

# Rodney Wastewater Treatment System

## Rate Structure Report

**SUBMITTED BY**

Ontario Clean Water Agency  
2225 Erin Mills Parkway, Suite 1200  
Mississauga, ON L5K 1T9

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Report prepared by:




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**Jason Younker, E.I.T.**  
 Junior Project Manager

Report reviewed by:




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**Sonya Semanuik, P.Eng., PMP**  
 Senior Project Engineer

## **STATEMENT OF CONFIDENTIALITY**

**OCWA's Report to  
The Municipality of West Elgin for the  
Rodney Wastewater Rate Study Report**

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**Appendix A: Rate Assessment**

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# 1 Purpose

In 2019, the Municipality retained the services of the Ontario Clean Water Agency (OCWA) to generate a rate study and capital plan for the Rodney Wastewater Treatment System and Treatment Plant respectively.

The scope of this 2019 Wastewater Rate Study includes:

- Assessment of the current and projected financial position of the municipality
- Recommendation of a rate structure for the municipality in order to maintain a financially healthy and sustainable system.

The Capital & Major Maintenance Plan is provided in a separate report and should be read in conjunction with this Rate Study report. This Rate Assessment report summarizes the sewer rate updates required to maintain a sustainable system.

# 2 System Background

The Rodney Wastewater System is comprised of a collection system, a sewage lift station, a lagoon, and a treatment plant. The system provides wastewater treatment to 998 people (2016 census) in the Village of Rodney and has a plant capacity of 590 m<sup>3</sup>/day. The plant is considered an extended aeration plant with a treatment process combination of screening, aeration, clarification, filtration, and disinfection with the treated effluent being discharged to Sixteen Mile creek. At present, the Rodney WWTP is owned by the Municipality of West Elgin and operated by the Ontario Clean Water Agency (OCWA) under Certificate of Approval No. 3-0871-88-94, last modified June 27, 1998.

A simplified process flow diagram can be found in Figure 1.

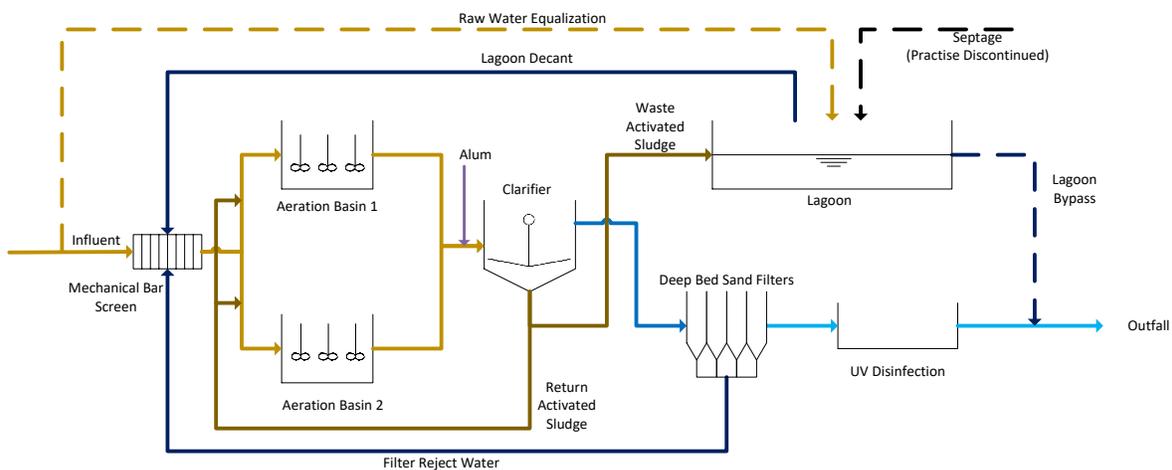


Figure 1: Simplified Process Flow Diagram for the Rodney WWTP

## 2.1 Rate History

The Village of Rodney had an estimated population of 998 in 2016 (Statistics Canada). As of 2019, the wastewater system served 414 residential connections and 35 commercial connections. Water bills are determined by applying a flat rate fee in addition to a metered water usage rate. Sewage rates are calculated as a percentage of the water rate. The water and wastewater rates for 2018 are shown in Table 1:

*Table 1: Annual Wastewater Rates*

SYSTEM	RATE STRUCTURE
Wastewater Rates	153% of the total water bill
Water Rates	\$1.45/m <sup>3</sup> + \$19.06/month

## 3 Wastewater Service Revenue and Expenses

### 3.1 Sources of Revenue

Municipalities have a number of alternatives available to fund water systems expenditures:

**Development Charges** - Such charges are applied to developers and others connecting new non-serviced areas to the existing water and wastewater systems. The growth-related costs of building additions to the system can be passed on to these developers or new customers. Existing users are thus spared the capital cost of expanding infrastructure to accommodate new users to the system.

Based on the lack of population growth in the Village of Rodney, a decreasing population in the Municipality, and an asset list that shows that no new linear infrastructure will be installed in the near future, there will be no development charges incorporated into the rate plan.

**Connection Charges** - Fees are charged to landowners who wish to connect to the system. The fee covers the cost to the utility associated with installing a service line or drain from the existing water main or sewer to the edge of the property line. Connection charges may account for past infrastructure investments and may not be limited to the installation cost.

Presently the Village does have rates for new connections to the water system based on the size of the new line (0.75"-6"). Based on the location of housing in the Village and the position of the collection system, new connections to the system could be made in the future. These new connections would likely require the extension of existing collection lines. Extension of the existing collection system would have significant associated capital costs. With no planned expansion of the collection system and no evident demand for such work, no connection charges are incorporated into the rate plan

**Government Grants** – The Municipality has received substantial funding in the past and it is expected that it will continue to apply for future funding. These funding initiatives can be critical to carry out major water and wastewater projects. These funding initiatives include the recent Investing in Canada Infrastructure Plan (ICIP) – Green Stream. These types of programs are competitive, project-specific, and are limited in their availability. There is also the ongoing Federal Gas Tax Fund (GTF) that allocates formula based funds annually to fund municipal infrastructure.

Given the competitive nature of programs like ICIP and the possibility that the GTF is allocated towards other infrastructure priorities, no government funding will be incorporated into the rate plan.

**Reserves** – The Sewage System Reserve Fund allows the municipality to accumulate capital in order to afford large capital projects or fund unexpected equipment repairs. Ideally, the combination of the Sewage System Reserve Fund and the current value of the system’s asset should be equivalent to the replacement cost of the system.

Based on the information provided by the Municipality, Rodney’s Sewage System Reserve Fund at the end of 2018 was \$357,693.78. The 2019 budget projects that this reserve would increase to \$583,351.78.

**Interest on Reserves** – Excess reserve funds can be invested in order to gain a source of revenue. Based on previous financial statements provided by the Municipality, the interest rate utilized in the rate assessment is 0.45%.

**User Fees** – User fees are the charges applied to users of the sewage system. Sewage rates are based on either a flat fee or a percentage of the water rate. Water rates structures are set up as either an increasing or decreasing block rate, a flat fee, a constant unit charge, or some combination of rate structures. Ideally, the majority of revenue for the water and sewage systems should originate through user fees.

**Debentures** - Money has traditionally been borrowed in the form of debentures to provide upgrades to service existing users. Utilizing this type of loan allows for the construction of major capital projects, but comes at the cost of principal debt and interest that is recovered over a period of time. The Municipality currently has no loans outstanding. The rate structure assumes that at any time during the planning period when the Reserve Fund is consumed, any additionally required funds will be procured through a loan.

The rate structure assumes that any debt will accrue interest at the rate of 2.51%, for debt below \$1,000,000, which is the present rate that OCWA finances municipalities. For debt greater than \$1,000,000, than it is assumed that private financing would have to be utilized at an interest rate of 5.0%.

**Taxation** – Municipalities collect property taxes from their residents. This income is used to fund all expenses of the municipality (roads, libraries, city hall, etc.). In the event that the municipality does not want to go into debt and there are available funds, the municipality could choose to transfer funds from the municipality’s general reserve fund to the sewage system reserve fund. The rate study assumes that the municipality will not divert funding from the general account to fund the sewage system.

Most water systems use some or all of the above means. In this project, revenue generation will rely upon user rates, reserves, interest on the reserve, and debentures.

## 3.2 System Expenses

The categories of expense sections below are keeping with the format used by the Municipality for its last three annual financial statements (2017-2019).

*Table 2: Rodney Sewage Treatment System Expense Breakdown*

EXPENSE CATEGORY	PERCENTAGE (%)
Contracted Services	48.24%
Utilities (Water and Hydro)	29.21%
Taxes and Insurance	12.12%
Grounds and Sewer Maintenance	9.93%
Contracts and Agreements	0.50%

- **Contracted Services:** The services of third party contractors and consultants required to operate the system. The majority of the contracted services are attributed to the Ontario Clean Water Agency responsible for the operation of the sewage treatment plant.
- **Utilities (Water & Electricity):** The cost to provide electricity and treated water to the treatment plant. Of the utility cost, approximately 2/3 is related to the provision of electricity and 1/3 for the provision of water.
- **Grounds and Sewer Maintenance:** The cost of services to maintain the collection system and to conduct necessary landscaping.
- **Taxes and Insurance:** Taxes and insurance associated with costs for the Rodney WWTS.
- **Contracts and Agreements:** Refers to legal and procurement costs associated with preparing contracts and agreements associated with the Rodney WWTS.
- **Capital and Major Maintenance:** The projected cost of various projects. These projects can directly increase the value of the plant's tangible assets through renewals and replacements. For the purpose of this plan, major maintenance refers to projects of the significant cost that are required to maintain plant operations but will not increase the value of the plant's tangible assets.

There are several major capital works that are planned in the near future of the wastewater treatment system. These capital works are shown in Table 3.

*Table 3: Major Capital Works for the Rodney WWTP*

CAPITAL WORKS	SCHEDULED YEAR	PROJECTED COST*
Lagoon Decant Upgrade	2020	\$148,000
Lagoon Clean-out	2021	\$750,000
Clarifier Replacement	2021	\$351,000
Mechanical Bar Screen Replacement	2022	\$198,000
Alum Tank Replacement	2021	\$163,000
Aeration System Upgrade	2023	\$353,000

\*Projected costs are shown in 2019 dollars.

As seen in Table 3, if the proposed capital works are undertaken, project costs are projected to exceed \$1,900,000. A detailed description of these works is available in the Capital Plan Report.

## 4 Sewer Rate

The sewage rate structure in the Municipality is presently at 153% of the water bill. In terms of the water bill, users are charged every two months with a combination of a flat fee of \$38.11 and a unit charge of \$1.45/m<sup>3</sup>. It should be noted that there are other fees that are included in the water bill (service disconnection, installation of a water meter, etc.) and recommendations to increase the rates should affect these fees as well.

### 4.1 General Assumptions

The water rate-setting approach begins by estimating the capital and operating expenses for the period of 2020-2039. This plan contains information about various system attributes, such as currently available information concerning various revenue sources, the day to day expenditures needed to operate the system, estimated new capital requirements and reserve levels.

General assumptions for the rate structure include:

- **Inflation Rate** – All expenses were inflated at 2% per year.
- **Population Growth** – Based on West Elgin’s 2013 Official Plan, the growth of the Village of Rodney has been projected at 1% annually.
- **Interest on Investments** – The present interest rate of 0.45% was assumed for the sewage system reserve fund.
- **Interest on Debt** – Debt interest was taken from OCWA’s present interest rate for municipal partners of 2.51% for debt below \$1,000,000. For debt greater than \$1,000,000, than it is assumed that private financing would have to be utilized at an interest rate of 5.0%.

### 4.2 Proposed Wastewater Rates for 2019-2024

#### 4.2.1 Wastewater System Expenditures

The following Table 4 shows the projection of expenses from 2019 to 2024 for the Municipality’s Wastewater System.

*Table 4: Wastewater System Expenditure Projection*

EXPENSES	2019	2020	2021	2022	2023	2024
Contracted Services (incl. OCWA)	\$158,331	\$161,497	\$164,727	\$168,022	\$171,382	\$174,810
Utilities (Water and Electricity)	\$97,726	\$101,635	\$105,700	\$109,928	\$114,325	\$118,898
Grounds and Sewer Maintenance	\$40,199	\$41,003	\$41,823	\$42,659	\$43,513	\$44,383
Taxes and Insurance	\$33,990	\$34,670	\$35,364	\$36,071	\$36,792	\$37,528
Contracts and Agreements	\$0	\$0	\$0	\$0	\$0	\$3,651
Capital and Major Maintenance	\$55,000	\$235,110	\$1,699,103	\$413,805	\$611,236	\$27,050
<b>Total Expenses</b>	<b>\$385,246</b>	<b>\$573,915</b>	<b>\$2,046,717</b>	<b>\$770,485</b>	<b>\$977,248</b>	<b>\$406,320</b>

### 4.2.2 Wastewater Rate Structure

The rates/rate increases are calculated by considering the present rates (Table 1) and wastewater reserve along with the projected future expenses as shown in Table 4. The overall goal is to maintain a healthy wastewater reserve while keeping the wastewater rate increases sufficient to compensate for 2% inflation. If revenues have to increase, keeping rate increases consistent and spread out over several years will allow consumers to more easily adjust to the increased utility cost.

The major issue in determining the future Rodney Wastewater Rate is determining the user fees required.

In determining Rodney sewage rates, the priorities in decreasing order are:

1. To keep the wastewater treatment system fully operational,
2. To maintain a positive reserve fund,
3. Maintain user fees that are both fair and reasonable,
4. To have a financially self-sustainable system.

To have an understanding of the variance in water rates, Figure 2 shows the combination of annual water and wastewater fees for a household of 2.5 people using 260 L/d/person (Average Rodney Water Consumption). The water consumption and household occupancy rates are rough values to compare water usage across multiple communities.

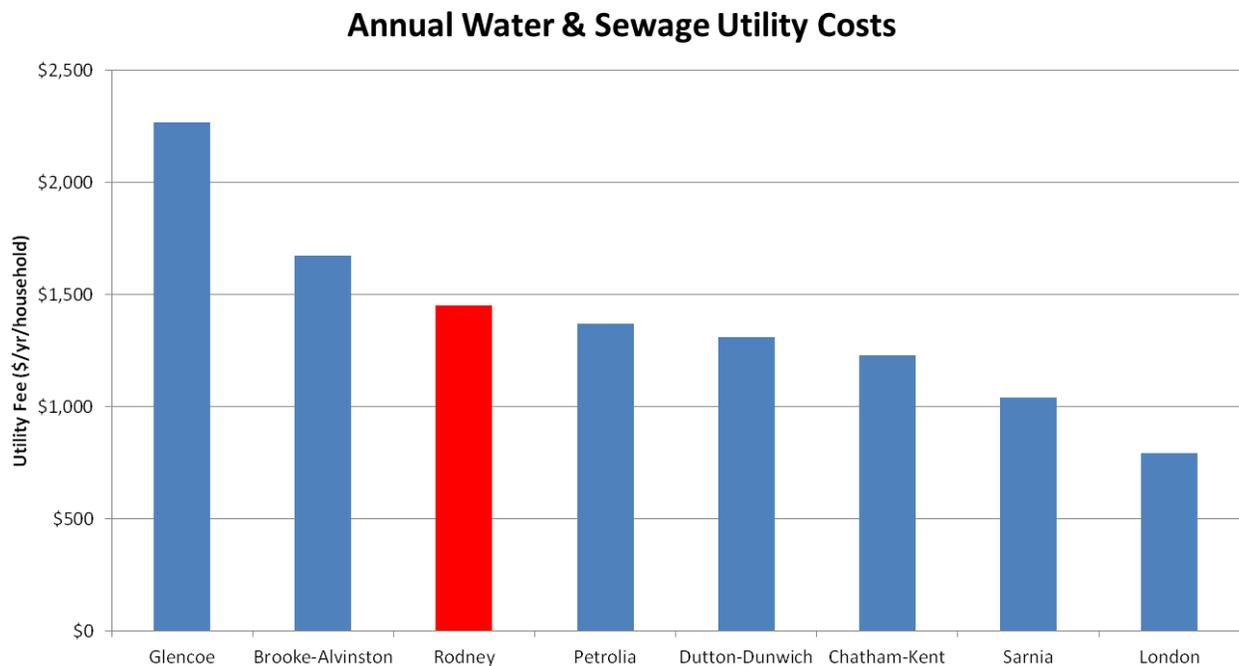


Figure 2: Annual Water & Sewage Utility Costs for Communities near Rodney based on Water Consumption Rate of 260 L/d/capita for a Household of 2.5 People (2019)

From Figure 2 it can be observed that the Village’s rates are presently comparable to several of its nearest neighbours. Large nearby cities such as Sarnia and London have lower rates due to cost-savings

available with economies of scale, while there are communities with higher rates such as Glencoe in Municipality of Southwest Middlesex.

### 4.3 Wastewater Rate Determination

Based on the information from the recent capital plan and the system's financial history, the following scenarios can be predicted based on changes to the existing rate structure. These rate structures assume that all capital works are completed as scheduled in order to keep the plant operational and well maintained. It is also assumed that initial wastewater debenture would be funded through the use of an OCWA low-interest public loan at a rate of 2.51%. Lines of credit or loans beyond \$1,000,000 will be privately sourced at an interest rate of 5.0%. Lines of credit can be higher useful in accounting for short-term debt that may vary quickly with system activities and a changing rate structure. Additional detail was provided in scenario #3 and #4 to show the debt structure of these scenarios.

The rate structure priority of self-sustainability can be determined by looking at the rate of change in the accumulated surplus of the system. The accumulated surplus is a combination of non-financial and financial assets. Non-financial assets are the value of the plant minus the accumulated amortization, while financial assets refer to the debt and/or reserve fund. If the accumulated surplus is trending negative, it is an indication that insufficient funds are being allocated to either build up the reserve fund or renew assets. If the accumulated surplus is trending positive then the system is sufficiently funded and can be considered self-sustaining.

It must be noted that the following rate increase recommendations are **only** for the wastewater rate and not for the combined water/sewer rate. Presently the wastewater rate is calculated at 153% of the water rate. A 12% recommended increase would result in the wastewater rate increasing to 171% of the water rate ( $153\% \times 112\% = 171\%$ ).

#### 4.3.1 Scenario #1: Inflation Based Rate Increase

Under a business-as-usual scenario, rate increases would be based entirely on a 2% increase per year to account for yearly inflation. The projection of the following twenty years of Rodney WWTS's cash flow and financial position is shown in Figure 3.

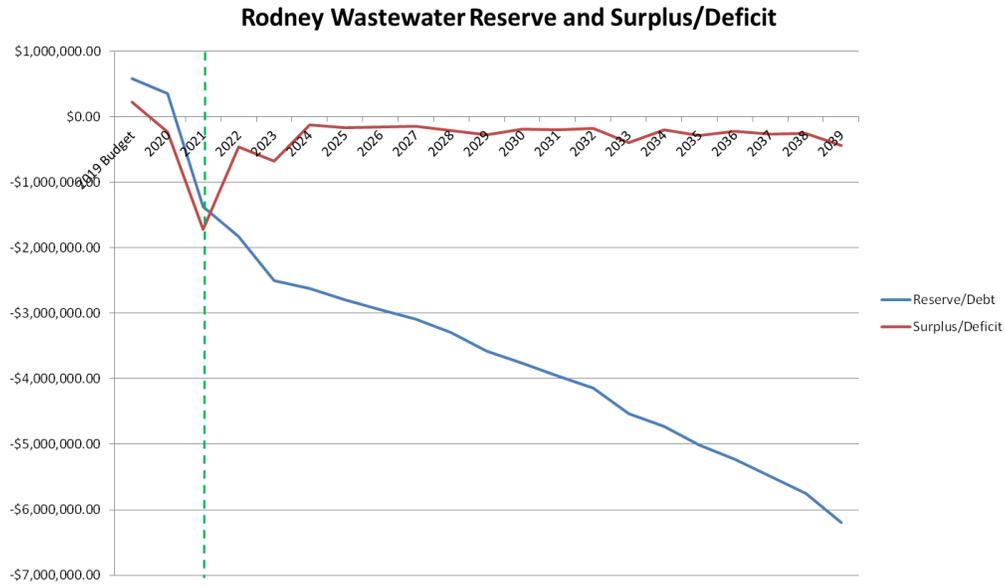


Figure 3: Rodney Wastewater Reserve Projection to restore wastewater reserve (Scenario #1)

This 2% rate increase will eventually result in a wastewater rate that is 49% greater than it is presently (0% if accounting for inflation). Under this scenario, the system would never be able to recoup the costs of the capital works conducted during 2020-2024, as presented in Section 3.2. Given the ever-increasing debt that the system would experience, the system would continuously incur a yearly deficit that would increase the system debt and increase the interest payment for the following year. This scenario would create a significant financial burden on the Municipality over the long-term. Under this scenario, the incurred debt accrues approximately \$2.9 million in interest.

Figure 4 shows the Accumulated Surplus of Rodney Wastewater System projected under this recommended rate structure. It is evident that the initial negative trend indicating an unsustainable system is never corrected, eventually leading to a where the system debt is greater than the remaining asset value.

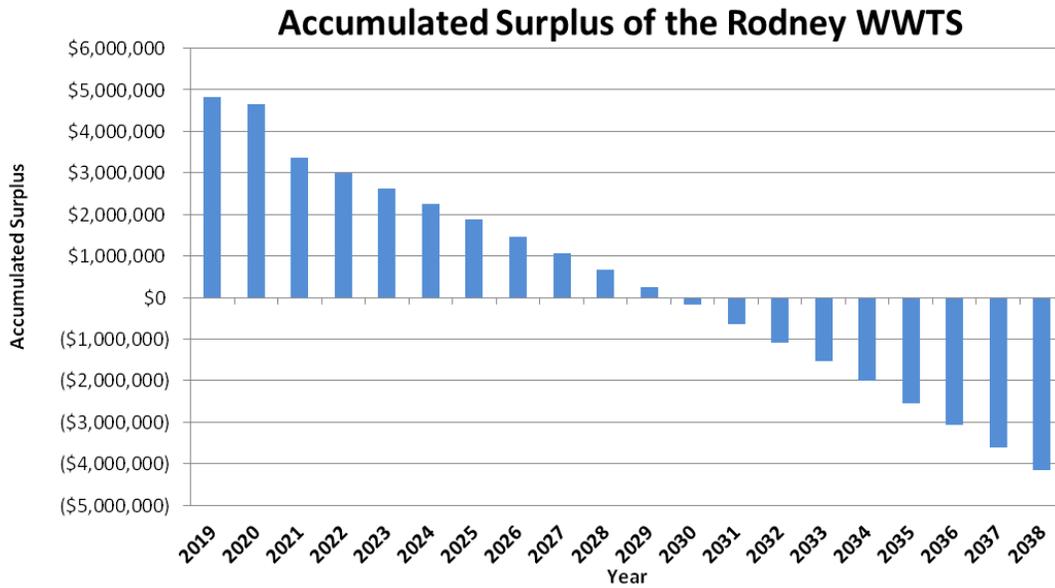


Figure 4: Accumulated Surplus of the Rodney Wastewater Treatment System (Scenario #1)

#### 4.3.2 Scenario #2: Long-term Recovery with Moderate Rate Increases

A moderate rate structure can be formulated with the condition of limiting rate increases to 6% per year. With this limitation, the objective of the rate structure would be to eventually eliminate the system’s debt and keep the system financially sustainable in a manner that is more predictable for ratepayers. The formulated rate structure is presented in Figure 5 and shows that the system is able to recoup the initial project capital costs, but not until 2039.

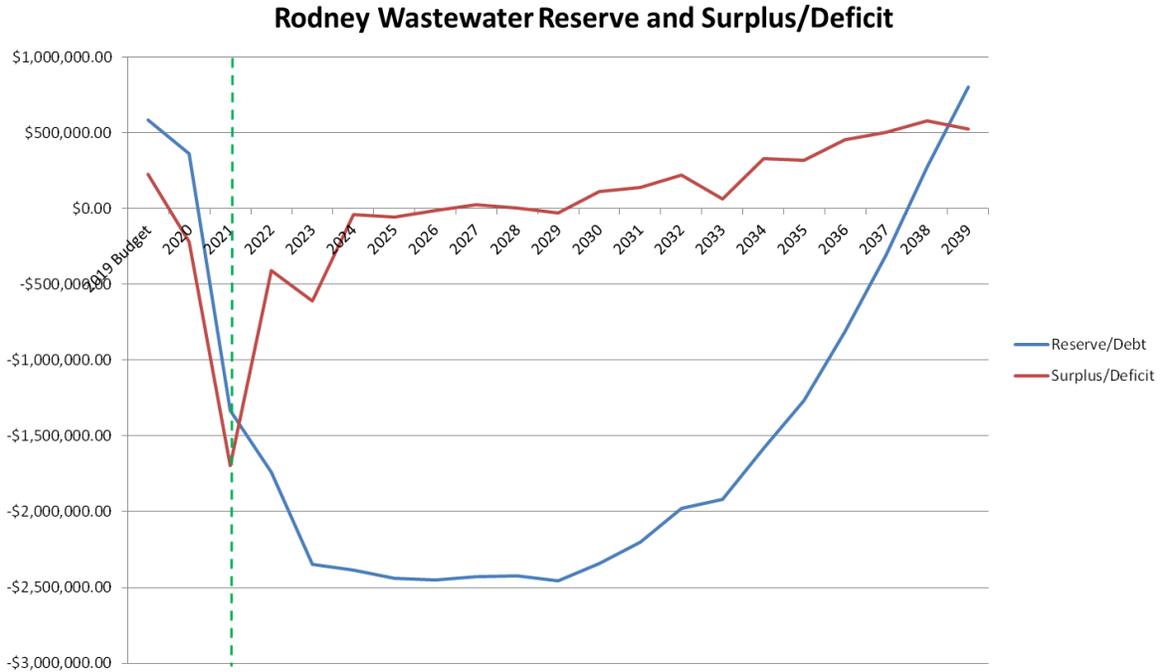


Figure 5: Rodney Wastewater Reserve Projection to restore wastewater reserve (Scenario #2)

In this scenario, the debt structure is represented with a 19-year low interest deferred payment OCWA loan and all other debt carried with a 5% interest rate line of credit or with private loans also at a 5% interest rate. This debt structure is shown in Figure 6.

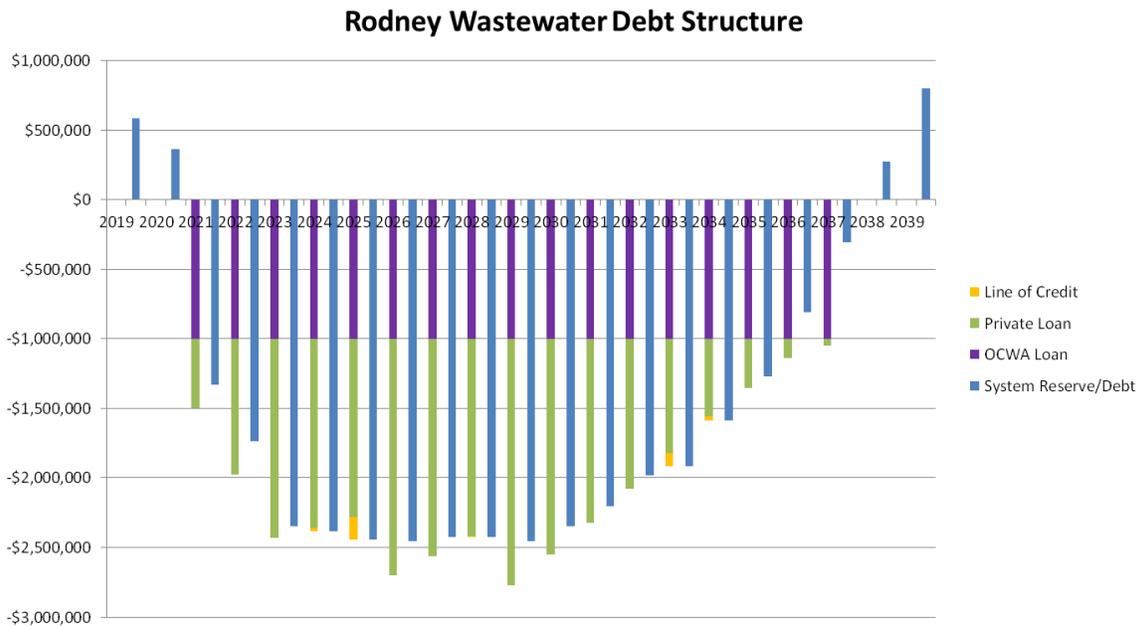


Figure 6: Rodney Wastewater Debt Structure (Scenario #2)

Under this scenario, the 6% rate increase must be maintained each year for the entire 20-year planning period. This 6% rate increase will eventually result in a wastewater rate that is 203% greater than it is presently (106% when accounting for inflation). This would result in Rodney having the highest water/wastewater utility rates in the local area (12% greater than Glencoe) based on Figure 2 and one of the highest rates in the province. Under this scenario, the incurred debt accrues approximately \$1.2 million in interest. Table 5 presents the rate structure projection below with average household cost in 2020 dollars.

Table 5: Wastewater Rate Structure Projection (Scenario #2)

YEAR	RATE INCREASE	Avg. Household Cost (\$/yr)	YEAR	RATE INCREASE	Avg. Household Cost (\$/yr)
2019	-	\$1,449	2029	6%	\$1,945
2020	6%	\$1,484	2030	6%	\$1,999
2021	6%	\$1,575	2031	6%	\$2,056
2022	6%	\$1,615	2032	6%	\$2,116
2023	6%	\$1,657	2033	6%	\$2,178
2024	6%	\$1,700	2034	6%	\$2,242
2025	6%	\$1,745	2035	6%	\$2,309
2026	6%	\$1,792	2036	6%	\$2,378
2027	6%	\$1,841	2037	6%	\$2,450
2028	6%	\$1,892	2038	6%	\$2,525

It should be noted that these high rates would allow the wastewater treatment system to become sustainable. This is shown in Figure 7, where the accumulated surplus initially decreases (indicating an unsustainable system) but is reversed in 2033 when the accumulated surplus begins to increase.

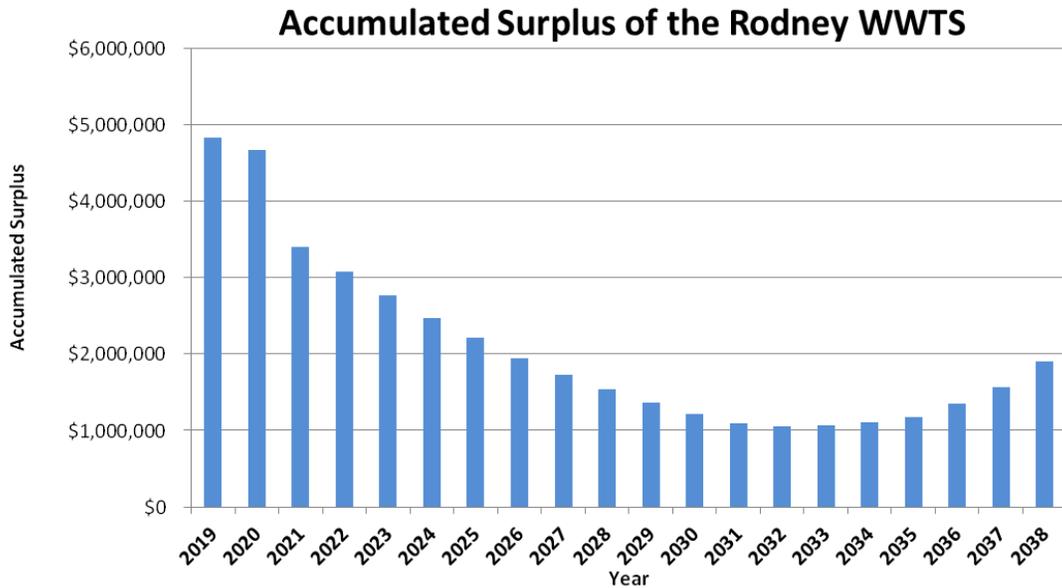


Figure 7: Accumulated Surplus of the Rodney Wastewater Treatment System (Scenario #2)

### 4.3.3 Scenario #3: Aggressive Early Increases for a Sustainable System

Under this scenario, the wastewater rates are increased aggressively in the early years of the planning period in order to return to the present wastewater reserve fund value after twenty years. These major rate increases in the near future result in a 64% increase over the current rate by 2024. Figure 8 presents the financial implications of the rate increases in relation to the system’s reserve and the yearly surplus/debt.

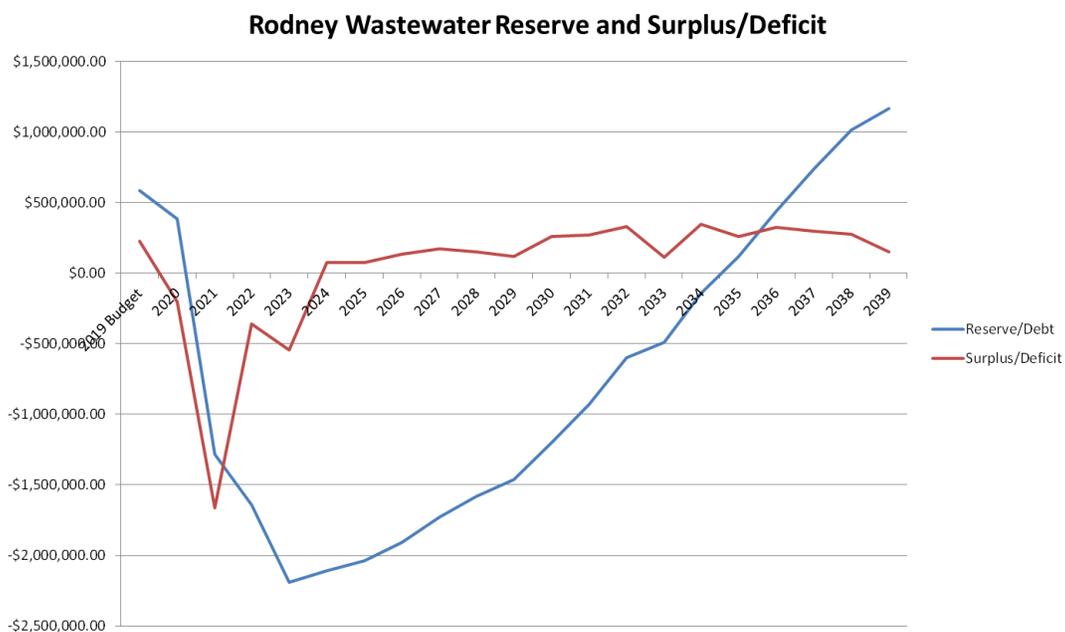


Figure 8: Rodney Wastewater Reserve Projection (Scenario #3)

This rate structure will eventually result in a wastewater rate that is 124% greater than it is presently (53% when accounting for inflation). As seen in Figure 8, the system’s debt is eventually repaid by the end of 2035. Following 2037, the wastewater reserve fund is able to maintain a positive position for the remainder of the study period. In order to achieve this rate structure, the rate changes shown in Table 6 must be implemented. This table also shows the average household cost over the term in 2020 dollars.

Table 6: Wastewater Rate Structure Projection (Scenario #3)

YEAR	RATE INCREASE	Avg. Household Cost (\$/yr)	YEAR	RATE INCREASE	Avg. Household Cost (\$/yr)
2019	-	\$1,449	2029	4%	\$2,077
2020	12%	\$1,537	2030	4%	\$2,107
2021	12%	\$1,633	2031	2%	\$2,107
2022	10%	\$1,718	2032	2%	\$2,107
2023	10%	\$1,809	2033	0%	\$2,077
2024	8%	\$1,884	2034	0%	\$2,047
2025	6%	\$1,936	2035	0%	\$2,017
2026	6%	\$1,990	2036	0%	\$1,988
2027	4%	\$2,019	2037	0%	\$1,960
2028	4%	\$2,048	2038	0%	\$1,932

As seen in Table 6, the proposed rate structure would be very aggressive in the first five years of implementation. These early increases allow for quick repayment of incurred debts that prevents the accumulation of interest in the long-term. By 2032, the rates are sufficient to pay off the system’s debts without further increases and the rate increases can stop until the end of the planning period. Without rate increases after 2032, these years will see a decrease in their effective rates when the effect of inflation is accounted for. If these water rates were implemented, it would place the Village at the high end of the local municipal rate structures

Under this scenario, It is recommended that the municipality engage OCWA in 2020 to provide a \$1,000,000 loan at the OCWA rate of 2.51% for a term of 13 years. If possible, it would be best to structure this loan as a deferred payment loan to be restructured after 8 years. The remaining debt would have to be financed with private loans in increments of \$250,000 in 2021, 2022, and 2023 for terms of to be repaid by 2032. An additional \$500,000 line of credit would be recommended to account for the changes in rates and unforeseen changes in works. Under this scenario, the incurred debt would accrue approximately \$685,000 in interest (\$280,000 from the OCWA loan).

### Rodney Wastewater Debt Structure

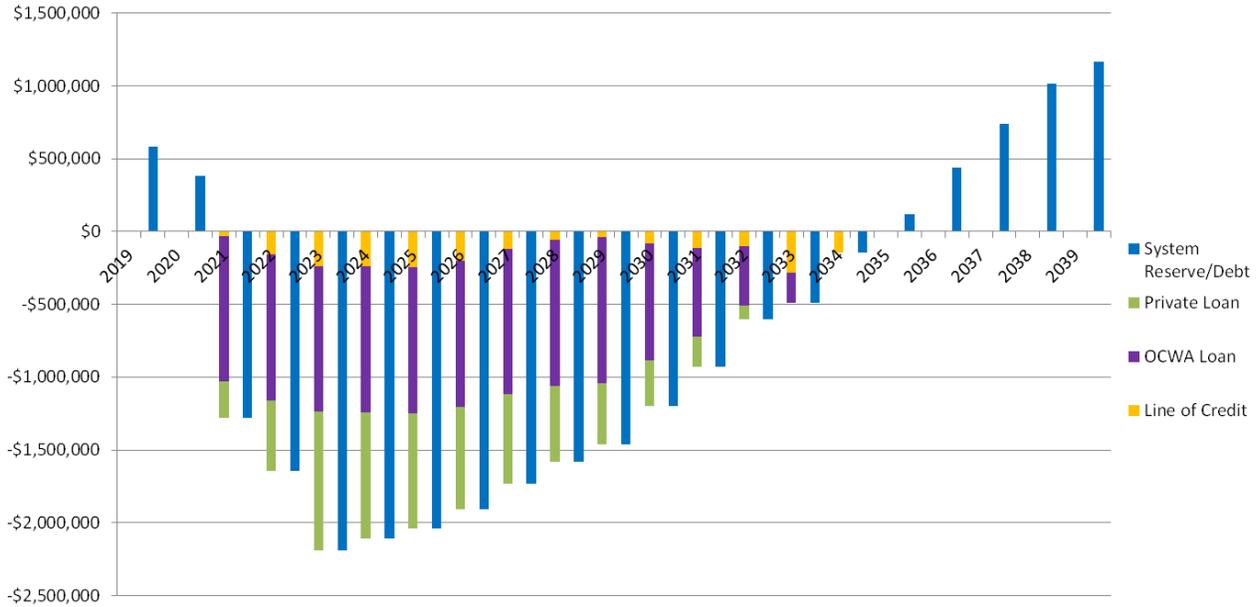


Figure 9: Wastewater Debt Structure (Scenario #3)

Figure 10 shows the Rodney Wastewater System’s projected accumulated surplus under the recommended rate structure. It is evident that the initial negative trend eventually levels off by 2029 and shows signs of increasing by the end of the planning period. This reversal of accumulated surplus is indicative of a system that will become sustainable in the long-term.

### Accumulated Surplus of the Rodney WWTS

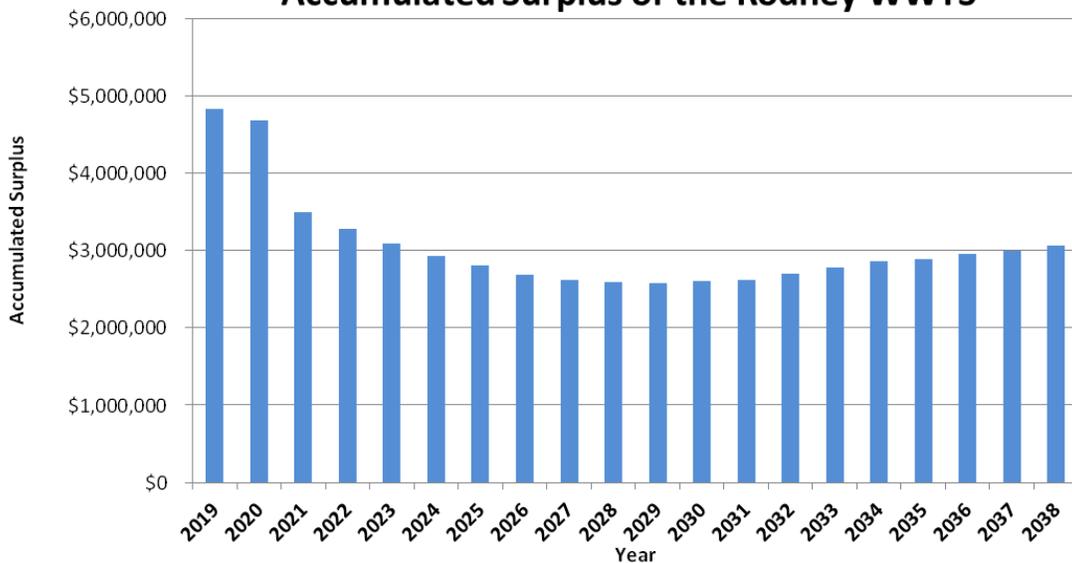


Figure 10: Accumulated Surplus of the Rodney Wastewater Treatment System (Scenario #3)

### 4.3.4 Scenario #4: Government Grant Funding Reliant

Scenario #4 is based on the possibility of receiving government funding for the major capital project occurring in 2021-2022. Assuming that funding is applied for under the Investing in Canada Infrastructure Program (ICIP) or a similar program, then as much as 73.3% of the project cost would be funded.

Table 7: Potential Government Funding

YEAR	POTENTIAL FUNDING
2020	\$173,000
2021	\$863,000
2022	\$518,000
2023	\$173,000

Under this scenario, a large portion of the initial capital cost would be covered by the funding program, resulting in roughly half the initial debt that would normally be incurred. With less initial debt, a less aggressive rate structure can be proposed for the system.

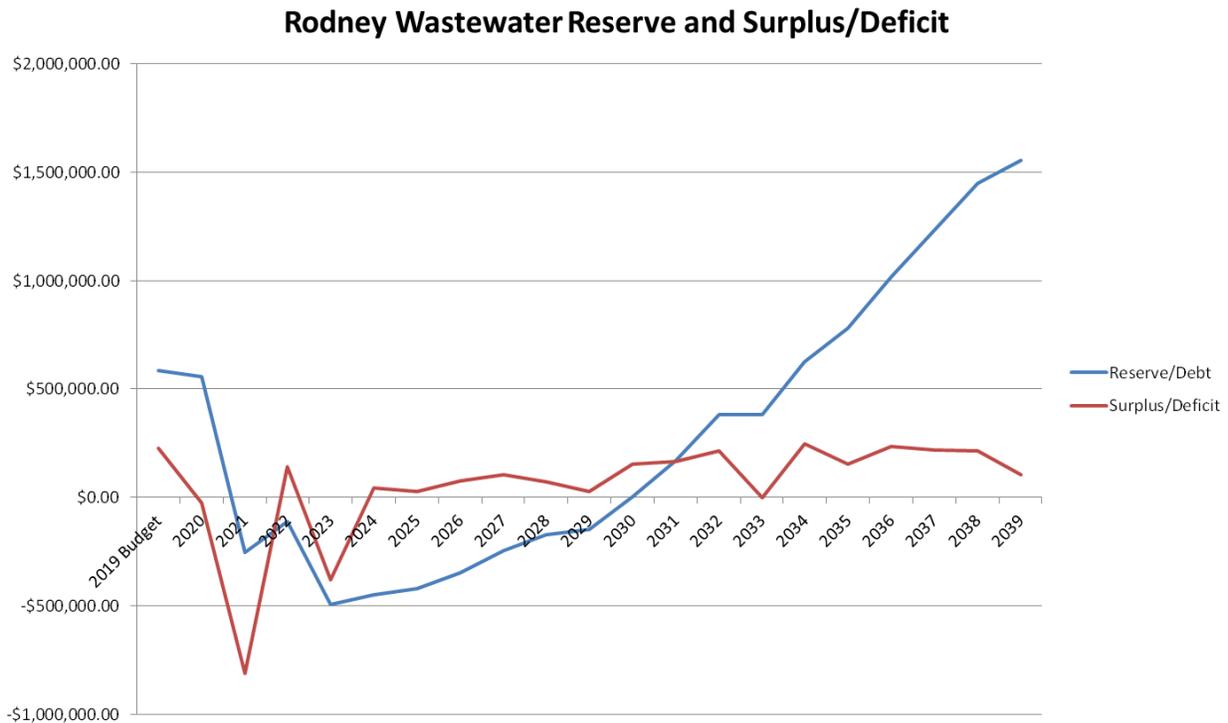


Figure 11: Rodney Wastewater Reserve and Surplus/Deficit (Scenario #4)

With the objective of eliminating the wastewater system’s debt at a more reasonable pace and accounting for the 12% rate increase in 2020, the rate structure recommendation is an increase of 5%

per year until 2025 followed by 4% per year until 2032 with a 2% rate increase to account for inflation to the end of the planning period. Under this rate structure, the reserve fund will return to a positive position by 2031. This rate structure will eventually result in a wastewater rate that is 108% greater than it is presently (42% when accounting for inflation).

Table 8: Wastewater Rate Structure Projection (Scenario #4)

YEAR	RATE INCREASE	Avg. Household Cost (\$/yr)	YEAR	RATE INCREASE	Avg. Household Cost (\$/yr)
2019	-	\$1,449	2029	4%	\$1,782
2020	12%	\$1,537	2030	4%	\$1,806
2021	5%	\$1,565	2031	4%	\$1,831
2022	5%	\$1,595	2032	2%	\$1,831
2023	5%	\$1,626	2033	2%	\$1,831
2024	5%	\$1,657	2034	2%	\$1,831
2025	5%	\$1,690	2035	2%	\$1,831
2026	4%	\$1,712	2036	2%	\$1,831
2027	4%	\$1,735	2037	2%	\$1,831
2028	4%	\$1,758	2038	2%	\$1,831

Although government funding is assumed, the municipality will still be required to incur a large initial debt in order to finance all construction activities. Government grants of this kind require that the municipality must pay for funded activities before they can be reimbursed. Under this scenario, the incurred debt at the end of 2023 would be less than \$500,000. With funding reimbursed quarterly, it is recommended that the municipality utilize the option of an OCWA low-interest public loan for \$500,000 for a loan term of 10 years in combination with a short-term line of credit for an additional \$250,000. Under this scenario, the system debt will accumulate to approximately \$72,000 in interest from the OCWA loan with an additional interest of \$11,000 from the line of credit. Figure 12 shows the system debt, OCWA’s remaining loan principal, and the line of credit required to finance this scenario.

### Rodney Wastewater Debt Structure

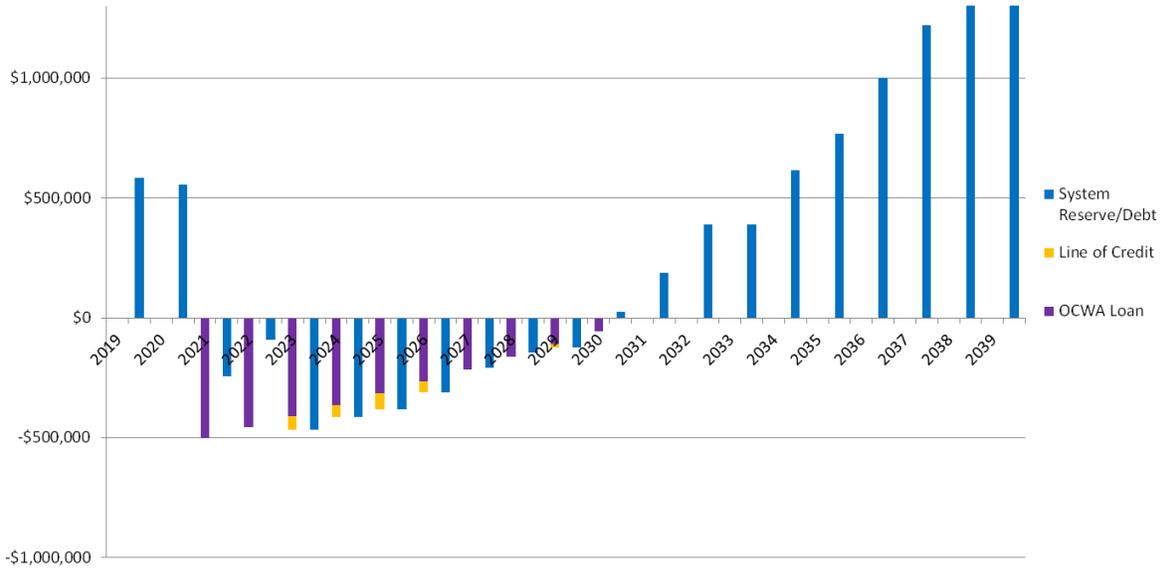


Figure 12: Rodney Wastewater Debt Structure (Scenario #4)

Figure 13 shows the Rodney Wastewater System’s projected accumulated surplus under the recommended rate structure. It is evident that although the negative trend is mitigated throughout the planning period. Despite the government funding preventing the initial decrease in system asset value, the rate of yearly amortization has not quite reached self-sustainability by the end of the planning period.

### Accumulated Surplus of the Rodney WWTS

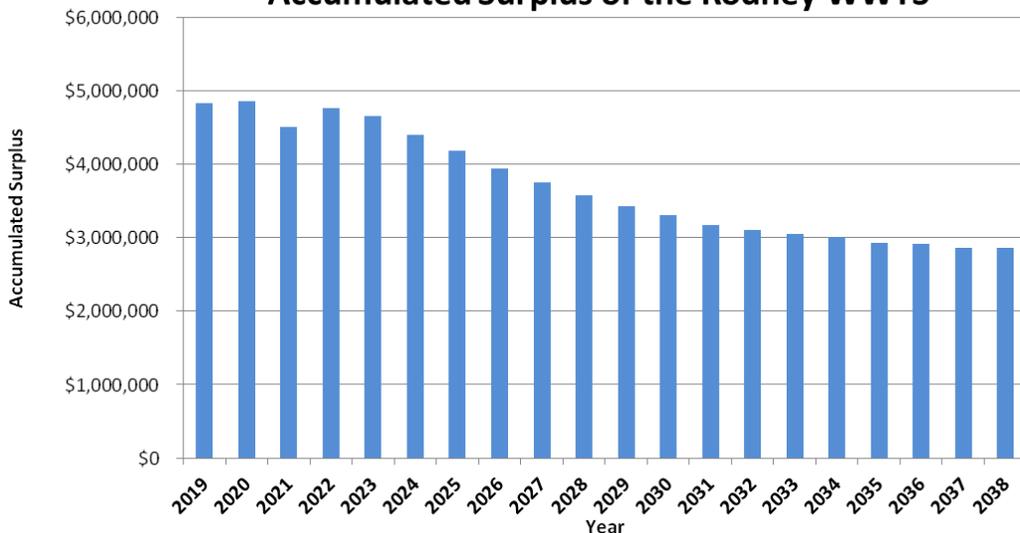


Figure 13: Accumulated Surplus of the Rodney Wastewater Treatment System (Scenario #4)

## 5 Summary

The Municipality's wastewater system will require significant capital expenditures in the upcoming years. These capital expenditures will likely consume the system reserve fund and may require the use of debentures or other sources of capital to cover the additional expenses.

To return the system to a healthy fiscal state, aggressive wastewater rates as seen in Scenario #3 are proposed since government grants as seen in Scenario#4 are competitive and cannot be guaranteed.

- 2020 - 2021: 12% wastewater rate increase
- 2022 - 2023: 10% wastewater rate increase
- 2024: 8% wastewater rate increase
- 2025 - 2026: 6% wastewater rate increase
- 2027 – 2030 4% wastewater rate increase
- 2031-2032 2% wastewater rate increase
- All subsequent years: 0% wastewater rate increase

A single Rodney household consuming water at a rate of 650 L/d with both water and wastewater connections would then expect an annual water/wastewater utility bill total \$1,537 in 2020, \$1,936 in 2025, and \$2,107 in 2030 (discounting inflation). With this rate structure, user fees and the wastewater reserve fund will cover all anticipated operational and capital costs.

It is also highly recommended that the municipality seek out any opportunities to receive government funding to cover a portion of the costs for the major capital projects and adjust the rate increases accordingly, if successful.

# **APPENDIX A**

## **Financial Projections**

Statement of Financial Position	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Financial Assets</b>										
Cash/Cash Equivalents										
System Reserve/Debt - Beginning of Year	\$ 357,693.78	\$ 583,351.78	\$ 383,706.35	\$ (1,280,778.13)	\$ (1,642,696.03)	\$ (2,187,336.64)	\$ (2,110,648.18)	\$ (2,037,583.14)	\$ (1,905,291.85)	\$ (1,730,885.13)
System Reserve/Debt - End of Year	\$ 583,351.78	\$ 383,706.35	\$ (1,280,778.13)	\$ (1,642,696.03)	\$ (2,187,336.64)	\$ (2,110,648.18)	\$ (2,037,583.14)	\$ (1,905,291.85)	\$ (1,730,885.13)	\$ (1,578,979.00)
<b>Total Financial Assets</b>										
<b>Liabilities</b>										
Debt Principal										
	\$ -	\$ -	\$ -	\$ 1,280,778.13	\$ 1,642,696.03	\$ 2,187,336.64	\$ 2,110,648.18	\$ 2,037,583.14	\$ 1,905,291.85	\$ 1,730,885.13
<b>Total Liabilities</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Financial Assets/(Debt)</b>	\$ 357,693.78	\$ 583,351.78	\$ 383,706.35	\$ (1,280,778.13)	\$ (1,642,696.03)	\$ (2,187,336.64)	\$ (2,110,648.18)	\$ (2,037,583.14)	\$ (1,905,291.85)	\$ (1,730,885.13)
<b>Non Financial Assets</b>										
Tangible Capital Asset Cost (Opening)										
	\$ 11,909,534.58	\$ 11,928,284.58	\$ 12,163,394.58	\$ 12,854,610.33	\$ 13,237,772.75	\$ 13,842,243.46	\$ 13,862,392.93	\$ 13,929,962.68	\$ 13,941,090.57	\$ 13,973,604.12
Capital Works (TCA-Additions)	\$ 18,750.00	\$ 235,110.00	\$ 691,215.75	\$ 383,162.41	\$ 604,470.71	\$ 20,149.47	\$ 67,569.75	\$ 11,127.89	\$ 32,513.55	\$ 88,660.93
Disposals (TCA)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Accumulated Amortization (Closing)	\$ 7,617,043.44	\$ 7,803,892.64	\$ 8,025,302.62	\$ 8,253,597.39	\$ 8,512,115.69	\$ 8,771,241.47	\$ 9,033,745.74	\$ 9,296,806.40	\$ 9,561,492.73	\$ 9,830,232.12
<b>Total Non Financial Assets</b>	\$ 4,311,241.14	\$ 4,359,501.95	\$ 4,829,307.72	\$ 4,984,175.36	\$ 5,330,127.77	\$ 5,091,151.46	\$ 4,896,216.94	\$ 4,644,284.17	\$ 4,412,111.38	\$ 4,232,032.93
<b>Accumulated Surplus / (Deficit), End of Year</b>	\$ 4,894,592.92	\$ 4,743,208.30	\$ 3,548,529.59	\$ 3,341,479.33	\$ 3,142,791.12	\$ 2,980,503.28	\$ 2,858,633.80	\$ 2,738,992.33	\$ 2,681,226.25	\$ 2,653,053.93

Statement of Financial Position	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
<b>Financial Assets</b>										
Cash/Cash Equivalents										
System Reserve/Debt - Beginning of Year	\$ (1,578,979.00)	\$ (1,460,351.71)	\$ (1,199,643.25)	\$ (928,399.97)	\$ (600,680.15)	\$ (487,887.21)	\$ (142,669.56)	\$ 116,445.14	\$ 440,895.07	\$ 736,107.07
System Reserve/Debt - End of Year	\$ (1,460,351.71)	\$ (1,199,643.25)	\$ (928,399.97)	\$ (600,680.15)	\$ (487,887.21)	\$ (142,669.56)	\$ 116,445.14	\$ 440,895.07	\$ 736,107.07	\$ 1,013,581.30
<b>Total Financial Assets</b>										
<b>Liabilities</b>										
Debt Principal										
	\$ 1,578,979.00	\$ 1,460,351.71	\$ 1,199,643.25	\$ 928,399.97	\$ 600,680.15	\$ 487,887.21	\$ 142,669.56	\$ -	\$ -	\$ -
<b>Total Liabilities</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Financial Assets/(Debt)</b>	\$ (1,578,979.00)	\$ (1,460,351.71)	\$ (1,199,643.25)	\$ (928,399.97)	\$ (600,680.15)	\$ (487,887.21)	\$ (142,669.56)	\$ 116,445.14	\$ 440,895.07	\$ 736,107.07
<b>Non Financial Assets</b>										
Tangible Capital Asset Cost (Opening)										
	\$ 14,062,265.05	\$ 14,207,020.63	\$ 14,247,274.88	\$ 14,265,061.97	\$ 14,286,729.88	\$ 14,519,865.28	\$ 14,526,594.63	\$ 14,562,973.45	\$ 14,584,852.22	\$ 14,591,993.45
Capital Works (TCA-Additions)	\$ 144,755.59	\$ 40,254.24	\$ 17,787.09	\$ 21,667.91	\$ 233,135.40	\$ 6,729.34	\$ 36,378.82	\$ 21,878.77	\$ 7,141.23	\$ 61,413.70
Disposals (TCA)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Accumulated Amortization (Closing)	\$ 10,106,209.28	\$ 10,384,199.16	\$ 10,663,078.39	\$ 10,929,023.51	\$ 11,197,646.74	\$ 11,466,606.44	\$ 11,737,385.08	\$ 12,009,257.65	\$ 12,277,070.62	\$ 12,547,954.28
<b>Total Non Financial Assets</b>	\$ 4,100,811.35	\$ 3,863,075.72	\$ 3,601,983.58	\$ 3,357,706.37	\$ 3,322,218.54	\$ 3,059,988.19	\$ 2,825,588.37	\$ 2,575,594.57	\$ 2,314,922.83	\$ 2,105,452.87
<b>Accumulated Surplus / (Deficit), End of Year</b>	\$ 2,640,459.64	\$ 2,663,432.47	\$ 2,673,583.61	\$ 2,757,026.21	\$ 2,834,331.33	\$ 2,917,318.63	\$ 2,942,033.51	\$ 3,016,489.63	\$ 3,051,029.90	\$ 3,119,034.17

Statement of Financial Operations	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Total Revenues</b>										
Revenue from Users										
Water user fees - Residential (with 1% annual population growth)	\$ 297,455.02	\$ 336,124.18	\$ 379,820.32	\$ 421,600.56	\$ 467,976.62	\$ 510,094.51	\$ 545,801.13	\$ 584,007.21	\$ 613,207.57	\$ 643,867.95
Water user fees - Commercial	\$ 31,388.27	\$ 35,468.74	\$ 40,079.68	\$ 44,488.44	\$ 49,382.17	\$ 53,826.57	\$ 57,594.42	\$ 61,626.03	\$ 64,707.34	\$ 67,942.70
Total Revenue from users	\$ 328,843.29	\$ 371,592.92	\$ 419,900.00	\$ 466,089.00	\$ 517,358.79	\$ 563,921.08	\$ 603,395.55	\$ 645,633.24	\$ 677,914.90	\$ 711,810.65
Government Funding	\$ 225,658.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Earned on Reserve	\$ -	\$ 2,676.71	\$ 1,760.64	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Revenues</b>	<b>\$ 554,501.29</b>	<b>\$ 374,269.63</b>	<b>\$ 421,660.63</b>	<b>\$ 466,089.00</b>	<b>\$ 517,358.79</b>	<b>\$ 563,921.08</b>	<b>\$ 603,395.55</b>	<b>\$ 645,633.24</b>	<b>\$ 677,914.90</b>	<b>\$ 711,810.65</b>
<b>Expenses</b>										
Total Operating Expenses	\$ 330,245.63	\$ 338,805.05	\$ 347,613.85	\$ 356,680.13	\$ 366,012.29	\$ 379,270.46	\$ 385,509.39	\$ 395,692.66	\$ 406,178.52	\$ 416,976.98
Total Maintenance Expenses	\$ -	\$ -	\$ 1,007,887.50	\$ 30,642.38	\$ 6,765.20	\$ 6,900.51	\$ -	\$ 35,896.43	\$ 2,929.15	\$ -
<b>Expenses before Interest and Amortization</b>	<b>\$ 330,245.63</b>	<b>\$ 338,805.05</b>	<b>\$ 1,355,501.35</b>	<b>\$ 387,322.51</b>	<b>\$ 372,777.49</b>	<b>\$ 386,170.96</b>	<b>\$ 385,509.39</b>	<b>\$ 431,589.09</b>	<b>\$ 409,107.67</b>	<b>\$ 416,976.98</b>
Interest paid on debt	\$ -	\$ -	\$ 39,428.02	\$ 57,521.98	\$ 84,751.19	\$ 80,912.17	\$ 77,251.38	\$ 70,624.97	\$ 61,886.97	\$ 54,266.61
Amortization	\$ 175,093.69	\$ 186,849.19	\$ 221,409.98	\$ 228,294.77	\$ 258,518.30	\$ 259,125.78	\$ 262,504.27	\$ 263,060.66	\$ 264,686.34	\$ 268,739.38
<b>Total Expenses</b>	<b>\$ 505,339.32</b>	<b>\$ 525,654.25</b>	<b>\$ 1,616,339.35</b>	<b>\$ 673,139.26</b>	<b>\$ 716,046.99</b>	<b>\$ 726,208.92</b>	<b>\$ 725,265.04</b>	<b>\$ 765,274.71</b>	<b>\$ 735,680.98</b>	<b>\$ 739,982.97</b>
<b>Excess of Revenues over Expenses</b>	<b>\$ 49,161.97</b>	<b>\$ (151,384.62)</b>	<b>\$ (1,194,678.72)</b>	<b>\$ (207,050.26)</b>	<b>\$ (198,688.21)</b>	<b>\$ (162,287.84)</b>	<b>\$ (121,869.48)</b>	<b>\$ (119,641.47)</b>	<b>\$ (57,766.07)</b>	<b>\$ (28,172.33)</b>
<b>Accumulated Surplus / (Deficit), Beginning of year</b>	<b>\$ 4,845,430.95</b>	<b>\$ 4,894,592.92</b>	<b>\$ 4,743,208.30</b>	<b>\$ 3,548,529.58</b>	<b>\$ 3,341,479.32</b>	<b>\$ 3,142,791.12</b>	<b>\$ 2,980,503.28</b>	<b>\$ 2,858,633.80</b>	<b>\$ 2,738,992.32</b>	<b>\$ 2,681,226.25</b>
<b>Accumulated Surplus / (Deficit), End of Year</b>	<b>\$ 4,894,592.92</b>	<b>\$ 4,743,208.30</b>	<b>\$ 3,548,529.58</b>	<b>\$ 3,341,479.32</b>	<b>\$ 3,142,791.12</b>	<b>\$ 2,980,503.28</b>	<b>\$ 2,858,633.80</b>	<b>\$ 2,738,992.32</b>	<b>\$ 2,681,226.25</b>	<b>\$ 2,653,053.92</b>

Statement of Financial Operations	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
<b>Total Revenues</b>										
Revenue from Users										
Water user fees - Residential (with 1% annual population growth)	\$ 676,061.34	\$ 709,864.41	\$ 731,160.34	\$ 753,095.15	\$ 760,626.10	\$ 768,232.37	\$ 775,914.69	\$ 783,673.84	\$ 791,510.57	\$ 799,425.68
Water user fees - Commercial	\$ 71,339.84	\$ 74,906.83	\$ 77,154.03	\$ 79,468.66	\$ 80,263.34	\$ 81,065.98	\$ 81,876.64	\$ 82,695.40	\$ 83,522.36	\$ 84,357.58
Total Revenue from users	\$ 747,401.18	\$ 784,771.24	\$ 808,314.38	\$ 832,563.81	\$ 840,889.45	\$ 849,298.34	\$ 857,791.32	\$ 866,369.24	\$ 875,032.93	\$ 883,783.26
Government Funding	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Earned on Reserve	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 534.31	\$ 2,023.05	\$ 3,377.63
<b>Total Revenues</b>	<b>\$ 747,401.18</b>	<b>\$ 784,771.24</b>	<b>\$ 808,314.38</b>	<b>\$ 832,563.81</b>	<b>\$ 840,889.45</b>	<b>\$ 849,298.34</b>	<b>\$ 857,791.32</b>	<b>\$ 866,903.55</b>	<b>\$ 877,055.98</b>	<b>\$ 887,160.89</b>
<b>Expenses</b>										
Total Operating Expenses	\$ 428,098.40	\$ 443,665.61	\$ 451,353.48	\$ 463,509.79	\$ 476,034.39	\$ 488,939.67	\$ 502,238.43	\$ 520,574.84	\$ 530,070.04	\$ 544,630.93
Total Maintenance Expenses	\$ 7,618.72	\$ -	\$ 36,668.04	\$ -	\$ -	\$ 8,411.68	\$ 60,059.37	\$ -	\$ 44,632.70	\$ 3,642.03
<b>Expenses before Interest and Amortization</b>	<b>\$ 435,717.11</b>	<b>\$ 443,665.61</b>	<b>\$ 488,021.52</b>	<b>\$ 463,509.79</b>	<b>\$ 476,034.39</b>	<b>\$ 497,351.35</b>	<b>\$ 562,297.80</b>	<b>\$ 520,574.84</b>	<b>\$ 574,702.74</b>	<b>\$ 548,272.96</b>
Interest paid on debt	\$ 48,301.19	\$ 40,142.92	\$ 31,262.49	\$ 19,666.29	\$ 18,926.71	\$ -	\$ -	\$ -	\$ -	\$ -
Amortization	\$ 275,977.16	\$ 277,989.88	\$ 278,879.23	\$ 265,945.13	\$ 268,623.23	\$ 268,959.70	\$ 270,778.64	\$ 271,872.58	\$ 267,812.97	\$ 270,883.66
<b>Total Expenses</b>	<b>\$ 759,995.47</b>	<b>\$ 761,798.41</b>	<b>\$ 798,163.24</b>	<b>\$ 749,121.21</b>	<b>\$ 763,584.33</b>	<b>\$ 766,311.04</b>	<b>\$ 833,076.44</b>	<b>\$ 792,447.42</b>	<b>\$ 842,515.71</b>	<b>\$ 819,156.62</b>
<b>Excess of Revenues over Expenses</b>	<b>\$ (12,594.29)</b>	<b>\$ 22,972.83</b>	<b>\$ 10,151.14</b>	<b>\$ 83,442.60</b>	<b>\$ 77,305.11</b>	<b>\$ 82,987.30</b>	<b>\$ 24,714.88</b>	<b>\$ 74,456.12</b>	<b>\$ 34,540.27</b>	<b>\$ 68,004.27</b>
<b>Accumulated Surplus / (Deficit), Beginning of year</b>	<b>\$ 2,653,053.92</b>	<b>\$ 2,640,459.64</b>	<b>\$ 2,663,432.47</b>	<b>\$ 2,673,583.61</b>	<b>\$ 2,757,026.21</b>	<b>\$ 2,834,331.32</b>	<b>\$ 2,917,318.62</b>	<b>\$ 2,942,033.50</b>	<b>\$ 3,016,489.63</b>	<b>\$ 3,051,029.89</b>
<b>Accumulated Surplus / (Deficit), End of Year</b>	<b>\$ 2,640,459.64</b>	<b>\$ 2,663,432.47</b>	<b>\$ 2,673,583.61</b>	<b>\$ 2,757,026.21</b>	<b>\$ 2,834,331.32</b>	<b>\$ 2,917,318.62</b>	<b>\$ 2,942,033.50</b>	<b>\$ 3,016,489.63</b>	<b>\$ 3,051,029.89</b>	<b>\$ 3,119,034.17</b>

Statement of Cash Flow	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Operating Transactions</b>										
Cash received from Revenues	\$ 554,501.29	\$ 371,592.92	\$ 419,900.00	\$ 466,089.00	\$ 517,358.79	\$ 563,921.08	\$ 603,395.55	\$ 645,633.24	\$ 677,914.90	\$ 711,810.65
Cash paid for Operating Expenses	\$ 330,245.63	\$ 338,805.05	\$ 347,613.85	\$ 356,680.13	\$ 366,012.29	\$ 379,270.46	\$ 385,509.39	\$ 395,692.66	\$ 406,178.52	\$ 416,976.98
Cash paid for Financing Charges (Debt Interest)	\$ -	\$ -	\$ 39,428.02	\$ 57,521.98	\$ 84,751.19	\$ 80,912.17	\$ 77,251.38	\$ 70,624.97	\$ 61,886.97	\$ 54,266.61
Working Capital Items	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Cash provided by Operating Transactions</b>	<b>\$ 224,255.66</b>	<b>\$ 32,787.86</b>	<b>\$ 32,858.13</b>	<b>\$ 51,886.89</b>	<b>\$ 66,595.30</b>	<b>\$ 103,738.44</b>	<b>\$ 140,634.78</b>	<b>\$ 179,315.62</b>	<b>\$ 209,849.41</b>	<b>\$ 240,567.06</b>
<b>Capital</b>										
Capital Works (TCA Additions)	\$ 55,000.00	\$ 235,110.00	\$ 691,215.75	\$ 383,162.41	\$ 604,470.71	\$ 20,149.47	\$ 67,569.75	\$ 11,127.89	\$ 32,513.55	\$ 88,660.93
Total Maintenance Expenses	\$ -	\$ -	\$ 1,007,887.50	\$ 30,642.38	\$ 6,765.20	\$ 6,900.51	\$ -	\$ 35,896.43	\$ 2,929.15	\$ -
Proceeds on Disposal of TCA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Cash used in Capital Transactions</b>	<b>\$ (55,000.00)</b>	<b>\$ (235,110.00)</b>	<b>\$ (1,699,103.25)</b>	<b>\$ (413,804.79)</b>	<b>\$ (611,235.91)</b>	<b>\$ (27,049.98)</b>	<b>\$ (67,569.75)</b>	<b>\$ (47,024.32)</b>	<b>\$ (35,442.70)</b>	<b>\$ (88,660.93)</b>
<b>Investing</b>										
<b>Cash Provided By / (Used In) Investing Activities</b>	<b>\$ -</b>	<b>\$ 2,676.71</b>	<b>\$ 1,760.64</b>	<b>\$ -</b>						
<b>Increase / (Decrease) in Cash Equivalents</b>	<b>\$ 169,255.66</b>	<b>\$ (199,645.43)</b>	<b>\$ (1,664,484.48)</b>	<b>\$ (361,917.90)</b>	<b>\$ (544,640.61)</b>	<b>\$ 76,688.46</b>	<b>\$ 73,065.04</b>	<b>\$ 132,291.30</b>	<b>\$ 174,406.72</b>	<b>\$ 151,906.13</b>
<b>Cash and Cash Equivalents at the Beginning of the Year</b>	<b>\$ 357,693.78</b>	<b>\$ 583,351.78</b>	<b>\$ 383,706.35</b>	<b>\$ (1,280,778.13)</b>	<b>\$ (1,642,696.03)</b>	<b>\$ (2,187,336.64)</b>	<b>\$ (2,110,648.18)</b>	<b>\$ (2,037,583.14)</b>	<b>\$ (1,905,291.85)</b>	<b>\$ (1,730,885.13)</b>
<b>Cash and Cash Equivalents at the End of the Year</b>	<b>\$ 583,351.78</b>	<b>\$ 383,706.35</b>	<b>\$ (1,280,778.13)</b>	<b>\$ (1,642,696.03)</b>	<b>\$ (2,187,336.64)</b>	<b>\$ (2,110,648.18)</b>	<b>\$ (2,037,583.14)</b>	<b>\$ (1,905,291.85)</b>	<b>\$ (1,730,885.13)</b>	<b>\$ (1,578,979.00)</b>

Statement of Cash Flow	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
<b>Operating Transactions</b>										
Cash received from Revenues	\$ 747,401.18	\$ 784,771.24	\$ 808,314.38	\$ 832,563.81	\$ 840,889.45	\$ 849,298.34	\$ 857,791.32	\$ 866,369.24	\$ 875,032.93	\$ 883,783.26
Cash paid for Operating Expenses	\$ 428,098.40	\$ 443,665.61	\$ 451,353.48	\$ 463,509.79	\$ 476,034.39	\$ 488,939.67	\$ 502,238.43	\$ 520,574.84	\$ 530,070.04	\$ 544,630.93
Cash paid for Financing Charges (Debt Interest)	\$ 48,301.19	\$ 40,142.92	\$ 31,262.49	\$ 19,666.29	\$ 18,926.71	\$ -	\$ -	\$ -	\$ -	\$ -
Working Capital Items	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Cash provided by Operating Transactions</b>	<b>\$ 271,001.59</b>	<b>\$ 300,962.71</b>	<b>\$ 325,698.41</b>	<b>\$ 349,387.73</b>	<b>\$ 345,928.34</b>	<b>\$ 360,358.67</b>	<b>\$ 355,552.89</b>	<b>\$ 345,794.39</b>	<b>\$ 344,962.89</b>	<b>\$ 339,152.33</b>
<b>Capital</b>										
Capital Works (TCA Additions)	\$ 144,755.59	\$ 40,254.24	\$ 17,787.09	\$ 21,667.91	\$ 233,135.40	\$ 6,729.34	\$ 36,378.82	\$ 21,878.77	\$ 7,141.23	\$ 61,413.70
Total Maintenance Expenses	\$ 7,618.72	\$ -	\$ 36,668.04	\$ -	\$ -	\$ 8,411.68	\$ 60,059.37	\$ -	\$ 44,632.70	\$ 3,642.03
Proceeds on Disposal of TCA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Cash used in Capital Transactions</b>	<b>\$ (152,374.30)</b>	<b>\$ (40,254.24)</b>	<b>\$ (54,455.13)</b>	<b>\$ (21,667.91)</b>	<b>\$ (233,135.40)</b>	<b>\$ (15,141.02)</b>	<b>\$ (96,438.20)</b>	<b>\$ (21,878.77)</b>	<b>\$ (51,773.93)</b>	<b>\$ (65,055.72)</b>
<b>Investing</b>										
<b>Cash Provided By / (Used In) Investing Activities</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 534.31</b>	<b>\$ 2,023.05</b>	<b>\$ 3,377.63</b>
<b>Increase / (Decrease) in Cash Equivalents</b>	<b>\$ 118,627.29</b>	<b>\$ 260,708.47</b>	<b>\$ 271,243.28</b>	<b>\$ 327,719.82</b>	<b>\$ 112,792.94</b>	<b>\$ 345,217.65</b>	<b>\$ 259,114.70</b>	<b>\$ 324,449.93</b>	<b>\$ 295,212.01</b>	<b>\$ 277,474.23</b>
<b>Cash and Cash Equivalents at the Beginning of the Year</b>	<b>\$ (1,578,979.00)</b>	<b>\$ (1,460,351.71)</b>	<b>\$ (1,199,643.25)</b>	<b>\$ (928,399.97)</b>	<b>\$ (600,680.15)</b>	<b>\$ (487,887.21)</b>	<b>\$ (142,669.56)</b>	<b>\$ 116,445.14</b>	<b>\$ 440,895.07</b>	<b>\$ 736,107.07</b>
<b>Cash and Cash Equivalents at the End of the Year</b>	<b>\$ (1,460,351.71)</b>	<b>\$ (1,199,643.25)</b>	<b>\$ (928,399.97)</b>	<b>\$ (600,680.15)</b>	<b>\$ (487,887.21)</b>	<b>\$ (142,669.56)</b>	<b>\$ 116,445.14</b>	<b>\$ 440,895.07</b>	<b>\$ 736,107.07</b>	<b>\$ 1,013,581.30</b>

# **APPENDIX B**

## **Capital Plan Summary**

Rodney Capital Plan (590m <sup>3</sup> /d)																												
Process Area	Process Equipment	Recent Work History	Unit Replacement Cost (Supply + Install) - Unit Cost	Frequency of work (Rehab, Replace)	Year of Installation	Description of Works	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	Total
Rodney Pumping Station	Submersible Pumps (2), 27L/s @ 27m	#2 repaired in 2019 and 2016	52,900	15, 25		Purchase spare pump in 2022 and 2029. Rehabilitate one pump in 2024	-	-	-	56,138	-	11,703	-	-	-	-	64,485	-	-	-	-	-	-	-	-	-	15,751	148,077
	Level Control System, flow monitoring and automatic control	Repaired in 2016	5,000	20	2012	Replace	-	-	-	-	-	-	-	-	-	-	-	-	-	6,468	-	-	-	-	-	-	-	6,468
	Pump Control Panel		5,200	20	2012	Replace	-	-	-	-	-	-	-	-	-	-	6,339	-	-	-	-	-	-	-	-	-	-	6,339
	Alarm Panel & Dialer		200	20	2012	Replace	-	-	-	-	-	-	-	-	-	-	-	-	-	-	259	-	-	-	-	-	-	259
	Portable Hoist		2,000	20	2012	Replace	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,587	-	-	-	-	-	-	2,587
	Diesel Genset, Panel, and Lourve		134,000	30	2018	Rehabilitate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39,823	39,823
	Pre-fab Pump Station Electrical Building		300,000	30	2018	No Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22,289	22,289
	Valve Chamber, Wetwell		310,000	60	1976	Concrete Inspection + Spot Repairs, (Clean-out incl.)	-	-	-	21,755	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21,755
	Battery Charger (2)		1,000	10	2018	Replace	-	-	-	-	-	-	-	-	-	-	2,390	-	-	-	-	-	-	-	-	-	2,972	5,362
Transformer		4,400	25	2018	Replace	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,846	-	-	-	-	-	-	6,538	9,384
Forcemain	200mm Forcemain	No Work	-	75		No Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Screening/ Flow-Splitting Chamber	Mechanical Bar Screen	Repaired in 2019, motor repaired in 2018	100,000	30	1991, 2017	Upgrade to new improved rotating bar screen (\$100,000), preceding engineering work (\$40,000), and a washer/compactor unit (\$75,000), conveyor and bin (\$30,000)	-	-	-	209,907	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	209,907
	Influent Sampler	Repaired in 2011	15,800	20	1991	Replace	-	-	-	16,767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16,767
Aeration Basins	Mechanical Aerators (6) + Motors	#1, 4, and 6 Repaired in 2017, #s 1, and 4 repaired in 2016, #s 3, 4, 6 repaired in 2015	Upgrade to rotary lobe blowers, fine bubble diffusers, and DO monitoring system will result in energy efficiency savings. Rotary lobe blowers x2 (\$25,500 each), Aeration strips diffusers (\$102,000), air header and drop legs (\$75,000), Electrical & Miscellaneous (\$50,000), Engineering (\$75,000).				-	-	-	-	382,748	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	382,748
Clarifier	Clarifier Mechanism, (Inlet Column, Syphons, Collector Arms), gear drive, motor	Repaired in 2018, repaired arm in 2013	370,200	30	1991	Replace	-	-	364,764	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	364,764
	Clarifier - Concrete Structure		-	5	1991	Cleaning and concrete repair	-	-	26,010	-	-	-	-	28,717	-	-	-	-	31,706	-	-	-	-	-	35,706	-	-	122,139
	Scum Pump, 9.1L/s at 13.1mTDH	Repaired in 2019	16,200	20	1991	Replace	-	-	-	-	17,535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,535
	Ultrasonic Transducer		1,500	20	1991	Replace	-	-	-	-	1,624	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,624
	Portable Sampler		15,800	15	1991	Replace	-	-	-	16,767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16,767
Return Sludge and Waste Sludge Pumping Units	RAS/WAS Sludge Pump (2), 21 L/s at 10 m TDH. In Control Building "B"	#1 Repaired in 2018	13,000	20	2013, ?	Rehabilitate --> Replace/Upgrade (High efficiency pumps)	-	-	-	2,759	14,072	-	-	-	-	-	-	-	-	-	17,153	-	-	-	-	-	3,863	37,847
	RAS/WAS Sump Pump		6,300	20	2018	Rehabilitation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,294	2,294	
	Control Building - Flow meter (2)		8,500	30	1991, 2018	Replace single unit	-	-	-	-	9,201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,201	
Phosphorus Removal and Alkalinity Control Systems	Heat Traced Alum Tank, 3 m diameter X 4.3 m high, 30m <sup>3</sup> with spill containment	Repaired ladder in 2016, heat tracing repairs in 2011	100,000	30	1991	Replace tank with PVC tank, expand control building to insulate tank	-	-	169,273	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	169,273
	Alum Pump (2), 24 L/h Against 1000 KPa Discharge Pressure		7,300	15	1991	Replace	-	-	-	-	-	-	-	-	17,106	-	-	-	-	-	-	-	-	-	-	-	-	17,106
	Alum Pump - Control Panel	Repairs to system in 2016	1,800	20	1991	Replace with pumps	-	-	-	-	-	-	-	-	4,218	-	-	-	-	-	-	-	-	-	-	-	-	4,218
Filtration	Bed Sand Filter (4), 2.0 m deep, total surface area of 9.3 m3	Media purchased, installation through 3rd party	-	10	2020	Replace media	15,000	15,300	-	-	-	-	-	-	-	-	36,570	-	-	-	-	-	-	-	-	-	44,578	111,448
	Compressor (2), 18.9 L/s at 860 kPa with motor		5,100	20	1991	Rehabilitate --> Replace	-	-	-	2,706	-	-	-	-	-	12,190	-	-	-	-	-	-	-	-	-	-	-	14,896
	Filter Backwash Pumps (2), 1.5L/s at 9.8mTDH		15,000	20	2011, ?	Rehabilitate --> Replace	-	-	-	-	-	-	-	4,308	-	-	-	-	4,756	-	19,792	-	-	-	-	21,852	50,708	
	Metering Pumps (2), 18.9 L/s , to pump 30% of hydrogen peroxide for filter cleaning.		-	20	1991	Replace	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disinfection & Effluent	UV unit, one bank w/ 4 modules w/ 4bulbs each. In Filter Bld.	Bulbs and sleeves replaced in 2018, Bulbs in 2012	104,000	25	1991	Maintain until replacement is required	-	-	-	-	8,443	-	-	-	-	9,322	-	-	-	137,226	-	-	-	-	-	11,363	166,354	
	Sampler Effluent		17,200	15	1991	Replace	-	17,544	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23,612	-	-	-	-	41,156
	Effluent Pump	Repaired in 2017	8,000	15, 20	2016	Rehab then replace	-	-	-	-	-	-	-	-	-	-	-	-	2,029	-	-	-	-	11,202	-	-	13,231	
	Analyzer - DO		6,700	25	1991	Replace, probe replacement every 8 years	-	-	6,971	-	-	-	-	-	-	-	609	-	-	-	-	-	-	700	-	-	-	8,280

