

6.0 USER RATE AND IMPACT FEE ANALYSIS

This section discusses the process of determining impact fees and user rates for the wastewater system. The impact fee analysis is based on the equivalent residential user (ERU) method that Logan City uses for the wastewater treatment impact fee. Three user rate structures were considered as requested by the City.

6.1 Impact Fee Analysis

This section discusses the method of implementing an impact fee and what the impact fee can cover. Currently, Providence City's impact fee only covers the treatment impact fee charged by Logan City per new ERU added to the system. The impact fee in this analysis is based on the same ERU method as that used by Logan City for the treatment impact fee.

6.1.1 Impact Fee Eligibility

An impact fee can only cover the cost of system improvements that are needed for future growth. Current system deficiencies cannot be fixed with impact fee funds. Improvements from the recommended alternative were reviewed to determine which portions of this alternative is impact fee eligible.

Providence's portion of the Logan City Treatment – Option B alternative has a total project cost of \$4,867,000. Part of the existing outfall line to the Logan lift station is currently exceeding capacity. This portion consists of approximately 592 feet of the total 7,170 feet or 8.3%. This portion of the project totaling \$325,972 is not impact fee eligible. The remainder of the outfall line replacement and the west side lift station, force main, and gravity line are for future growth and thus are impact fee eligible. The total impact fee eligible cost of each of these improvements is as follows:

- 21" Outfall Line to Lift Station (Providence Portion) - \$3,622,028
- West Side Gravity Collection System - \$395,000
- West Side Force Main to Existing System - \$344,000
- West Side Lift Station (0.3 MGD) - \$180,000

These improvements total \$4,541,028. The improvements were based on the 20-year planning period and will be assessed to new growth in the City over the next 20 years.

6.1.2 Impact Fee Assessment Method

The Logan City treatment impact fee is assessed based on the number of equivalent residential units (ERU) that a connection is equal to. Since this assessment already occurs each time a new connection joins the system to determine the Logan City treatment impact fee, it is recommended that the City use this method for implementing an impact fee to fund wastewater improvements for future growth.

This impact fee assessment method is similar to the ERU based user rate method discussed in **Section 6.1**. An ERU based impact fee is charged by the total number of ERUs for a given connection. New residential connections and individual units in multi-family

connections would be considered one ERU. The sewer flow for new commercial connections would be estimated using flow data for similar connections and dividing the estimated flow by 245 gpd per ERU to get an equivalent ERU number for each commercial connection.

6.1.3 Impact Fee Assumptions

The following assumptions were used for the impact fee calculations:

- A loan amount of \$4,541,028 to cover the impact fee eligible portion of the project,
- A grant amount of \$0,
- An interest rate of 2.5%,
- A loan term of 20 years,
- A fee implementation year of 2022, and
- A loan start year of 2025.

The total cost of the impact fee eligible improvements including interest is \$5,825,879.

6.1.4 Impact Fee Calculation

To calculate the impact fee, the projected ERUs for the planning period need to be estimated. Based on the ERU projection in **Table 3.3**, it is estimated that there will be 2,044 additional ERUs in the City in the next 20 years. It is estimated that there will be 1,810 additional residential ERUs and 234 additional commercial ERUs.

The impact fee was calculated by dividing the total cost of the improvements that were impact fee eligible (\$5,825,879) by the number of ERUs (2,044) expected in the 20-year planning period. This results in an impact fee increase of \$2,850/ERU for Providence's collection system. Adding the Logan treatment impact fee of \$2,433 equals a total impact fee of \$5,283/ERU.

6.2 User Rate Structures

This section discusses the three structures for assessing the wastewater user rate. The three user rate structures considered in the analysis were:

1. Water service diameter – current method,
2. Equivalent residential unit (ERU), and
3. Water service capacity.

6.2.1 User Rate – Water Service Diameter

Currently, Providence City is billing sewer connections based on the diameter of their water service connection. The base sewer user rate is for a 1-inch water service. For water service connections greater than 1-inch, the base sewer user rate is multiplied by the water service diameter to get the user rate for that connection size. For example, a user with a 4-inch water service connection would pay four times the base rate for their sewer user

rate. This user rate method means that residential users are being billed disproportionately higher than multi-family and commercial users.

6.2.2 User Rate – Equivalent Residential Unit (ERU)

An ERU based user rate is charged by the total number of ERUs for a given connection. All residential connections and individual units in multi-family areas would be counted as one ERU. All commercial connections and high usage residential connections would be assigned ERUs based on winter water metered flow rates. For commercial users with high flows, it is recommended that this assigned ERU value be reassessed on an annual basis. For other commercial users, it is recommended that this ERU value be reassessed every three years.

6.2.3 User Rate – Water Service Capacity

A water service capacity method is applied similarly to the water service diameter method. The base sewer user rate is for a 1-inch water service. For water service connections greater than 1-inch, the base sewer user rate is multiplied by the potential flow that can pass through the larger water service area compared to the 1-inch water service. Since the base residential water service is 1-inch in diameter, this user rate factor for larger water services is equal to the water service diameter squared. For example, a user with a 4-inch water service connection would pay sixteen times the base rate for their sewer user rate. This user rate charges users based on their potential for their sewer flow potential rather than actual sewer flows. A larger service size means that a user could potentially use water at a higher rate and thus have higher wastewater flows, but this does not account for users with oversized water service lines.

6.2.4 Recommended User Rate Structure

Sunrise recommends for the City to implement the equivalent residential unit (ERU) based user rate structure. The current method of assessing user rates by the water service diameter does not account for flow. This means that connections with higher flows like commercial users with high water usage are paying significantly less per gallon than residential connections. The ERU method addresses this by charging users based on their impact to the system. Connections with higher sewer flows would be charged for their higher flows.

Since winter water flows should be approximately equal to wastewater flows, this method allows the City to approximate wastewater flows per connection without the expense of installing wastewater flow meters on each connection.

6.3 User Rate Analysis

The same assumptions on connections, ERUs, revenues, expenses, and the reserve account from the cash flow analysis were assumed for the user rate analysis. The other assumed parameters for the user rate analysis include:

- A loan amount of \$4,451,028 to cover the impact fee eligible portion of the project,
- A down payment from the sewer fund of \$325,972 to cover the non-impact fee eligible portion of the project,

- A grant amount of \$0,
- An interest rate of 2.5%,
- A loan term of 20 years,
- A rate implementation year of 2022,
- A loan start year of 2025, and
- An impact fee of \$5,283.

The user rates for the Logan City Treatment – Option B alternative is given in **Table 6.1**. This table includes the considered user rate structures and associated base user rate. **Appendix E** shows the full impact fee and user rate analysis.

Table 6.1 User Rate and Impact Fee Comparison

| User Rate Structure | New Base User Rate | User Rate Change |
|------------------------|--------------------|------------------|
| Water Service Diameter | \$41.46 | \$2.47 |
| ERU | \$33.32 | (\$5.67) |
| Water Service Capacity | \$38.66 | (\$0.33) |

The ERU based user rate would result in a reduction in residential user rates. This shows that the commercial and multi-family users are underpaying for the wastewater flows they are contributing to the system. The water service capacity based user rate has a lower residential user rate than the water service diameter based rate. **Appendix F** shows what the user rate for each multi-family or non-residential connection would be for each user rate method.

The ERU based user rate assumed that all residential connections were equal to one ERU. However, based on winter water usage data, some households use significantly more water in the winter months and thus account for higher wastewater flows. Some of these high flows may be due to leaks that are not increasing wastewater flows. **Table 6.2** shows the breakdown of residential connections based on ERUs.

Table 6.2 Residential Connection Totals by ERUs

| ERUs | # of Connections |
|---------|------------------|
| 1 | 1900 |
| 1.5 | 134 |
| 2 | 40 |
| 2.5 | 41 |
| 3-5 | 47 |
| 5.5-10 | 10 |
| 10.5-20 | 4 |
| 20.5+ | 3 |

Approximately 15% of residential connections have a winter water usage above 245 gpd and thus account for more than one ERU. The connection with the highest winter flow equals 35.5 ERUs. Providence could consider a tiered residential sewer wastewater structure based on winter water

usage similar to the water rate tiered structure or charging these users based on ERUs like commercial connections.

7.2.1 Capital Improvement Projects

The recommended improvement projects and their associated costs are as follows:

- Providence's Portion of 21" Shared Outfall Line to Logan City - \$3,948,000 (\$3,622,028 Impact Fee Eligible)
- West Side Gravity Collection System - \$395,000 (All Impact Fee Eligible)
- West Side Force Main to Existing System - \$344,000 (All Impact Fee Eligible)
- West Side Lift Station - \$180,000 (All Impact Fee Eligible)
- P_11T-09_11T-07 Line Replacement - \$103,000 (\$0 Impact Fee Eligible)
- Total - \$4,970,000 (\$4,541,028 Impact Fee Eligible)

Sunrise has completed a Preliminary Engineer's Opinion of Probable Cost for each improvement project. These cost estimate overviews can be found in **Appendix C**. The unit costs used for all gravity main improvement project cost estimates were compiled from an extensive record of Sunrise project bid tabulations. All costs associated with the estimates are in 2020 dollars. To account for inflation as time goes on, Providence City should adjust all cost estimates according to the cost of living and Heavy Construction Cost Index factors.

7.2.2 Impact Fee and User Rate

An impact fee and user rate analysis were performed for the recommended alternative. The impact fee eligible portion of the project including interest equals \$5,825,879. The total number of new ERUs projected in the next 20 years is 2044 ERUs. Sunrise recommends that Providence City implement an ERU based impact fee and an ERU based user rate. The current and proposed impact fees and user rates per ERU are shown in **Table 7.1**.

Table 7.1 Existing and Proposed Impact Fees and User Rates

| | Treatment Impact Fee | Collection Impact Fee | Total Impact Fee | User Rate |
|----------|-------------------------|--------------------------|---------------------|--------------|
| Existing | \$2,433 | \$0 | \$2,433 | \$38.99 |
| Proposed | \$2,433 | \$2,850 | \$5,283 | \$33.32 |

Note: Fees above are based on 1 ERU, which equals 245 gpd.

Appendix E

Logan Treatment B - Impact Fee and User Rate Analysis

| | User Rate | | | Loan Terms | | | | | | | | | Impact Fee | | | | |
|------------------------|-------------------|---------------|--------------------|------------|--------------|--------------|-------|--------------|---------------|-----------|----------------|---------------|----------------------|--------------------|--------------------------------|---------------------|----------------|
| User Rate Structure | Current User Rate | New User Rate | User Rate Increase | Loan Year | Project Cost | Loan Amount | Grant | Down Payment | Interest Rate | Loan Term | Annual Payment | Total Payment | Current Logan Impact | 2021-2040 New ERUs | Impact Increase for Providence | Future Total Impact | Year Increased |
| Water Service Diameter | \$ 38.99 | \$ 41.46 | \$ 2.47 | 2025 | \$ 4,867,000 | \$ 4,541,028 | \$ - | \$ 325,972 | 2.50% | 20 | \$ 291,294 | \$ 5,825,879 | \$ 2,433 | 2044 | \$ 2,850 | \$ 5,283 | 2022 |
| ERU | \$ 38.99 | \$ 33.32 | \$ (5.67) | 2025 | \$ 4,867,000 | \$ 4,541,028 | \$ - | \$ 325,972 | 2.50% | 20 | \$ 291,294 | \$ 5,825,879 | \$ 2,433 | 2044 | \$ 2,850 | \$ 5,283 | 2022 |
| Water Service Capacity | \$ 38.99 | \$ 38.66 | \$ (0.33) | 2025 | \$ 4,867,000 | \$ 4,541,028 | \$ - | \$ 325,972 | 2.50% | 20 | \$ 291,294 | \$ 5,825,879 | \$ 2,433 | 2044 | \$ 2,850 | \$ 5,283 | 2022 |

| Capital Improvement | Project Amount | Impact Fee Eligible | Remainder |
|---|----------------|---------------------|------------|
| 21" Outfall Line to Lift Station - Providence Portion | \$ 3,948,000 | \$ 3,622,028 | \$ 325,972 |
| West Side Gravity Collection System | \$ 395,000 | \$ 395,000 | \$ - |
| West Side Force Main to Existing System | \$ 344,000 | \$ 344,000 | \$ - |
| West Side Lift Station (0.3 MGD) | \$ 180,000 | \$ 180,000 | \$ - |
| Total | \$ 4,867,000 | \$ 4,541,028 | \$ 325,972 |