

Water and Wastewater Impact Fee Analyses

Prepared for

Richmond City

By

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SUMMARIES

Water Impact Fee Summary

Components of the Water Impact Fee

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

Cost per connection for existing water facilities. The current water system in Richmond 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 water facilities is \$9,541.

Cost per connection for growth related water system improvements. Due to anticipated growth in Richmond City, the city commissioned an impact fee study. According to the Utah Impact Fees Act, cities may charge new development for their share of these studies. The cost per connection is \$49.

Debt Service Credit per connection. Richmond City currently has one outstanding water bond. 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 water 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 \$1,218

Calculation of the Impact Fee. The following formula is used to calculate the water impact fee: *Cost per connection for existing water facilities + Cost per connection for growth related water system improvements – Debt Service Credit per connection = Impact Fee.* Or $\$9,541 + \$49 - \$1,218 = \$8,373$.

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. $\$8,373 \times 1.67 = \$13,982$.

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 Richmond 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 \$6,571 for the north service area and \$4,480 for the south service area.

Cost per connection for growth related wastewater system improvements. Due to anticipated growth in Richmond City, the city commissioned an impact fee study. According to the Utah Impact Fees Act, cities may charge new development for their share of these studies. The cost per connection for the impact fee study is \$49.

Debt Service Credit per connection. Richmond City has one outstanding wastewater debt for the construction of the wastewater treatment plant. 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 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 \$790.

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 per connection = Impact Fee.* The calculation is $\$6,571 + \$49 - \$790 = \$5,830$ in the North Service Area and $\$4,480 + \$49 - \$790 = \$3,740$ in the South Service Area.

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. $\$5,830 \times 2.25 = \$13,117$.

STEPS FOR CALCULATING THE IMPACT FEES

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 Richmond 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 2019 in Richmond City is 1,870¹.
- The growth rate will continue in the same trend as the past 6 years, with an average growth of 13.7 new connections per year, or 0.88%².

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

Richmond City currently receives water from multiple springs that are piped into two existing water storage reservoirs. The city also receives culinary water from two wells, the WCDI Well and the Cherry Creek Well. In 2016, the city purchased additional water rights. These existing water sources supply water to the entire city of Richmond.

Water storage in Richmond City is provided by three storage tanks – two 500,000 gallon tanks and a 2 MG water tank. These storage tanks provide for flow equalization and stabilization of pressures for the entire city of Richmond.

In 2013 and 2016 there were several improvements to the water distribution system, and these improvements will serve the entire city of Richmond.

The water supply, storage and distribution systems have been designed to accommodate new growth. Table 1 shows the components of the existing system that continue to have excess capacity to serve new development. The costs of these projects have been borne by existing residents, and new development may be required to pay their reasonable share of these system improvements. New development's share is calculated two ways in Table 1. For the 1993 projects, the total present value of the improvements is divided by the total number of ERCs the projects can serve, including the ERCs they are already serving. For subsequent years, that have better records, we are able to divide the cost of the excess capacity at time of building by the number of new ERCs the project can serve. To arrive at these costs, JUB Engineers analyzed each improvement and assigned a percentage of the cost to existing residents and a percentage of the cost to new development³.

¹ JUB Engineers Memo sent October 24, 2019

² Average connections and growth rate between 2013 and 2019

³ JUB Engineers Memo sent November 14, 2013, in person meetings October 16, 2019, and emails sent November 11, 2019

Table 1: Existing Water System

1993 Improvements		Cost	Present Value
1993	System Upgrade	\$841,000	\$2,990,321
1993	System Upgrade	\$841,000	\$2,990,321
1993	System Upgrade	\$248,381	\$883,162
Total Present Value of 1993 Capital Improvements			\$6,863,803
Total ERCs 1993 Capital Improvements May Serve			2,552
Cost per ERC			\$2,690
2013 Improvements		Cost	Present Value
2013	2.0 MG Storage Tank	\$962,500	\$1,289,842
2013	Test Well (Cherry Creek)	\$32,800	\$43,955
2013	3 Phase Power to Well	\$134,200	\$179,841
2013	Drill and Equip Well	\$700,000	\$938,067
2013	Main Street PRV and Waterline	\$131,400	\$176,089
2013	Cherry Creek PRV and Waterline	\$141,100	\$189,087
2013	400 West Waterline	\$36,000	\$48,243
2013	500 North Waterline and PRVs	\$314,300	\$421,192
2013	Radio Telemetry for New Projects	\$41,800	\$56,016
2013	Land Purchase	\$98,000	\$131,329
2013	Engineering: Planning Design and Construction	\$375,000	\$502,536
Total Present Value of 2013 Capital Improvements			\$3,976,198
Excess Capacity at Time of Building (ERCs)			1,012
Cost per ERC			\$3,929
Richmond's Share of UDOT Water Line		Cost	Present Value
2016	Richmond's share of UDOT line	\$37,095	\$42,942
Total Present Value			\$42,942
Excess Capacity at Time of Building (ERCs)			552
Cost per ERC			\$78
Water Rights Purchase		Cost	Present Value
2016	Water Rights (8.6 acre feet of water)	\$34,400	\$39,822
Total Present Value			\$39,822
Excess Capacity at Time of Building (ERCs)			14
Cost per ERC			\$2,844
Total Cost per ERC			\$9,541

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 JUB Engineers' report, "City of Richmond, Utah, 2010 Culinary Water System Master Plan, December 2010." In this report, they concluded that the current water supply is 8.643 cubic feet per second⁴. With 1,540 ERCs, the level of service is 0.0056 cfs per ERC ($8.643/1,540 = 0.0056$). They also conclude that there are 3.0 MG of water storage⁵. With 1,540 ERCs, the existing level of service for water storage is 1.948 MG per 1,000 ERCs ($1,000 \times 3.0 / 1,540$). Both of these levels of service are much higher than necessary, because the system has been designed with excess capacity to accommodate new development.

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

If Richmond City did not intend to plan for the future, they would not have oversized their water system to accommodate new growth. However, they planned for growth, and the existing level of service is higher than necessary. All water projects have been planned to serve the city for longer than the next 20 years, and new development may be expected to pay their fair share of these improvements.

There are no additional water system projects planned in the next 5 years. However, the Impact Fees Act allows cities to include the costs of impact fees analyses in the calculation of impact fees.

The cost of planned improvements is calculated by dividing the cost of the impact fee analysis by the expected number of new ERCs over 6 years (Table 2).

Table 2: Planned Improvements

Planned Improvements	
Water Impact Fee Analysis	\$5,000
Number of new ERCs in 2025	101
Cost per ERC	\$49

⁴ City of Richmond, Utah, 2010 Culinary Water System Master Plan, December 2010, page 4, Table 2-1.

⁵ City of Richmond, Utah, 2010 Culinary Water System Master Plan, December 2010, page 21.

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

There is currently one outstanding water bond. This bond was obtained to fund the improvements listed in Table 1. Other than impact fees, the city plans to use water enterprise fund monies to pay for these loans.

Richmond City received no grants to fund any existing facilities, and only water enterprise fund monies have been used to finance water projects within the city.

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. 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. 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 water 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 is currently one outstanding water loan. This bond was obtained in 2012 and was used to fund recent water improvements, including the 2.0 MG storage tank and the conversion of the Cherry Creek Well. This bond will be retired in 2042.

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 existing water facilities (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 0.88% growth rate. 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 2019 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 3).

Table 3: Debt Service Credit

Year	Series 2012 Bond	Number of ERCs	Debt per ERC	Present Value
2019	\$119,000	1870	\$64	\$64
2020	\$124,000	1886	\$66	\$63
2021	\$128,000	1903	\$67	\$61
2022	\$133,000	1920	\$69	\$60
2023	\$138,000	1937	\$71	\$59
2024	\$143,000	1954	\$73	\$57
2025	\$149,000	1971	\$76	\$56
2026	\$154,000	1988	\$77	\$55
2027	\$160,000	2006	\$80	\$54
2028	\$166,000	2024	\$82	\$53
2029	\$172,000	2041	\$84	\$52
2030	\$179,000	2059	\$87	\$51
2031	\$185,000	2077	\$89	\$50
2032	\$192,000	2096	\$92	\$49
2033	\$200,000	2114	\$95	\$48
2034	\$207,000	2133	\$97	\$47
2035	\$215,000	2152	\$100	\$46
2036	\$223,000	2171	\$103	\$45
2037	\$231,000	2190	\$105	\$44
2038	\$240,000	2209	\$109	\$43
2039	\$249,000	2228	\$112	\$42
2040	\$258,000	2248	\$115	\$41
2041	\$268,000	2268	\$118	\$40
2042	\$281,000	2288	\$123	\$40
Debt Service Credit (Present Value of Future Debt Payments)				\$1,218

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 adding the existing facilities cost per ERC to the cost per ERC for planned improvements and subtracting the debt service credit (Table 4).

Table 4: Impact Fee Calculation

Existing Facilities Cost per ERC (from Table 1)	\$9,541
Costs for Planned Improvements (from Table 2)	\$49
Debt Service Credit (from Table 3)	-\$1,218
Recommended Standard Water Impact Fee	\$8,373

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. $\$8,373 \times 1.67 = \$13,982$.

Recommended Water Impact Fee Schedule			
Meter Size in Inches	Capacity, GPM	Capacity Ratio to Standard Meter	Recommended Fee
3/4	30	1.00	\$8,373
1	50	1.67	\$13,982
1.5	100	3.33	\$27,881
2	160	5.33	\$44,626
3	450	15.00	\$125,590
4	1000	33.33	\$279,062

Changing the Impact Fee Over Time

The water impact fee shown in Step 8 is based on 2019 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. Additionally, once the city adds 14 ERCs to the water system, the cost of the water shares that can only serve 14 ERCs will need to be backed out of the calculation.

WASTEWATER IMPACT FEE ANALYSIS

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

- The number of Equivalent Residential Connections (ERCs) in 2019 in Richmond City for the collection system is 1,924⁶.
- The number of ERCs in 2019 in Richmond City for the treatment plant is 1,093⁷.
- The growth rate will continue in the same trend as the past 6 years, with an average growth of 13.7 new connections per year, or 0.88%⁸.
- It is appropriate to divide the wastewater collection system into two service areas: North and South⁹.

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

The only two recent system-wide wastewater improvements are the wastewater treatment facility, constructed in 2008, and the purchase of 42.38 acres of land in 2006. The treatment facility was designed to accommodate existing residents and growth within the city for at least 20 years. A recent ERC analysis by JUB Engineers concludes that the treatment plant is currently serving 1,093 ERCs and can serve an additional 469 ERCs. To calculate new development's share of the treatment plant and land, the present value of the cost of the improvements is divided by the total number of ERCs the treatment plant can serve, 1,562. The present value is calculated using a 5% discount rate¹⁰.

Richmond City's wastewater collection system was constructed in 1971 and collects sewer flows from businesses and residential areas throughout the city. The collection system delivers the wastewater to the city's treatment facility. According to available City Records, Richmond City paid \$45,000 for the collection system. The EPA paid an additional \$68,000¹¹. According to JUB Engineers, the existing 1970's system still has capacity to meet the build out needs east of the highway¹². The city will be responsible for fixing the deficiencies in the current system west of the highway, without the use of impact fee funds. East of the highway, the collection system may be divided into two service areas – North and South. The North area currently has 771 ERCs, with an excess capacity of 128 ERCs. The South area has 1,153 ERCs, with an excess capacity of 84 ERCs. The total current ERCs connected to the collection system is 1,924. The limiting factor to the collection system is the number of ERCs that can be added in the South Service Area, which is 84 ERCs. To determine the total number of ERCs that the collection system can serve, the number of current ERCs is added to the

⁶ JUB Engineers memo sent October 24, 2019

⁷ JUB Engineers email sent November 18, 2019

⁸ Average connections and growth rate between 2013 and 2019

⁹ JUB Engineers Memo sent November 14, 2013

¹⁰ 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.

¹¹ Marlowe Adkins, City Manager

¹² JUB Engineers Memo sent November 14, 2013

number that can be added to the South Service Area, $1,924 + 84 = 2,008$. The present value of the collection system is divided by 2,008 ERCs to yield the cost per ERC.

The total cost per ERC for the existing wastewater system is calculated by adding the cost per ERC for the treatment plant and land to the cost per ERC for the collection system (Table 5).

Table 5: Existing Wastewater System

Year	Wastewater Treatment Plant	Cost	Present Value
2006	Land Purchase (42.38 acres)	\$111,474	\$210,201
2008	Water Treatment Plant	\$3,316,000	\$5,671,485
2014	Grit Removal System	\$589,661	\$752,573
Total Present Value of Wastewater Treatment Plant			\$6,634,260
Total ERCs Treatment Plant May Serve			1,562
Cost per ERC			\$4,247
Year	Wastewater Collection System	Cost	Present Value
1971	Wastewater Collection System	\$45,000	\$468,057
Total ERCs Collection System May Serve			2,008
Cost per ERC			\$233
Year	North Service Area Capital Improvements	Cost	Present Value
2016	150 North at about 600 W	\$195,690	\$226,536
Total new ERCs in North Service Area in 2034			108
Cost per ERC			\$2,090
North Area Cost per ERC for Existing Wastewater System			\$6,571
South Area Cost per ERC for Existing Wastewater System			\$4,480

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

Identifying the Established Level of Service

There are currently 1,093 existing ERCs connected to the treatment plant. An analysis by JUB Engineers shows that an additional 469 ERCs may be added before the level of service declines for existing users. The North trunk line currently has 771 ERCs with an additional 128 that may be added before the level of service is decreased for existing

residents. The South trunk line has 1,153 existing ERCs and 84 may be added before the level of service is decreased¹³.

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

The Impact Fees Act allows cities to include the costs of preparing capital facilities plans and impact fees analyses in the calculation of impact fees. An impact fees analysis is only needed because of new growth. Therefore, the cost of the wastewater impact fee analysis is divided by the number of new connections that may be expected to benefit from the analysis. Impact Fees must be updated every 6 years, therefore the life of the analysis is 6 years. The analysis cost Richmond City \$5,000. Dividing the cost of the analysis by the number of new ERCs in 6 years yields a cost of \$49 per ERC (Table 6).

Table 6: Planned Wastewater Improvements

Planned Improvements	
Wastewater Impact Fee Analysis	\$5,000
Number of new ERCs in 2025	101
Cost per ERC	\$49

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

Richmond City received \$68,000 from the EPA to construct their collection system in 1971. That cost has not been included in the impact fee analysis. Only wastewater enterprise fund and impact fee monies were used to fund the amounts included in this analysis.

There is one outstanding wastewater bond, which was obtained to pay for the treatment facility. Other than impact fees, the city plans to use wastewater 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.

¹³ For a deeper discussion of the established level of service, see the document titled “Richmond Sewer Collection Impact Fees: Updated February 12, 2014” sent by email on February 12, 2014 from JUB Engineers, and additional emails in October 2019.

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 is one outstanding wastewater loan, which will be retired in 2029. The loan was obtained for the purpose of paying for the new wastewater treatment facility. 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 0.88% growth rate. 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 2019 dollars. Finally, the payments over the life of the loan 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 7).

Table 7: Wastewater Debt Service Credit

Year	Series 2012 Bond	Number of ERCs	Debt per ERC	Present Value
2019	\$168,000	1,924	\$87	\$87
2020	\$171,000	1,941	\$88	\$84
2021	\$174,000	1,958	\$89	\$81
2022	\$177,000	1,975	\$90	\$77
2023	\$180,000	1,993	\$90	\$74
2024	\$182,000	2,010	\$91	\$71
2025	\$185,000	2,028	\$91	\$68
2026	\$188,000	2,046	\$92	\$65
2027	\$193,000	2,064	\$94	\$63
2028	\$196,000	2,082	\$94	\$61
2029	\$199,000	2,100	\$95	\$58
Debt Service Credit (Present Value of Future Debt Payments)				\$790

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 8).

Table 8: Wastewater Impact Fee Calculation

North Service Area Existing Facilities Cost per ERC (from Table 5)	\$6,571
South Service Area Existing Facilities Cost per ERC (from Table 5)	\$4,480
Costs for Planned Improvements (from Table 6)	\$49
Debt Service Credit (from Table 7)	-\$790
North Service Area Recommended Standard Wastewater Impact Fee	\$5,830
South Service Area Recommended Standard Wastewater Impact Fee	\$3,740

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. $\$5,830 \times 2.25 = \$13,117$.

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	\$5,830
6	50	2.25	\$13,117
8	100	4.00	\$23,320
12	160	9.00	\$52,470
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	\$3,740
6	50	2.25	\$8,415
8	100	4.00	\$14,959
12	160	9.00	\$33,659

Changing the Impact Fee Over Time

The wastewater impact fee shown in Step 8 is based on 2019 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.

APPENDIX

Appendix A

1993 Improvements		Cost	Present Value (2019)	Present Value (2020)	Present Value (2021)	Present Value (2022)
1993	System Upgrade	\$841,000	\$2,990,321	\$3,139,837	\$3,296,829	\$3,461,670
1993	System Upgrade	\$841,000	\$2,990,321	\$3,139,837	\$3,296,829	\$3,461,670
1993	System Upgrade	\$248,381	\$883,162	\$927,320	\$973,686	\$1,022,370
Total Present Value of 1993 Capital Improvements			\$6,863,803	\$7,206,993	\$7,567,343	\$7,945,710
Total ERCs 1993 Capital Improvements May Serve			2,552	2,552	2,552	2,552
Cost per ERC			\$2,690	\$2,824	\$2,965	\$3,114
2013 Improvements		Cost	Present Value (2019)	Present Value (2020)	Present Value (2021)	Present Value (2022)
2013	2.0 MG Storage Tank	\$962,500	\$1,289,842	\$1,354,334	\$1,422,051	\$1,493,153
2013	Test Well (Cherry Creek)	\$32,800	\$43,955	\$46,153	\$48,461	\$50,884
2013	3 Phase Power to Well	\$134,200	\$179,841	\$188,833	\$198,275	\$208,188
2013	Drill and Equip Well	\$700,000	\$938,067	\$984,970	\$1,034,219	\$1,085,930
2013	Main Street PRV and Waterline	\$131,400	\$176,089	\$184,893	\$194,138	\$203,845
2013	Cherry Creek PRV and Waterline	\$141,100	\$189,087	\$198,542	\$208,469	\$218,892
2013	400 West Waterline	\$36,000	\$48,243	\$50,656	\$53,188	\$55,848
2013	500 North Waterline and PRVs	\$314,300	\$421,192	\$442,252	\$464,364	\$487,582
2013	Radio Telemetry for New Projects	\$41,800	\$56,016	\$58,817	\$61,758	\$64,846
2013	Land Purchase	\$98,000	\$131,329	\$137,896	\$144,791	\$152,030
2013	Engineering: Planning Design and Const.	\$375,000	\$502,536	\$527,663	\$554,046	\$581,748
Total Present Value of 2013 Capital Improvements			\$3,976,198	\$4,175,008	\$4,383,758	\$4,602,946
Excess Capacity at Time of Building (ERCs)			1,012	1,012	1,012	1,012
Cost per ERC			\$3,929	\$4,126	\$4,332	\$4,548
Richmond's Share of UDOT Water Line		Cost	Present Value (2019)	Present Value (2020)	Present Value (2021)	Present Value (2022)
2016	Richmond's share of UDOT line	\$37,095	\$42,942	\$45,089	\$47,344	\$49,711
Total Present Value			\$42,942	\$45,089	\$47,344	\$49,711
Excess Capacity at Time of Building (ERCs)			552	552	552	552
Cost per ERC			\$78	\$82	\$86	\$90
Water Rights		Cost	Present Value (2019)	Present Value (2020)	Present Value (2021)	Present Value (2022)
2016	Water Rights (8.6 acre feet of water)	\$34,400	\$39,822	\$41,813	\$43,904	\$46,099
Total Present Value			\$39,822	\$41,813	\$43,904	\$46,099
Excess Capacity at Time of Building (ERCs)			14	14	14	14
Cost per ERC			\$2,844	\$2,987	\$3,136	\$3,293
Total Cost per ERC			\$9,541	\$10,018	\$10,519	\$11,045

Appendix B

Year	Series 2012 Bond	Number of ERCs	Debt per ERC	Present Value (2019)	Present Value (2020)	Present Value (2021)	Present Value (2022)	Present Value (2023)	Present Value (2024)	Present Value (2025)
2019	\$119,000	1870	\$64	\$64						
2020	\$124,000	1886	\$66	\$63	\$66					
2021	\$128,000	1903	\$67	\$61	\$64	\$67				
2022	\$133,000	1920	\$69	\$60	\$63	\$66	\$69			
2023	\$138,000	1937	\$71	\$59	\$62	\$65	\$68	\$71		
2024	\$143,000	1954	\$73	\$57	\$60	\$63	\$66	\$70	\$73	
2025	\$149,000	1971	\$76	\$56	\$59	\$62	\$65	\$69	\$72	\$76
2026	\$154,000	1988	\$77	\$55	\$58	\$61	\$64	\$67	\$70	\$74
2027	\$160,000	2006	\$80	\$54	\$57	\$60	\$62	\$66	\$69	\$72
2028	\$166,000	2024	\$82	\$53	\$56	\$58	\$61	\$64	\$67	\$71
2029	\$172,000	2041	\$84	\$52	\$54	\$57	\$60	\$63	\$66	\$69
2030	\$179,000	2059	\$87	\$51	\$53	\$56	\$59	\$62	\$65	\$68
2031	\$185,000	2077	\$89	\$50	\$52	\$55	\$57	\$60	\$63	\$66
2032	\$192,000	2096	\$92	\$49	\$51	\$54	\$56	\$59	\$62	\$65
2033	\$200,000	2114	\$95	\$48	\$50	\$53	\$55	\$58	\$61	\$64
2034	\$207,000	2133	\$97	\$47	\$49	\$51	\$54	\$57	\$60	\$63
2035	\$215,000	2152	\$100	\$46	\$48	\$50	\$53	\$56	\$58	\$61
2036	\$223,000	2171	\$103	\$45	\$47	\$49	\$52	\$54	\$57	\$60
2037	\$231,000	2190	\$105	\$44	\$46	\$48	\$51	\$53	\$56	\$59
2038	\$240,000	2209	\$109	\$43	\$45	\$47	\$50	\$52	\$55	\$58
2039	\$249,000	2228	\$112	\$42	\$44	\$46	\$49	\$51	\$54	\$56
2040	\$258,000	2248	\$115	\$41	\$43	\$45	\$48	\$50	\$53	\$55
2041	\$268,000	2268	\$118	\$40	\$42	\$45	\$47	\$49	\$52	\$54
2042	\$281,000	2288	\$123	\$40	\$42	\$44	\$46	\$49	\$51	\$54
Debt Service Credit (Present Value of Future Debt Payments)				\$1,218	\$1,212	\$1,203	\$1,193	\$1,180	\$1,164	\$1,145

Appendix C

Recommended Impact Fee (2019)	
Existing Facilities Cost per ERC (from Table 1)	\$9,541
Costs for Planned Improvements (from Table 2)	\$49
Debt Service Credit (from Table 3)	-\$1,218
Recommended Standard Water Impact Fee	\$8,373
Recommended Impact Fee (2020)	
Existing Facilities Cost per ERC (from Table 1)	\$10,018
Costs for Planned Improvements (from Table 2)	\$49
Debt Service Credit (from Table 3)	-\$1,212
Recommended Standard Water Impact Fee	\$8,856
Recommended Impact Fee (2021)	
Existing Facilities Cost per ERC (from Table 1)	\$10,519
Costs for Planned Improvements (from Table 2)	\$49
Debt Service Credit (from Table 3)	-\$1,203
Recommended Standard Water Impact Fee	\$9,365
Recommended Impact Fee (2022)	
Existing Facilities Cost per ERC (from Table 1)	\$11,045
Costs for Planned Improvements (from Table 2)	\$49
Debt Service Credit (from Table 3)	-\$1,193
Recommended Standard Water Impact Fee	\$9,901
Recommended Impact Fee (2023)	
Existing Facilities Cost per ERC (from Table 1)	\$11,597
Costs for Planned Improvements (from Table 2)	\$49
Debt Service Credit (from Table 3)	-\$1,180
Recommended Standard Water Impact Fee	\$10,467
Recommended Impact Fee (2024)	
Existing Facilities Cost per ERC (from Table 1)	\$12,177
Costs for Planned Improvements (from Table 2)	\$49
Debt Service Credit (from Table 3)	-\$1,164
Recommended Standard Water Impact Fee	\$11,062
Recommended Impact Fee (2025)	
Existing Facilities Cost per ERC (from Table 1)	\$12,786
Costs for Planned Improvements (from Table 2)	\$49
Debt Service Credit (from Table 3)	-\$1,145
Recommended Standard Water Impact Fee	\$11,690

Appendix D

Year	Wastewater Treatment Plant	Cost	Present Value (2019)	Present Value (2020)	Present Value (2021)
2006	Land Purchase (42.38 acres)	\$111,474	\$210,201	\$220,711	\$231,746
2008	Water Treatment Plant	\$3,316,000	\$5,671,485	\$5,955,060	\$6,252,813
2014	Grit Removal System	\$589,661	\$752,573	\$790,202	\$829,712
Total Present Value of Wastewater Treatment Plant			\$6,634,260	\$6,965,973	\$7,314,271
Total ERCs Treatment Plant May Serve			1,562	1,562	1,562
Cost per ERC			\$4,247	\$4,460	\$4,683
Year	Wastewater Collection System	Cost	Present Value (2019)	Present Value (2020)	Present Value (2021)
1971	Wastewater Collection System	\$45,000	\$468,057	\$491,460	\$516,033
Total ERCs Collection System May Serve			2,008	2,008	2,008
Cost per ERC			\$233	\$245	\$257
Year	North Service Area Capital Improvements	Cost	Present Value (2019)	Present Value (2020)	Present Value (2021)
2016	150 North at about 600 W	\$195,690	\$226,536	\$237,862	\$249,756
Total ERCs in 2034 in North Area			108	108	108
Cost per ERC			\$2,090	\$2,202	\$2,313
North Area Cost per ERC for Existing Wastewater System			\$6,571	\$6,907	\$7,252
South Area Cost per ERC for Existing Wastewater System			\$4,480	\$4,704	\$4,940

Year	Wastewater Treatment Plant	Cost	Present Value (2022)	Present Value (2023)	Present Value (2024)	Present Value (2025)
2006	Land Purchase (42.38 acres)	\$111,474	\$243,334	\$255,500	\$268,275	\$281,689
2008	Water Treatment Plant	\$3,316,000	\$6,565,453	\$6,893,726	\$7,238,412	\$7,600,333
2014	Grit Removal System	\$589,661	\$871,198	\$914,758	\$960,496	\$1,008,520
Total Present Value of Wastewater Treatment Plant			\$7,679,985	\$8,063,984	\$8,467,183	\$8,890,542
Total ERCs Treatment Plant May Serve			1,562	1,562	1,562	1,562
Cost per ERC			\$4,917	\$5,163	\$5,421	\$5,692
Year	Wastewater Collection System	Cost	Present Value (2022)	Present Value (2023)	Present Value (2024)	Present Value (2025)
1971	Wastewater Collection System	\$45,000	\$541,835	\$568,926	\$597,373	\$627,241
Total ERCs Collection System May Serve			2,008	2,008	2,008	2,008
Cost per ERC			\$270	\$283	\$297	\$312
Year	North Service Area Capital Improvements	Cost	Present Value (2022)	Present Value (2023)	Present Value (2024)	Present Value (2025)
2016	150 North at about 600 W	\$195,690	\$262,243	\$275,355	\$289,123	\$303,579
Total ERCs in 2034 in North Area			108	108	108	108
Cost per ERC			\$2,428	\$2,550	\$2,677	\$2,811
North Area Cost per ERC for Existing Wastewater System			\$7,615	\$7,996	\$8,395	\$8,815
South Area Cost per ERC for Existing Wastewater System			\$5,187	\$5,446	\$5,718	\$6,004

Appendix E

Year	Series 2012 Bond	Number of ERCs	Debt per ERC	Present Value (2019)	Present Value (2020)	Present Value (2021)	Present Value (2022)	Present Value (2023)	Present Value (2024)	Present Value (2025)
2019	\$168,000	1924	\$87	\$87						
2020	\$171,000	1941	\$88	\$84	\$88					
2021	\$174,000	1958	\$89	\$81	\$85	\$89				
2022	\$177,000	1975	\$90	\$77	\$81	\$85	\$90			
2023	\$180,000	1993	\$90	\$74	\$78	\$82	\$86	\$90		
2024	\$182,000	2010	\$91	\$71	\$74	\$78	\$82	\$86	\$91	
2025	\$185,000	2028	\$91	\$68	\$71	\$75	\$79	\$83	\$87	\$91
2026	\$188,000	2046	\$92	\$65	\$69	\$72	\$76	\$79	\$83	\$88
2027	\$193,000	2064	\$94	\$63	\$66	\$70	\$73	\$77	\$81	\$85
2028	\$196,000	2082	\$94	\$61	\$64	\$67	\$70	\$74	\$77	\$81
2029	\$199,000	2100	\$95	\$58	\$61	\$64	\$67	\$71	\$74	\$78
Debt Service Credit (Present Value of Future Debt Payments)				\$790	\$738	\$682	\$623	\$560	\$493	\$423

Appendix F

Recommended Impact Fee (2019)	
North Service Area Existing Facilities Cost per ERC (from Table 5)	\$6,571
South Service Area Existing Facilities Cost per ERC (from Table 5)	\$4,480
Costs for Planned Improvements (from Table 6)	\$49
Debt Service Credit (from Table 7)	-\$790
North Service Area Recommended Standard Wastewater Impact Fee	\$5,830
South Service Area Recommended Standard Wastewater Impact Fee	\$3,740
Recommended Impact Fee (2020)	
North Service Area Existing Facilities Cost per ERC (from Table 5)	\$6,907
South Service Area Existing Facilities Cost per ERC (from Table 5)	\$4,704
Costs for Planned Improvements (from Table 6)	\$49
Debt Service Credit (from Table 7)	-\$738
North Service Area Recommended Standard Wastewater Impact Fee	\$6,218
South Service Area Recommended Standard Wastewater Impact Fee	\$4,016
Recommended Impact Fee (2021)	
North Service Area Existing Facilities Cost per ERC (from Table 5)	\$7,252
South Service Area Existing Facilities Cost per ERC (from Table 5)	\$4,940
Costs for Planned Improvements (from Table 6)	\$49
Debt Service Credit (from Table 7)	-\$682
North Service Area Recommended Standard Wastewater Impact Fee	\$6,619
South Service Area Recommended Standard Wastewater Impact Fee	\$4,307
Recommended Impact Fee (2022)	
North Service Area Existing Facilities Cost per ERC (from Table 5)	\$7,615
South Service Area Existing Facilities Cost per ERC (from Table 5)	\$5,187
Costs for Planned Improvements (from Table 6)	\$49
Debt Service Credit (from Table 7)	-\$623
North Service Area Recommended Standard Wastewater Impact Fee	\$7,041
South Service Area Recommended Standard Wastewater Impact Fee	\$4,613
Recommended Impact Fee (2023)	
North Service Area Existing Facilities Cost per ERC (from Table 5)	\$7,996
South Service Area Existing Facilities Cost per ERC (from Table 5)	\$5,446
Costs for Planned Improvements (from Table 6)	\$49
Debt Service Credit (from Table 7)	-\$560
North Service Area Recommended Standard Wastewater Impact Fee	\$7,485
South Service Area Recommended Standard Wastewater Impact Fee	\$4,935

Recommended Impact Fee (2024)	
North Service Area Existing Facilities Cost per ERC (from Table 5)	\$8,395
South Service Area Existing Facilities Cost per ERC (from Table 5)	\$5,718
Costs for Planned Improvements (from Table 6)	\$49
Debt Service Credit (from Table 7)	-\$493
North Service Area Recommended Standard Wastewater Impact Fee	\$7,952
South Service Area Recommended Standard Wastewater Impact Fee	\$5,274
Recommended Impact Fee (2025)	
North Service Area Existing Facilities Cost per ERC (from Table 5)	\$8,815
South Service Area Existing Facilities Cost per ERC (from Table 5)	\$6,004
Costs for Planned Improvements (from Table 6)	\$49
Debt Service Credit (from Table 7)	-\$423
North Service Area Recommended Standard Wastewater Impact Fee	\$8,442
South Service Area Recommended Standard Wastewater Impact Fee	\$5,631