest Service Area Recommended Standard Wastewater Impact Fee	\$5,899
Remaining City Service Area Recommended Standard Wastewater Impact Fee	\$3,368

2024	
Northwest Service Area Existing Facilities Cost per ERC (from Table 4)	\$4,216
Remaining City Service Area Existing Facilities Cost per ERC (from Table 4)	\$1,558
Costs for Planned Improvements (from Table 5)	\$1,884
Debt Service Credit (from Table 6)	\$0
Northwest Service Area Recommended Standard Wastewater Impact Fee	\$6,100
Remaining City Service Area Recommended Standard Wastewater Impact Fee	\$3,442
2025	
Northwest Service Area Existing Facilities Cost per ERC (from Table 4)	\$4,427
Remaining City Service Area Existing Facilities Cost per ERC (from Table 4)	\$1,636
Costs for Planned Improvements (from Table 5)	\$1,884
Debt Service Credit (from Table 6)	\$0
Northwest Service Area Recommended Standard Wastewater Impact Fee	\$6,311
Remaining City Service Area Recommended Standard Wastewater Impact Fee	\$3,520