

# FINAL

## 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 \$5,186.

*Cost per connection for growth related water system improvements.* Due to anticipated growth in Richmond City, the city commissioned a water master plan study and 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 \$172.

*Debt Service Credit per connection.* Richmond City currently has four outstanding water bonds. 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 \$1,567.

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  $\$5,186 + \$172 - \$1,567 = \$3,791$ .

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.  $\$3,791 \times 1.67 = \$6,318$ .

## 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 \$3,138.

*Cost per connection for growth related wastewater system improvements.* Due to anticipated growth in Richmond City, the city plans to improve the collection system in the North Service Area. The city also commissioned a sewer collection system master plan and 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 growth related improvements per connection is \$3,420 in the North Service Area and \$169 in the South Service Area.

*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 \$949.

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  $\$3,138 + \$3,420 - \$949 = \$5,609$  in the North Service Area and  $\$3,138 + \$169 - \$949 = \$2,358$  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.  $\$5,609 \times 2.25 = \$12,620$ .

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### 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 2013 in Richmond City was 1,540<sup>1</sup>.
- The growth rate will continue in the same trend as the past 6 years, with an average growth of 6.2 new connections per year, or 0.40%<sup>2</sup>.

### **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. These existing water sources supply water to the entire city of Richmond. The Cherry Creek Well was recently upgraded and changed from an agricultural well to a municipal well.

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

Both the water supply and the water storage systems have been designed to accommodate 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 existing facilities. To calculate new development's share, the present value of existing facilities is divided by the number of ERCs the upgrades were designed to serve, using a 5% discount rate<sup>3</sup> for present value and a growth rate of 0.40%.

There are also a number of water improvement projects currently underway. These projects partially cure existing deficiencies. They are also all oversized to accommodate new growth. The only costs included in this analysis are the costs that are attributable to new growth. 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 development. To calculate new development's share of these improvements, the total cost of new development's share is summed and then divided by the number of new ERCs used in the engineering model<sup>4</sup>.

The total cost per new ERC for the existing water system is obtained by adding the cost for the 1993 improvements to the cost for the projects currently underway (Table 1).

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<sup>1</sup> JUB Engineers Memo sent November 14, 2013

<sup>2</sup> Connection analysis by Councilman Jensen

<sup>3</sup> 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.

<sup>4</sup> JUB Engineers Memo sent November 14, 2013

**Table 1: Cost per Connection for Existing Water System**

Year	Improvement	Cost	Present Value
1993	System Upgrade	\$841,000	\$2,342,995
1993	System Upgrade	\$841,000	\$2,342,995
1993	System Upgrade	\$248,381	\$691,980
<i>Total Present Value of Existing Facilities</i>			\$5,377,969
<i>Number of ERCs Projects May Serve</i>			2,552
<i>Cost Per ERC</i>			\$2,107
<b>Only New Development's Share of Projects Underway</b>			
2013	2.0 MG Storage Tank	\$962,500	\$1,010,625
2013	Test Well (Cherry Creek)	\$32,800	\$34,440
2013	3 Phase Power to Well	\$134,200	\$140,910
2013	Drill and Equip Well	\$700,000	\$735,000
2013	Main Street PRV and Waterline	\$131,400	\$137,970
2013	Cherry Creek PRV and Waterline	\$141,100	\$148,155
2013	400 West Waterline	\$36,000	\$37,800
2013	500 North Waterline and PRVs	\$314,300	\$330,015
2013	Radio Telemetry for New Projects	\$41,800	\$43,890
2013	Land Purchase	\$98,000	\$102,900
2013	Engineering: Planning, Design, and Construction	\$375,000	\$393,750
<i>Total Present Value of Projects Underway</i>			\$3,115,455
<i>Number of new ERCs the Projects Underway can Serve</i>			1,012
<i>Cost Per ERC</i>			\$3,079
<b>Total Cost per ERC</b>			<b>\$5,186</b>

**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 second<sup>5</sup>. 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 storage<sup>6</sup>. 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.

<sup>5</sup> City of Richmond, Utah, 2010 Culinary Water System Master Plan, December 2010, page 4, Table 2-1.

<sup>6</sup> City of Richmond, Utah, 2010 Culinary Water System Master Plan, December 2010, page 21.

### 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 preparing water system plans and impact fees analyses in the calculation of impact fees. The water master plan serves as the capital facilities plan for Richmond City and is necessitated by existing residents as well as new development. Therefore, the cost of the water master plan should be shared between existing residents and future residents. An impact fees analysis is only needed because of new growth.

The total cost of planned improvements per ERC is calculated by adding the per ERC cost for the water master plan and the cost per ERC for the water impact fee analysis (Table 2).

**Table 2: New Development's Share of Costs for Planned Improvements to Water System**

<b>Engineering</b>	
Water System Master Plan by JUB Engineers	\$50,000
Water System Master Plan update by JUB Engineers	\$7,000
<i>Total Cost</i>	\$57,000
<i>Total Number of ERCs in 2023 (10 Years)</i>	1,603
<i>Cost Per ERC</i>	\$36
<b>Impact Fee Analysis</b>	
Water Impact Fee Analysis Costs	\$6,000
<i>Number of New ERCs in 2020</i>	44
<i>Cost Per ERC</i>	\$137
<b>Total Cost per ERC</b>	<b>\$172</b>

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

There are currently four outstanding water bonds. These bonds were 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 are currently four outstanding water loans. The first three are 1993 Bonds used to fund system-wide water improvements in 1993. The first of these, Bond 1993A, will be retired in 2014, and therefore isn't included in the debt service credit. The second and third, Bonds 1993B and 1993C, will be retired in 2019. The fourth bond was obtained in 2012 and was used to fund recent water improvements, including the new 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 these bonds 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 0.40% 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 2014 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: Water Debt Service Credit

Year	Series 1993B Bond	Series 1993C Bond	Series 2012 Bond	Total Payment	Number of ERCs	Debt Per ERC	Present Value
2015	\$37,000	\$11,000	\$103,000	\$151,000	1552	\$97	\$93
2016	\$38,000	\$11,000	\$107,000	\$156,000	1559	\$100	\$91
2017	\$38,000	\$11,000	\$111,000	\$160,000	1565	\$102	\$88
2018	\$38,000	\$11,000	\$115,000	\$164,000	1571	\$104	\$86
2019	\$38,000	\$2,947	\$119,000	\$159,947	1578	\$101	\$79
2020			\$124,000	\$124,000	1584	\$78	\$58
2021			\$128,000	\$128,000	1590	\$80	\$57
2022			\$133,000	\$133,000	1597	\$83	\$56
2023			\$138,000	\$138,000	1603	\$86	\$55
2024			\$143,000	\$143,000	1610	\$89	\$55
2025			\$149,000	\$149,000	1616	\$92	\$54
2026			\$154,000	\$154,000	1623	\$95	\$53
2027			\$160,000	\$160,000	1629	\$98	\$52
2028			\$166,000	\$166,000	1636	\$101	\$51
2029			\$172,000	\$172,000	1642	\$105	\$50
2030			\$179,000	\$179,000	1649	\$109	\$50
2031			\$185,000	\$185,000	1656	\$112	\$49
2032			\$192,000	\$192,000	1662	\$116	\$48
2033			\$200,000	\$200,000	1669	\$120	\$47
2034			\$207,000	\$207,000	1676	\$124	\$47
2035			\$215,000	\$215,000	1682	\$128	\$46
2036			\$223,000	\$223,000	1689	\$132	\$45
2037			\$231,000	\$231,000	1696	\$136	\$44
2038			\$240,000	\$240,000	1703	\$141	\$44
2039			\$249,000	\$249,000	1710	\$146	\$43
2040			\$258,000	\$258,000	1716	\$150	\$42
2041			\$268,000	\$268,000	1723	\$156	\$42
2042			\$281,000	\$281,000	1730	\$162	\$41
<b>Debt Service Credit (Total Present Value of Future Debt Payments)</b>							<b>\$1,567</b>

### 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: Water Impact Fee Calculation**

Existing Facilities Cost Per ERC (from Table 1)	\$5,186
Costs for Planned Improvements Per ERC (from Table 2)	\$172
Debt Service Credit (from Table 3)	-\$1,567
<b>Recommended Standard Water Impact Fee</b>	<b>\$3,791</b>

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.  $\$3,791 \times 1.67 = \$6,318$ .

<b>Recommended Water Impact Fee Schedule</b>			
Meter Size in Inches	Capacity, GPM	Capacity Ratio to Standard Meter	2014
3/4	30	1.00	\$3,791
1	50	1.67	\$6,318
1.5	100	3.33	\$12,635
2	160	5.33	\$20,216
3	450	15.00	\$56,859
4	1000	33.33	\$126,340

Changing the Impact Fee Over Time

The water impact fee shown in Step 8 is based on 2014 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 Equivalent Residential Connections (ERCs) in 2014 in Richmond City for the collection system is 1,846<sup>7</sup>.
- The number of ERCs in 2014 in Richmond City for the treatment plant is 1,015<sup>8</sup>.
- The growth rate will continue in the same trend as the past 6 years, with an average growth of 6.2 new connections per year, or 0.40%<sup>9</sup>.
- It is appropriate to divide the wastewater collection system into two service areas: North and South<sup>10</sup>.

### 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 1,015 ERCs and can serve an additional 547 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 rate<sup>11</sup>.

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 \$68,000<sup>12</sup>. According to JUB Engineers, the existing 1970's system still has capacity to meet the build out needs east of the highway<sup>13</sup>. 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 718 ERCs, with an excess capacity of 181 ERCs. The South area has 1,128 ERCs, with an excess capacity of 109 ERCs. The total current ERCs connected to the collection system is 1,846. The limiting factor to the collection system is the number of ERCs that can be added in the South Service Area, which is 109 ERCs. To determine the total number of ERCs that the collection system can serve, the number of current ERCs is added to the number that can be added to the South Service Area,  $1,846 + 109 = 1,955$ . The

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<sup>7</sup> JUB Engineers email sent February 13, 2014

<sup>8</sup> JUB Engineers email sent February 13, 2014

<sup>9</sup> Connection analysis by Councilman Jensen

<sup>10</sup> JUB Engineers Memo sent November 14, 2013

<sup>11</sup> 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.

<sup>12</sup> Marlowe Adkins, City Manager

<sup>13</sup> JUB Engineers Memo sent November 14, 2013

present value of the collection system is divided by 1,955 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: Cost Per Connection for Existing Wastewater System**

Year	Improvement	Cost	Present Value
2008	Water Treatment Plant	\$3,316,000	\$4,443,757
2006	Land Purchase (42.38 acres)	\$111,474	\$164,698
<i>Total Present Value</i>			\$4,608,455
<i>Total ERCs Treatment Plant May Serve</i>			1,562
<i>Cost Per ERC</i>			\$2,950
1971	Sewer Collection System	\$45,000	\$366,735
<i>Total ERCs Collection System May Serve</i>			1,955
<i>Cost per ERC</i>			\$188
<b>Cost per New Connection for Existing Wastewater System</b>			<b>\$3,138</b>

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

### Identifying the Established Level of Service

There are currently 1,015 existing ERCs connected to the treatment plant. An analysis by JUB Engineers shows that an additional 547 ERCs may be added before the level of service declines for existing users. The North trunk line currently has 718 ERCs with an additional 181 that may be added before the level of service is decreased for existing residents. The South trunk line has 1,128 existing ERCs and 109 may be added before the level of service is decreased<sup>14</sup>.

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

To maintain the existing level of service in the North Service Area, Richmond City plans to improve the collection system with an improvement at 150 North at about 600 West. This improvement is expected to cost \$194,000<sup>15</sup>. This project will upgrade an existing 8" pipe to a 12" pipe, and is only necessitated by new development. Therefore, the cost of the project may be charged entirely to new development. This upgrade is designed to provide for new ERCs for the next 20 years. To calculate the cost per ERC, the cost

<sup>14</sup> 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.

<sup>15</sup> Richmond City Sewer Collection System Master Plan, 2011

of the project is divided by the number of new ERCs in the North Service Area in 20 years, using the 0.4% growth rate.

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. The wastewater master plan serves as the capital facilities plan for Richmond City and is necessitated by existing residents as well as new development. Therefore, the cost of the wastewater master plan should be shared between existing residents and future residents. The Master Plan cost Richmond City \$24,300. Existing and future residents all benefit from this plan, and the life of the plan will be approximately 10 years. Dividing the cost of the plan by the number of new ERCs in 2021 (10 years from the completion date) yields a cost per ERC of \$14.

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 \$7,000. Dividing the cost of the analysis by the number of new ERCs in 6 years yields a cost of \$150 per ERC.

The total cost of planned improvements per ERC in the North Service Area is calculated by adding the cost per ERC for the wastewater system improvements in the North Service Area to the cost per ERC for the wastewater master plan and the cost per ERC for the wastewater impact fee analysis. The total cost of planned improvements in the South Service Area is the cost per ERC for the wastewater master plan plus the cost per ERC for the wastewater impact fee analysis (Table 6).

**Table 6: New Development's Share of Costs for Planned Improvements**

<b>North Service Area Planned Improvements</b>	
150 N at about 600 W	\$194,000
<i>Total Number of NewERCs in 2034 in North Area</i>	60
<i>Cost Per ERC</i>	\$3,251
<b>Engineering</b>	
Sewer Collection System Master Plan by JUB Engineers	\$24,300
<i>Total Number of ERCs in 2021</i>	1,898
<i>Cost Per ERC</i>	\$13
<b>Impact Fee Analysis</b>	
Wastewater Impact Fee Analysis Costs	\$7,000
<i>Number of NewERCs in 2020</i>	45
<i>Cost Per ERC</i>	\$156
<b>North Area Cost per ERC for Planned Improvements</b>	<b>\$3,420</b>
<b>South Area Cost per ERC for Planned Improvements</b>	<b>\$169</b>

**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.

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 0.40% 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 2014 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	Principal Payment	Total ERCs	Debt Per ERC	Present Value
2015	\$156,000	1,853	\$84	\$80
2016	\$158,000	1,861	\$85	\$77
2017	\$160,000	1,868	\$86	\$74
2018	\$163,000	1,876	\$87	\$71
2019	\$168,000	1,883	\$89	\$70
2020	\$171,000	1,891	\$90	\$67
2021	\$174,000	1,898	\$92	\$65
2022	\$177,000	1,906	\$93	\$63
2023	\$180,000	1,914	\$94	\$61
2024	\$182,000	1,921	\$95	\$58
2025	\$185,000	1,929	\$96	\$56
2026	\$188,000	1,937	\$97	\$54
2027	\$193,000	1,944	\$99	\$53
2028	\$196,000	1,952	\$100	\$51
2029	\$199,000	1,960	\$102	\$49
<b>Debt Service Credit (Total Present Value of Future Debt Payments)</b>				<b>\$949</b>

### 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**

<b>North Service Area</b>	
Existing Facilities Cost Per ERC (from Table 5)	\$3,138
Costs for Planned Improvements Per ERC (from Table 6)	\$3,420
Debt Service Credit (from Table 7)	-\$949
<b>Recommended Standard Wastewater Impact Fee</b>	<b>\$5,609</b>
<b>South Service Area</b>	
Existing Facilities Cost Per ERC (from Table 5)	\$3,138
Costs for Planned Improvements Per ERC (from Table 6)	\$169
Debt Service Credit (from Table 7)	-\$949
<b>Recommended Standard Wastewater Impact Fee</b>	<b>\$2,358</b>

Recommended Impact Fee Schedule

The impact fee calculated above is for a residential connection, or one Equivalent Residential Connection (ERC). Wastewater impact fees for non-residential connections are based on the expected usage or discharge of the development compared to one ERC. These fees will be determined on a per development basis by the City Engineer, who will use standard, published guidance numbers from State Regulations and engineering manuals. The calculation will be thoroughly explained and documented.

Changing the Impact Fee Over Time

The wastewater impact fee shown in Step 8 is based on 2014 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: Present Value of Existing Water System for 6 Years

Year	Improvement	Cost	Present Value (2014)	Present Value (2015)	Present Value (2016)
1993	System Upgrade	\$841,000	\$2,342,995	\$2,460,144	\$2,583,151
1993	System Upgrade	\$841,000	\$2,342,995	\$2,460,144	\$2,583,151
1993	System Upgrade	\$248,381	\$691,980	\$726,579	\$762,908
<i>Total Present Value of Existing Facilities</i>			\$5,377,969	\$5,646,868	\$5,929,211
<i>Number of ERCs Upgrades Designed to Serve</i>			2,552	2,552	2,552
<i>Cost Per ERC</i>			\$2,107	\$2,213	\$2,323
<b>Only New Development's Share of Projects Underway</b>					
2013	2.0 MG Storage Tank	\$962,500	\$1,010,625	\$1,061,156	\$1,114,214
2013	Test Well (Cherry Creek)	\$32,800	\$34,440	\$36,162	\$37,970
2013	3 Phase Power to Well	\$134,200	\$140,910	\$147,956	\$155,353
2013	Drill and Equip Well	\$700,000	\$735,000	\$771,750	\$810,338
2013	Main Street PRV and Waterline	\$131,400	\$137,970	\$144,869	\$152,112
2013	Cherry Creek PRV and Waterline	\$141,100	\$148,155	\$155,563	\$163,341
2013	400 West Waterline	\$36,000	\$37,800	\$39,690	\$41,675
2013	500 North Waterline and PRVs	\$314,300	\$330,015	\$346,516	\$363,842
2013	Radio Telemetry for New Projects	\$41,800	\$43,890	\$46,085	\$48,389
2013	Land Purchase	\$98,000	\$102,900	\$108,045	\$113,447
2013	Engineering: Planning, Design, and Construction	\$375,000	\$393,750	\$413,438	\$434,109
<i>Total Present Value of Projects Underway</i>			\$3,115,455	\$3,271,228	\$3,434,789
<i>Number of newERCs the Projects Underway can Serve</i>			1,012	1,012	1,012
<i>Cost Per ERC</i>			\$3,079	\$3,232	\$3,394
<b>Total Cost per ERC</b>			<b>\$5,186</b>	<b>\$5,445</b>	<b>\$5,717</b>
Year	Improvement	Cost	Present Value (2017)	Present Value (2018)	Present Value (2019)
1993	System Upgrade	\$841,000	\$2,712,309	\$2,847,925	\$2,990,321
1993	System Upgrade	\$841,000	\$2,712,309	\$2,847,925	\$2,990,321
1993	System Upgrade	\$248,381	\$801,054	\$841,106	\$883,162
<i>Total Present Value of Existing Facilities</i>			\$6,225,672	\$6,536,955	\$6,863,803
<i>Number of ERCs Upgrades Designed to Serve</i>			2,552	2,552	2,552
<i>Cost Per ERC</i>			\$2,440	\$2,562	\$2,690
<b>Only New Development's Share of Projects Underway</b>					
2013	2.0 MG Storage Tank	\$962,500	\$1,169,925	\$1,228,421	\$1,289,842
2013	Test Well (Cherry Creek)	\$32,800	\$39,869	\$41,862	\$43,955
2013	3 Phase Power to Well	\$134,200	\$163,121	\$171,277	\$179,841
2013	Drill and Equip Well	\$700,000	\$850,854	\$893,397	\$938,067
2013	Main Street PRV and Waterline	\$131,400	\$159,718	\$167,703	\$176,089
2013	Cherry Creek PRV and Waterline	\$141,100	\$171,508	\$180,083	\$189,087
2013	400 West Waterline	\$36,000	\$43,758	\$45,946	\$48,243
2013	500 North Waterline and PRVs	\$314,300	\$382,034	\$401,135	\$421,192
2013	Radio Telemetry for New Projects	\$41,800	\$50,808	\$53,349	\$56,016
2013	Land Purchase	\$98,000	\$119,120	\$125,076	\$131,329
2013	Engineering: Planning, Design, and Construction	\$375,000	\$455,815	\$478,606	\$502,536
<i>Total Present Value of Projects Underway</i>			\$3,606,529	\$3,786,855	\$3,976,198
<i>Number of newERCs the Projects Underway can Serve</i>			1,012	1,012	1,012
<i>Cost Per ERC</i>			\$3,564	\$3,742	\$3,929
<b>Total Cost per ERC</b>			<b>\$6,003</b>	<b>\$6,303</b>	<b>\$6,619</b>

Appendix B: Water Debt Service Credit for 6 Years

Year	Series 1993B Bond	Series 1993C Bond	Series 2012 Bond	Total Payment	Number of ERCs	Debt Per ERC	Present Value (2014)	Present Value (2015)	Present Value (2016)	Present Value (2017)	Present Value (2018)	Present Value (2019)
2015	\$37,000	\$11,000	\$103,000	\$151,000	1552	\$97	\$93					
2016	\$38,000	\$11,000	\$107,000	\$156,000	1559	\$100	\$91	\$95				
2017	\$38,000	\$11,000	\$111,000	\$160,000	1565	\$102	\$88	\$93	\$97			
2018	\$38,000	\$11,000	\$115,000	\$164,000	1571	\$104	\$86	\$90	\$95	\$99		
2019	\$38,000	\$2,947	\$119,000	\$159,947	1578	\$101	\$79	\$83	\$88	\$92	\$97	
2020			\$124,000	\$124,000	1584	\$78	\$58	\$61	\$64	\$68	\$71	\$75
2021			\$128,000	\$128,000	1590	\$80	\$57	\$60	\$63	\$66	\$70	\$73
2022			\$133,000	\$133,000	1597	\$83	\$56	\$59	\$62	\$65	\$69	\$72
2023			\$138,000	\$138,000	1603	\$86	\$55	\$58	\$61	\$64	\$67	\$71
2024			\$143,000	\$143,000	1610	\$89	\$55	\$57	\$60	\$63	\$66	\$70
2025			\$149,000	\$149,000	1616	\$92	\$54	\$57	\$59	\$62	\$66	\$69
2026			\$154,000	\$154,000	1623	\$95	\$53	\$55	\$58	\$61	\$64	\$67
2027			\$160,000	\$160,000	1629	\$98	\$52	\$55	\$57	\$60	\$63	\$66
2028			\$166,000	\$166,000	1636	\$101	\$51	\$54	\$57	\$59	\$62	\$65
2029			\$172,000	\$172,000	1642	\$105	\$50	\$53	\$56	\$58	\$61	\$64
2030			\$179,000	\$179,000	1649	\$109	\$50	\$52	\$55	\$58	\$60	\$63
2031			\$185,000	\$185,000	1656	\$112	\$49	\$51	\$54	\$56	\$59	\$62
2032			\$192,000	\$192,000	1662	\$116	\$48	\$50	\$53	\$56	\$58	\$61
2033			\$200,000	\$200,000	1669	\$120	\$47	\$50	\$52	\$55	\$58	\$61
2034			\$207,000	\$207,000	1676	\$124	\$47	\$49	\$51	\$54	\$57	\$59
2035			\$215,000	\$215,000	1682	\$128	\$46	\$48	\$51	\$53	\$56	\$59
2036			\$223,000	\$223,000	1689	\$132	\$45	\$47	\$50	\$52	\$55	\$58
2037			\$231,000	\$231,000	1696	\$136	\$44	\$47	\$49	\$51	\$54	\$57
2038			\$240,000	\$240,000	1703	\$141	\$44	\$46	\$48	\$51	\$53	\$56
2039			\$249,000	\$249,000	1710	\$146	\$43	\$45	\$47	\$50	\$52	\$55
2040			\$258,000	\$258,000	1716	\$150	\$42	\$44	\$47	\$49	\$51	\$54
2041			\$268,000	\$268,000	1723	\$156	\$42	\$44	\$46	\$48	\$51	\$53
2042			\$281,000	\$281,000	1730	\$162	\$41	\$43	\$46	\$48	\$50	\$53
<b>Debt Service Credit (Total Present Value of Future Debt Payments)</b>							<b>\$1,567</b>	<b>\$1,549</b>	<b>\$1,526</b>	<b>\$1,500</b>	<b>\$1,471</b>	<b>\$1,443</b>

**Appendix C: Recommended Water Impact Fee for 6 Years**

<i>2014</i>	
Existing Facilities Cost Per ERC	\$5,186
Costs for Planned Improvements Per ERC	\$172
Debt Service Credit	-\$1,567
<b>2014 Recommended Standard Water Impact Fee</b>	<b>\$3,791</b>
<i>2015</i>	
Existing Facilities Cost Per ERC	\$5,445
Costs for Planned Improvements Per ERC	\$172
Debt Service Credit	-\$1,549
<b>2015 Recommended Water Impact Fee</b>	<b>\$4,069</b>
<i>2016</i>	
Existing Facilities Cost Per ERC	\$5,717
Costs for Planned Improvements Per ERC	\$172
Debt Service Credit	-\$1,526
<b>2016 Recommended Water Impact Fee</b>	<b>\$4,364</b>
<i>2017</i>	
Existing Facilities Cost Per ERC	\$6,003
Costs for Planned Improvements Per ERC	\$172
Debt Service Credit	-\$1,500
<b>2017 Recommended Water Impact Fee</b>	<b>\$4,675</b>
<i>2018</i>	
Existing Facilities Cost Per ERC	\$6,303
Costs for Planned Improvements Per ERC	\$172
Debt Service Credit	-\$1,471
<b>2018 Recommended Water Impact Fee</b>	<b>\$5,005</b>
<i>2019</i>	
Existing Facilities Cost Per ERC	\$6,619
Costs for Planned Improvements Per ERC	\$172
Debt Service Credit	-\$1,443
<b>2019 Recommended Water Impact Fee</b>	<b>\$5,348</b>

**Appendix D: Present Value of Existing Wastewater System for 6 Years**

Year	Improvement	Cost	Present Value (2014)	Present Value (2015)	Present Value (2016)
2008	Water Treatment Plant	\$3,316,000	\$4,443,757	\$4,665,945	\$4,899,242
2006	Land Purchase	\$111,474	\$164,698	\$172,933	\$181,579
<i>Total Cost</i>			\$4,608,455	\$4,838,878	\$5,080,822
<i>Total ERCs Treatment Plant May Serve</i>			\$1,562	\$1,562	\$1,562
<i>Cost Per ERC</i>			\$2,950	\$3,098	\$3,253
1971	Sewer Collection System	\$45,000	\$366,735	\$385,072	\$404,325
<i>Remaining Capacity in ERCs</i>			\$1,955	\$1,955	\$1,955
<i>Cost per ERC</i>			\$188	\$197	\$207
<b>Total Cost per ERC</b>			<b>\$3,138</b>	<b>\$3,295</b>	<b>\$3,460</b>
			Present Value (2017)	Present Value (2018)	Present Value (2019)
			\$5,144,204	\$5,401,415	\$5,671,485
			\$190,658	\$200,191	\$210,201
			\$5,334,863	\$5,601,606	\$5,881,686
			\$1,562	\$1,562	\$1,562
			\$3,415	\$3,586	\$3,765
			\$424,542	\$445,769	\$468,057
			\$1,955	\$1,955	\$1,955
			\$217	\$228	\$239
			<b>\$3,633</b>	<b>\$3,814</b>	<b>\$4,005</b>

**Appendix E: Wastewater Debt Service Credit for 6 Years**

Year	Total Payment	Total ERCs	Debt Per ERC	Present Value (2014)	Present Value (2015)	Present Value (2016)	Present Value (2017)	Present Value (2018)	Present Value (2019)
2015	\$156,000	1,853	\$84	\$80					
2016	\$158,000	1,861	\$85	\$77	\$81				
2017	\$160,000	1,868	\$86	\$74	\$78	\$82			
2018	\$163,000	1,876	\$87	\$71	\$75	\$79	\$83		
2019	\$168,000	1,883	\$89	\$70	\$73	\$77	\$81	\$85	
2020	\$171,000	1,891	\$90	\$67	\$71	\$74	\$78	\$82	\$86
2021	\$174,000	1,898	\$92	\$65	\$68	\$72	\$75	\$79	\$83
2022	\$177,000	1,906	\$93	\$63	\$66	\$69	\$73	\$76	\$80
2023	\$180,000	1,914	\$94	\$61	\$64	\$67	\$70	\$74	\$77
2024	\$182,000	1,921	\$95	\$58	\$61	\$64	\$67	\$71	\$74
2025	\$185,000	1,929	\$96	\$56	\$59	\$62	\$65	\$68	\$72
2026	\$188,000	1,937	\$97	\$54	\$57	\$60	\$63	\$66	\$69
2027	\$193,000	1,944	\$99	\$53	\$55	\$58	\$61	\$64	\$67
2028	\$196,000	1,952	\$100	\$51	\$53	\$56	\$59	\$62	\$65
2029	\$199,000	1,960	\$102	\$49	\$51	\$54	\$57	\$59	\$62
<b>Debt Service Credit</b>				<b>\$949</b>	<b>\$912</b>	<b>\$873</b>	<b>\$831</b>	<b>\$786</b>	<b>\$736</b>

**Appendix F: Recommended Wastewater Impact Fee for 6 Years**

<b>North Service Area</b>		<b>South Service Area</b>	
<i>2014</i>		<i>2014</i>	
Existing Facilities Cost Per ERC	\$3,138	Existing Facilities Cost Per ERC	\$3,138
Costs for Planned Improvements Per ERC	\$3,420	Costs for Planned Improvements Per ERC	\$169
Debt Service Credit	-\$949	Debt Service Credit	-\$949
<b>2014 Recommended Wastewater Impact Fee</b>	<b>\$5,609</b>	<b>2014 Recommended Wastewater Impact Fee</b>	<b>\$2,358</b>
<i>2015</i>		<i>2015</i>	
Existing Facilities Cost Per ERC	\$3,295	Existing Facilities Cost Per ERC	\$3,295
Costs for Planned Improvements Per ERC	\$3,420	Costs for Planned Improvements Per ERC	\$169
Debt Service Credit	-\$912	Debt Service Credit	-\$912
<b>2015 Recommended Wastewater Impact Fee</b>	<b>\$5,803</b>	<b>2015 Recommended Wastewater Impact Fee</b>	<b>\$2,552</b>
<i>2016</i>		<i>2016</i>	
Existing Facilities Cost Per ERC	\$3,460	Existing Facilities Cost Per ERC	\$3,460
Costs for Planned Improvements Per ERC	\$3,420	Costs for Planned Improvements Per ERC	\$169
Debt Service Credit	-\$873	Debt Service Credit	-\$873
<b>2016 Recommended Wastewater Impact Fee</b>	<b>\$6,007</b>	<b>2016 Recommended Wastewater Impact Fee</b>	<b>\$2,756</b>
<i>2017</i>		<i>2017</i>	
Existing Facilities Cost Per ERC	\$3,633	Existing Facilities Cost Per ERC	\$3,633
Costs for Planned Improvements Per ERC	\$3,420	Costs for Planned Improvements Per ERC	\$169
Debt Service Credit	-\$831	Debt Service Credit	-\$831
<b>2017 Recommended Wastewater Impact Fee</b>	<b>\$6,222</b>	<b>2017 Recommended Wastewater Impact Fee</b>	<b>\$2,971</b>
<i>2018</i>		<i>2018</i>	
Existing Facilities Cost Per ERC	\$3,814	Existing Facilities Cost Per ERC	\$3,814
Costs for Planned Improvements Per ERC	\$3,420	Costs for Planned Improvements Per ERC	\$169
Debt Service Credit	-\$786	Debt Service Credit	-\$786
<b>2018 Recommended Wastewater Impact Fee</b>	<b>\$6,448</b>	<b>2018 Recommended Wastewater Impact Fee</b>	<b>\$3,198</b>
<i>2019</i>		<i>2019</i>	
Existing Facilities Cost Per ERC	\$4,005	Existing Facilities Cost Per ERC	\$4,005
Costs for Planned Improvements Per ERC	\$3,420	Costs for Planned Improvements Per ERC	\$169
Debt Service Credit	-\$736	Debt Service Credit	-\$736
<b>2019 Recommended Wastewater Impact Fee</b>	<b>\$6,689</b>	<b>2019 Recommended Wastewater Impact Fee</b>	<b>\$3,438</b>

## CERTIFICATION OF IMPACT FEE ANALYSIS BY CONSULTANT

In accordance with Utah Code Annotated, § 11-36-201(6)(b), Emily Sim, on behalf of Public Sector Economics, L.L.C., makes the following certification:

I certify that the impact fee analysis titled Final Richmond Water and Wastewater Impact Fee Analyses dated February 21, 2014 includes only the costs for qualifying public facilities that:

- Are allowed under the Impact Fees Act;
- Are projected to be incurred or encumbered within six years after each impact fee is paid;
- Contain no cost for operation and maintenance of public facilities;
- Offsets costs with grants or other alternate sources of payment;
- Does not include costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; and
- Complies in each and every relevant respect with the Impact Fees Act.

Emily Sim makes this certification with the following caveats:

1. All of the recommendations for implementation of the Water Master Plan and Wastewater Master Plan or in the Impact Fee Analysis documents are followed in their entirety by Richmond City staff and elected officials.
2. If all or a portion of the Water Master Plan or Wastewater Plan or Impact Fee Analysis are modified or amended, this certification is no longer valid.
3. All information provided to Public Sector Economics, L.L.C., its contractors or suppliers is assumed to be correct, complete, and accurate. This includes information provided by Richmond City and outside sources.

Dated: Feb 21, 2014

Public Sector Economics, L.L.C.



By Emily Sim