



Water and Wastewater Rate Study

Town of Kingsville

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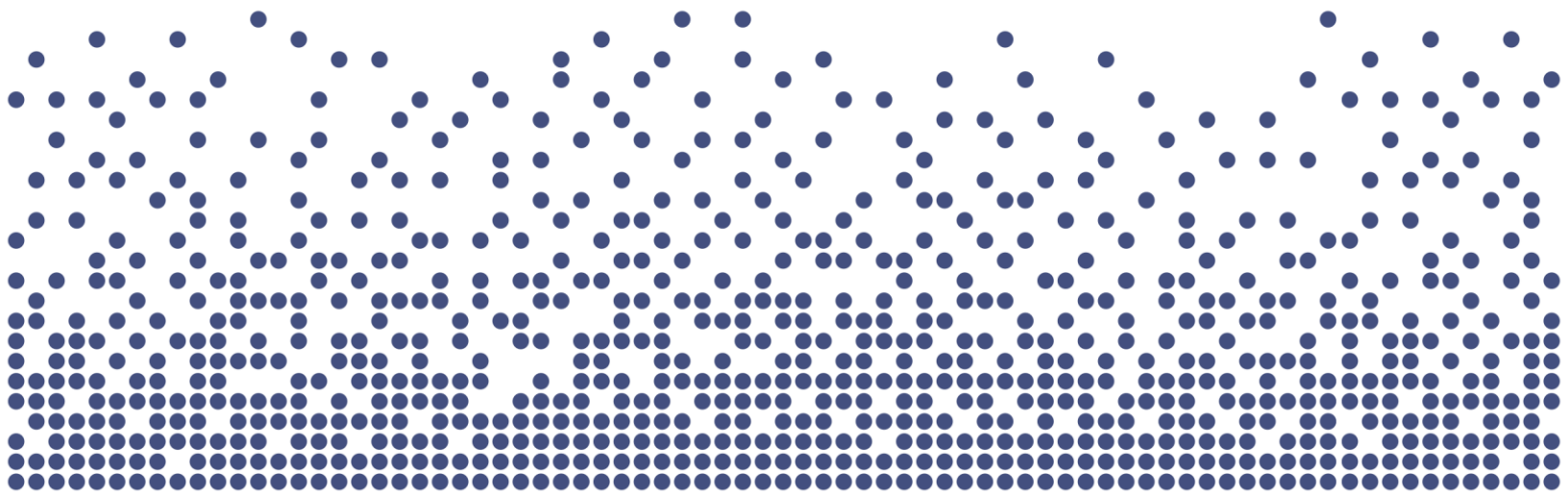
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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
A.M.O.	Association of Municipalities of Ontario
C.W.W.F.	Clean Water and Wastewater Fund
D.C.A.	Development Charges Act, 1997
F.I.R.	Financial Information Return
I.J.P.A.	Infrastructure for Jobs and Prosperity Act, 2015
I.O.	Infrastructure Ontario
L.P.A.T.	Local Planning Appeal Tribunal
M.O.E.	Ministry of Environment
O.C.I.F.	Ontario Community Infrastructure Fund
O.M.B.	Ontario Municipal Board
O.Reg.	Ontario Regulation
O.S.I.F.A.	Ontario Strategic Infrastructure Financing Authority
P.S.A.B.	Public Sector Accounting Board
P.T.I.F.	Public Transit Infrastructure Fund
S.W.S.S.A.	Sustainable Water and Sewage Systems Act, 2002



Executive Summary



Executive Summary

The Town of Kingsville retained Watson & Associates Economists Ltd. (Watson) to undertake a water and wastewater rate study. This study aims to update the analysis for current capital and operating forecasts, costing for lifecycle cost requirements, current volumes, and customer profiles. The results of this analysis provide updated water and wastewater base charges and volume rates for customers within the Town of Kingsville. The rate analysis contained herein continues to provide fiscally responsible practices that are in line with current provincial legislation at a level of rate increases that are reasonable.

The analysis presented herein provides the following:

- The 2019 to 2028 capital spending program for water is \$23.00 million (inflated);
- The 2019 to 2028 capital spending program for the Cottam wastewater and Kingsville/Lakeshore West wastewater systems is \$4.26 million and \$16.05 million (inflated), respectively;
- Internal financing from water and wastewater reserves is used to assist in financing growth-related expenditures and ensure the D.C. reserve funds maintain a non-negative balance;
- Annual operating expenditures for water and wastewater are assumed to increase by 2% per annum for most expenditures; expenditures related to utilities have been increased at 5% per annum;
- The present rate structure for water (base monthly charge and a constant volume rate) is continued;
- Two options for rate structures for wastewater are provided for both the Cottam and Kingsville/Lakeshore West areas:
 - Present rate structure – residential users have only a fixed monthly charge while non-residential users pay only a variable rate;
 - Alternative structure – residential users have a base monthly charge and a constant volume rate while non-residential users continue with variable rate;
- Existing water customers total 8,136; it is anticipated the Town will see an increase of approximately 100 new water customers annually over the next 10-year period;



- Existing wastewater customers total 566 in Cottam and 4,604 in Kingsville/Lakeshore West; in Cottam it is anticipated the Town will see an increase of 3 new wastewater customers annually and in Kingsville/Lakeshore West it is anticipated the Town will see an increase of approximately 100 new customers annually over the next 10-year period.

Based on the above information, the estimated rate increases are aimed at addressing the following:

Water

Significant capital costs are anticipated in the latter part of the forecast period. Additionally, as the Town just recently implemented a D.C. for water, the 2018 beginning balance is 0. As a result, the Town will need to interim finance some of the growth-related capital works until such time that the D.C. reserve fund can pay back the other reserves.

Wastewater - Cottam

In the past few years, large capital expenditures have occurred in the Cottam system, resulting in a current deficit of \$1.25 million in the Working Capital reserve. The rate increases provided herein have been derived to decrease this deficit and reach a positive balance in 10 to 15 years.

Wastewater – Kingsville/Lakeshore West

As a result of large growth-related capital expenditure requirements over the forecast period (\$9.3 million), the Town will need to interim finance a portion of the growth-related expenditures from existing reserves until such time that the D.C. reserve fund can repay the reserves. Additionally, major maintenance capital costs are anticipated to average approximately \$430,000 per year. As a result, the Town will need to issue non-growth-related debt to cash-flow some of the works.

For water and wastewater, increases of approximately 4% for the average water bill and 4% for the average wastewater bill have been estimated, with some variation between the rate structure options for wastewater. This is achieved by the following:



- To meet the needs of the water forecast, an annual increase in the volume rate of 3% is provided along with a 6.5% annual increase in the base charge amount. This results in an annual increase of approximately 4% on a typical user's water bill (or an annual average increase of approximately \$12);
- For Cottam wastewater rates:
 - Fixed charge rate structure – an annual increase in the residential wastewater bill of 4.5% or an average of \$18.80 per year, is provided;
 - Base charge and variable rate structure – annual increases in the residential wastewater bill of 3-4% or an average of \$14.50 per year, is provided;
- For Kingsville/Lakeshore West wastewater rates:
 - Fixed charge rate structure – an annual increase in the residential wastewater bill of 4% or an average of \$15.90 per year, is provided;
 - Base charge and variable rate structure – annual increases in the residential wastewater bill of 4% or an average of \$15.50 per year, is provided;
- The combined impact of the water and wastewater rates above provides the average annual percentage increase in the total bill as follows:
 - Cottam – Fixed charge Rate Structure - 4.4% or \$30.90 per year;
 - Cottam – Base charge and variable – 3.8% or \$26.60 per year;
 - Kingsville/Lakeshore West – Fixed charge Rate Structure – 4.1% or \$28.10 per year;
 - Kingsville/Lakeshore West – Base charge and variable – 4% or \$27.70 per year.

Tables ES-1 through ES-4 summarize the above recommended water and wastewater rates and average annual bill (assuming an annual volume of 175 cu.m) over the forecast period based on the analysis provided herein.



Table ES-1
Town of Kingsville
Average Annual Residential Water and Wastewater Bill (Based on an annual usage of 175 cu.m)
Cottam – Current Rate Structure (Fixed Monthly Charge for Wastewater)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90
Wastewater											
Base Monthly Charge	\$28.33	\$29.61	\$30.94	\$32.33	\$33.78	\$35.30	\$36.89	\$38.55	\$40.28	\$42.09	\$43.98
Volume Rate	-	-	-	-	-	-	-	-	-	-	-
Annual Base Charge	\$340.00	\$355.32	\$371.28	\$387.96	\$405.36	\$423.60	\$442.68	\$462.60	\$483.36	\$505.08	\$527.76
Annual Volume Charge	-	-	-	-	-	-	-	-	-	-	-
Total Wastewater Bill	\$340.00	\$355.32	\$371.28	\$387.96	\$405.36	\$423.60	\$442.68	\$462.60	\$483.36	\$505.08	\$527.76
Total Water and Wastewater Bill	\$581.34	\$606.19	\$632.44	\$659.75	\$688.24	\$718.06	\$749.14	\$781.52	\$815.23	\$852.18	\$890.66
Annual % Increase (rounded)	-	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.5%	4.5%
Annual Dollar Increase	-	\$24.84	\$26.26	\$27.31	\$28.48	\$29.82	\$31.09	\$32.38	\$33.71	\$36.95	\$38.48



Table ES-2
Town of Kingsville
Average Annual Residential Water and Wastewater Bill (Based on an annual usage of 175 cu.m)
Cottam – Alternative Rate Structure (Base Monthly Charge and Variable Rate for Water and Wastewater)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90
Wastewater											
Base Monthly Charge	\$28.33	\$25.00	\$25.25	\$25.50	\$25.76	\$26.02	\$26.28	\$26.54	\$26.81	\$27.08	\$27.35
Volume Rate	\$0.00	\$0.29	\$0.33	\$0.38	\$0.44	\$0.51	\$0.58	\$0.67	\$0.74	\$0.81	\$0.89
Annual Base Charge	\$340.00	\$300.00	\$303.00	\$306.00	\$309.12	\$312.24	\$315.36	\$318.48	\$321.72	\$324.96	\$328.20
Annual Volume Charge	\$0.00	\$50.75	\$58.45	\$67.20	\$77.35	\$88.90	\$102.20	\$117.60	\$129.33	\$142.28	\$156.45
Total Wastewater Bill	\$340.00	\$350.75	\$361.45	\$373.20	\$386.47	\$401.14	\$417.56	\$436.08	\$451.05	\$467.24	\$484.65
Total Water and Wastewater Bill	\$581.34	\$601.62	\$622.61	\$644.99	\$669.35	\$695.60	\$724.02	\$755.00	\$782.91	\$814.33	\$847.55
Annual % Increase (rounded)	-	3.5%	3.5%	3.6%	3.8%	3.9%	4.1%	4.3%	3.7%	4.0%	4.1%
Annual Dollar Increase	-	\$20.27	\$21.00	\$22.38	\$24.35	\$26.25	\$28.43	\$30.98	\$27.91	\$31.42	\$33.22



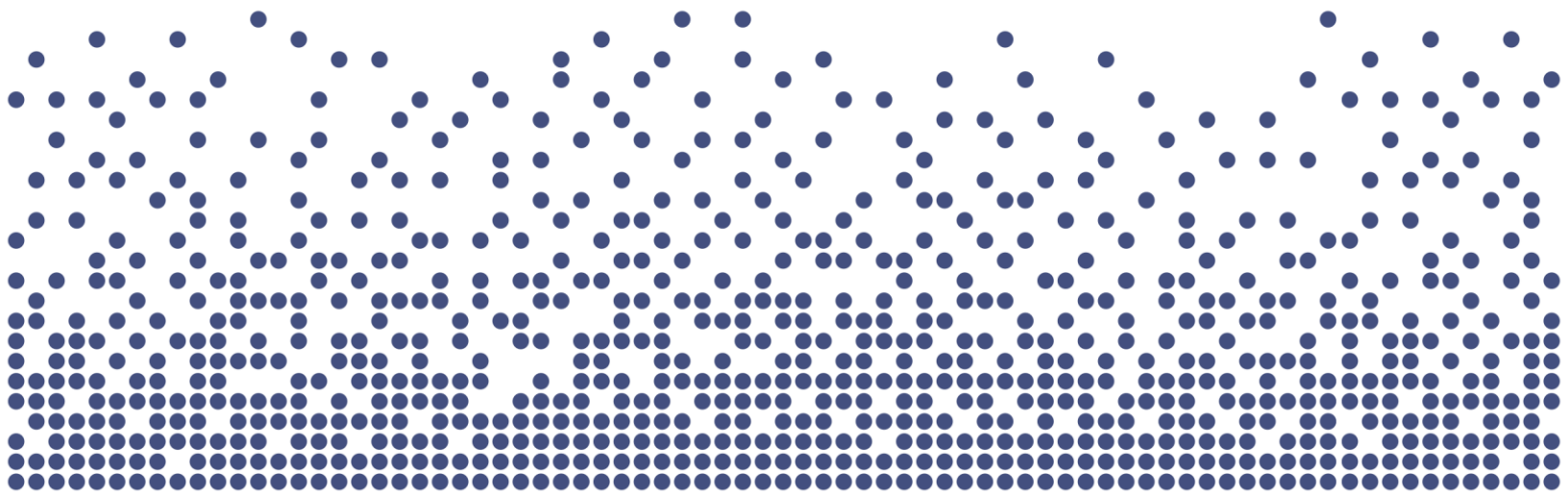
Table ES-3
Town of Kingsville
Average Annual Residential Water and Wastewater Bill (Based on an annual usage of 175 cu.m)
Kingsville/Lakeshore West – Current Rate Structure (Fixed Monthly Charge for Wastewater)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90
Wastewater											
Base Monthly Charge	\$27.67	\$28.77	\$29.92	\$31.12	\$32.36	\$33.65	\$35.00	\$36.40	\$37.86	\$39.37	\$40.94
Volume Rate	-	-	-	-	-	-	-	-	-	-	-
Annual Base Charge	\$332.00	\$345.24	\$359.04	\$373.44	\$388.32	\$403.80	\$420.00	\$436.80	\$454.32	\$472.44	\$491.28
Annual Volume Charge	-	-	-	-	-	-	-	-	-	-	-
Total Wastewater Bill	\$332.00	\$345.24	\$359.04	\$373.44	\$388.32	\$403.80	\$420.00	\$436.80	\$454.32	\$472.44	\$491.28
Total Water and Wastewater Bill	\$573.34	\$596.11	\$620.20	\$645.23	\$671.20	\$698.26	\$726.46	\$755.72	\$786.19	\$819.54	\$854.18
Annual % Increase (rounded)	-	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.2%	4.2%
Annual Dollar Increase	-	\$22.76	\$24.10	\$25.03	\$25.96	\$27.06	\$28.21	\$29.26	\$30.47	\$33.35	\$34.64



Table ES-4
Town of Kingsville
Average Annual Residential Water and Wastewater Bill (Based on an annual usage of 175 cu.m)
Kingsville/Lakeshore West – Alternative Rate Structure
(Base Monthly Charge and Variable Rate for Water and Wastewater)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90
Wastewater											
Base Monthly Charge	\$27.67	\$25.00	\$25.50	\$26.01	\$26.53	\$27.06	\$27.60	\$28.15	\$28.71	\$29.28	\$29.87
Volume Rate	\$0.00	\$0.25	\$0.29	\$0.33	\$0.38	\$0.44	\$0.50	\$0.55	\$0.61	\$0.67	\$0.74
Annual Base Charge	\$332.00	\$300.00	\$306.00	\$312.12	\$318.36	\$324.72	\$331.20	\$337.80	\$344.52	\$351.36	\$358.44
Annual Volume Charge	\$0.00	\$43.75	\$50.40	\$57.93	\$66.68	\$76.65	\$88.20	\$96.95	\$106.58	\$117.25	\$128.98
Total Wastewater Bill	\$332.00	\$343.75	\$356.40	\$370.05	\$385.04	\$401.37	\$419.40	\$434.75	\$451.10	\$468.61	\$487.42
Total Water and Wastewater Bill	\$573.34	\$594.62	\$617.56	\$641.84	\$667.91	\$695.83	\$725.86	\$753.67	\$782.96	\$815.71	\$850.31
Annual % Increase (rounded)	-	3.7%	3.9%	3.9%	4.1%	4.2%	4.3%	3.8%	3.9%	4.2%	4.2%
Annual Dollar Increase	-	\$21.27	\$22.95	\$24.27	\$26.07	\$27.92	\$30.04	\$27.81	\$29.29	\$32.74	\$34.61



Report



Chapter 1

Introduction



1. Introduction

1.1 Background

The Town of Kingsville located in the County of Essex currently services 8,136 metered water customers (who pay a common rate) and 5,170 wastewater customers (who pay different rates); 566 in Cottam and 4,604 in Kingsville/Lakeshore West. The Town purchases water from the Union Water Treatment Plant located south of the Hamlet of Ruthven in the former Township of Gosfield South.

Currently for water services, the Town has a monthly base charge and a variable rate for metered water volumes for all customers. The existing 2018 water rates are provided in Table 1-1 below.

For wastewater, two systems are utilized to service properties in the urban areas of Cottam and Kingsville/Lakeshore West. Residential users pay only a monthly base charge whereas non-residential customers (and multi-residential development) pay a rate equal to 130% of their water bill. The existing rates for wastewater services are provided in Table 1-2.

With the legislative changes being made across Ontario, as a result of the Walkerton crisis, municipalities are required to conform to new statutes governing the management of water systems. Watson & Associates Economists Ltd. was retained by the Town of Kingsville to assist in addressing these changes in a proactive manner as they relate to the water systems.

As discussed in more detail later in this report, municipalities across Ontario are required to make application to the province for a license to operate their water systems. As part of the licensing approval process, a municipality must submit a “Financial Plan” every 5 years to enable the municipality to renew their license.

The financial plan is being carried out in two parts. The Water Rate Study (this study) will provide for a longer-range projection of the municipality’s capital/operating budgets along with providing a preliminary review of the infrastructure replacement needs. As a product of this review, a preliminary forecast of water rates will be provided. Further discussion and the setting of rates will occur during the annual budget process. However, the analysis provided herein provides the details to allow for the preparation



of the mandatory O. Reg 453/07 report which must be submitted to the Province to fulfill the licensing requirements. The O. Reg 453/07 Study will take the information which is contained in this rate study (which has been prepared on a “modified accrual or cash” basis) and restate that information in a Financial Statement format (“full accrual” basis) which is the required basis for submission to the Province. As will be provided in the O. Reg 453/07 report, Council will be requested to approve that report prior to submission to the Province.

Table 1-1
Town of Kingsville
Water Rates – 2018

Town of Kingsville	
2018 - Water Billing Rates	
Monthly Base Charge	
Residential	6.32
Volume Charge	
\$ 0.61	per cu.m (wholesale)
\$ 0.34	per cu.m (distribution)
\$ 0.95	per cu.m (total)

Table 1-2
Town of Kingsville
Wastewater Rates – 2018

2018 - Wastewater Billing Rates Cottam	
Monthly Base Charges - Residential	
Residential	28.33
Other Charges	
Multi-residential, Commercial, and Industrial (% of total water charges)	130%
Greenhouse (per cu.m of sewage discharge)	\$ 1.240
Foreign Worker Housing (per quarter)	Occupant Load/ 3.2*\$85.00

2018 - Wastewater Billing Rates Kingsville & Lakeshore West	
Monthly Base Charges - Residential	
Residential	27.67
Other Charges	
Multi-residential, Commercial, and Industrial (% of total water charges)	130%
Greenhouse (per cu.m of sewage discharge)	\$ 1.240
Foreign Worker Housing (per quarter)	Occupant Load/ 3.2*\$83.00

The assessment provided herein addresses changes recommended to the water and wastewater rates based on the most current information and forecasts the implications over the next ten-year period.



1.2 Study Process

The objectives of the study and the steps involved in carrying out this assignment are summarized below:

- Identify all current and future water and wastewater system capital needs to assess the immediate and longer-term implications;
- Identify potential methods of cost recovery from the capital needs listing. These recovery methods may include other statutory authorities (e.g. *Development Charges Act, 1997* (D.C.A.), *Municipal Act*, etc.) as an offset to recovery through the water and wastewater rates;
- Identify existing operating costs by component and estimate future operating costs over the next ten years. This assessment identifies fixed and variable costs in order to project those costs sensitive to changes to the existing infrastructure inventory, as well as costs which may increase commensurate with growth; and
- Provide staff and Council the findings to assist in gaining approval of the rates for 2019 and future years.

1.3 Regulatory Changes in Ontario

Resulting from the water crisis in Walkerton, significant regulatory changes have been made in Ontario. These changes arise as a result of the Walkerton Commission and the 93 recommendations made by the Walkerton Inquiry Part II report. Areas of recommendation include:

- watershed management and source protection;
- quality management;
- preventative maintenance;
- research and development;
- new performance standards;
- sustainable asset management; and
- lifecycle costing.

The legislation which would have most impacted municipal water and wastewater rates was the *Sustainable Water and Sewage Systems Act* (S.W.S.S.A.) which would have



required municipalities to implement full cost pricing. The legislation was enacted in 2002, however, it had not been implemented pending the approval of its regulations. The Act was repealed as of January 1, 2013. It is expected that the provisions of the *Water Opportunities Act* will implement the fundamental requirements of S.W.S.S.A. Furthermore, on December 27, 2017, O.Reg. 588/17 was released under the *Infrastructure for Jobs and Prosperity Act, 2015* (I.J.P.A.), which outlines the requirements for asset management for municipalities. The results of the asset management review under this Act will need to be considered in light of the recent investments undertaken by the Town and the capital spending plan provided herein. The following sections describe these various resulting changes.

1.4 Sustainable Water and Sewage Systems Act

As noted earlier, the S.W.S.S.A. was passed on December 13, 2002. The intent of the Act was to introduce the requirement for municipalities to undertake an assessment of the “full cost” of providing their water and wastewater services. It is noted, however, that this Act has been repealed. To provide broader context and understanding to other legislation discussed herein, a description of the Act is provided below.

Full costs for water service was defined in subsection 3(7) of the Act and included “...source protection costs, operating costs, financing costs, renewal and replacement costs and improvement costs associated with extracting, treating or distributing water to the public and such other costs which may be specified by regulation.” Similar provisions were made for wastewater services in subsection 4(7) with respect to “...collecting, treating or discharging waste water.”

The Act would have required the preparation of two reports for submission to the Ministry of the Environment (or such other member of the Executive Council as may be assigned the administration of this Act under the *Executive Council Act*). The first report was on the “full cost of services” and the second was the “cost recovery plan.” Once these reports were reviewed and approved by the Ministry, the municipality would have been required to implement the plans within a specified time period.

In regard to the **full cost of services** report, the municipality (deemed a regulated entity under the Act) would prepare and approve a report concerning the provision of water and sewage services. This report was to include an inventory of the infrastructure, a



management plan providing for the long-term integrity of the systems and would address the full cost of providing the services (other matters may be specified by the regulations) along with the revenue obtained to provide them. A professional engineer would certify the inventory and management plan portion of the report. The municipality's auditor would be required to provide a written opinion on the report. The report was to be approved by the municipality and then be forwarded to the Ministry along with the engineer's certification and the auditor's opinion. The regulations would stipulate the timing for this report.

The second report was referred to as a **cost recovery plan** and would address how the municipality intended to pay for the full costs of providing the service. The regulations were to specify limitations on what sources of revenue the municipality may use. The regulations may have also provided limits as to the level of increases any customer or class of customer may experience over any period of time. Provision was made for the municipality to implement increases above these limits; however, ministerial approval would be required first. Similar to the first report, the municipal auditor would provide a written opinion on the report prior to Council's adoption, and this opinion must accompany the report when submitted to the Province.

The Act provided the Minister the power to approve or not approve the plans. If the Minister was not satisfied with the report or if a municipality did not submit a plan, the Minister may have a plan prepared. The cost to the Crown for preparing the plan would be recovered from the municipality. As well, the Minister may direct two or more regulated municipalities to prepare a joint plan. This joint plan may be directed at the onset or be directed by the Minister after receiving the individual plans from the municipalities.

The Minister also had the power to order a municipality to generate revenue from a specific revenue source or in a specified manner. The Minister may have also ordered a regulated entity to do or refrain from doing such things as the Minister considered advisable to ensure that the entity pays the full cost of providing the services to the public.

Once the plans were approved and in place, the municipality would be required to submit progress reports. The timing of these reports and the information to be contained therein would be established by the regulations. A municipal auditor's opinion must be provided with the progress report. Municipalities would also revise the



plans if they deem the estimate does not reflect the full cost of providing the services, as a result of a change in circumstances, regulatory or other changes that affect their plan, etc. The municipality would then revise its prior plan, provide an auditor's opinion, and submit the plan to the Minister.

1.5 Financial Plans Regulation

On August 16, 2007, the M.O.E. passed O.Reg 453/07 which requires the preparation of financial plans for water (and wastewater) systems. The M.O.E. has also provided a Financial Plan Guidance Document to assist in preparing the plans. A brief summary of the key elements of the regulation is provided below:

- The financial plan will represent one of the key elements for the municipality to obtain its Drinking Water Licence;
- The financial plans shall be for a period of at least six years, but longer planning horizons are encouraged;
- As the regulation is under the *Safe Drinking Water Act, 2002*, the preparation of the plan is mandatory for water and encouraged for wastewater;
- The plan is considered a living document (i.e. will be updated as annual budgets are prepared) but will need to be undertaken, at a minimum, every five years;
- The plans generally require the forecasting of capital, operating and reserve fund positions, providing detailed inventories, forecasting future users and volume usage and corresponding calculation of rates. In addition, P.S.A.B. information on the system must be provided for each year of the forecast (i.e. total non-financial assets, tangible capital asset acquisitions, tangible capital asset construction, betterments, write-downs, disposals, total liabilities and net debt);
- The financial plans must be made available to the public (at no charge) upon request and be available on the municipality's website. The availability of this information must also be advertised; and
- The financial plans are to be approved by Resolution of the Council or governing body indicating that the drinking water system is financially viable.

In general, the financial principles of the draft regulations follow the intent of S.W.S.S.A. to move municipalities towards financial sustainability. Many of the prescriptive



requirements, however, have been removed (e.g. preparation of two separate documents for provincial approval, auditor opinions, engineer certifications, etc.).

A Guideline (“Towards Financially Sustainable Drinking Shores – Water and Wastewater Systems”) had been developed to assist municipalities in understanding the Province’s direction and provided a detailed discussion on possible approaches to sustainability. The Province’s Principles of Financially Sustainable Water and Wastewater Services are provided below:

Principle #1: Ongoing public engagement and transparency can build support for, and confidence in, financial plans and the system(s) to which they relate.

Principle #2: An integrated approach to planning among water, wastewater, and stormwater systems is desirable given the inherent relationship among these services.

Principle #3: Revenues collected for the provision of water and wastewater services should ultimately be used to meet the needs of those services.

Principle #4: Lifecycle planning with mid-course corrections is preferable to planning over the short term, or not planning at all.

Principle #5: An asset management plan is a key input to the development of a financial plan.

Principle #6: A sustainable level of revenue allows for reliable service that meets or exceeds environmental protection standards, while providing sufficient resources for future rehabilitation and replacement needs.

Principle #7: Ensuring users pay for the services they are provided leads to equitable outcomes and can improve conservation. In general, metering and the use of rates can help ensure users pay for services received.

Principle #8: Financial plans are “living” documents that require continuous improvement. Comparing the accuracy of financial projections with actual results can lead to improved planning in the future.



Principle #9: Financial plans benefit from the close collaboration of various groups, including engineers, accountants, auditors, utility staff, and municipal Council.

1.6 Water Opportunities Act, 2010

As noted earlier, since the passage of the *Safe Drinking Water Act, 2002*, continuing changes and refinements to the legislation have been introduced. Some of these Bills have found their way into law, while others have not been approved. Bill 72, the *Water Opportunities Act, 2010*, was introduced into legislation on May 18, 2010 and received Royal Assent on November 29, 2010.

The Act provides for the following elements:

- The fostering of innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors;
- Preparation of water conservation plans to achieve water conservation targets established by the regulations; and
- Preparation of sustainability plans for municipal water services, municipal wastewater services and municipal stormwater services.

With regard to the sustainability plans:

- The Act extends from the water financial plans and requires a more detailed review of the water financial plan and requires a full plan for wastewater and stormwater services; and
- Regulations will provide performance targets for each service – these targets may vary based on the jurisdiction of the regulated entity or the class of entity.

The financial plan shall include:

- An asset management plan for the physical infrastructure;
- A financial plan;
- For water, a water conservation plan;
- An assessment of risks that may interfere with the future delivery of the municipal service, including, if required by the regulations, the risks posed by climate change and a plan to deal with those risks; and



- Strategies for maintaining and improving the municipal service, including strategies to ensure the municipal service can satisfy future demand, consider technologies, services and practices that promote the efficient use of water and reduce negative impacts on Ontario's water resources, and increase co-operation with other municipal service providers.

Performance indicators will be established by service, with the following considerations:

- May relate to the financing, operation or maintenance of a municipal service or to any other matter in respect of what information may be required to be included in a plan;
- May be different for different municipal service providers or for municipal services in different areas of the Province.

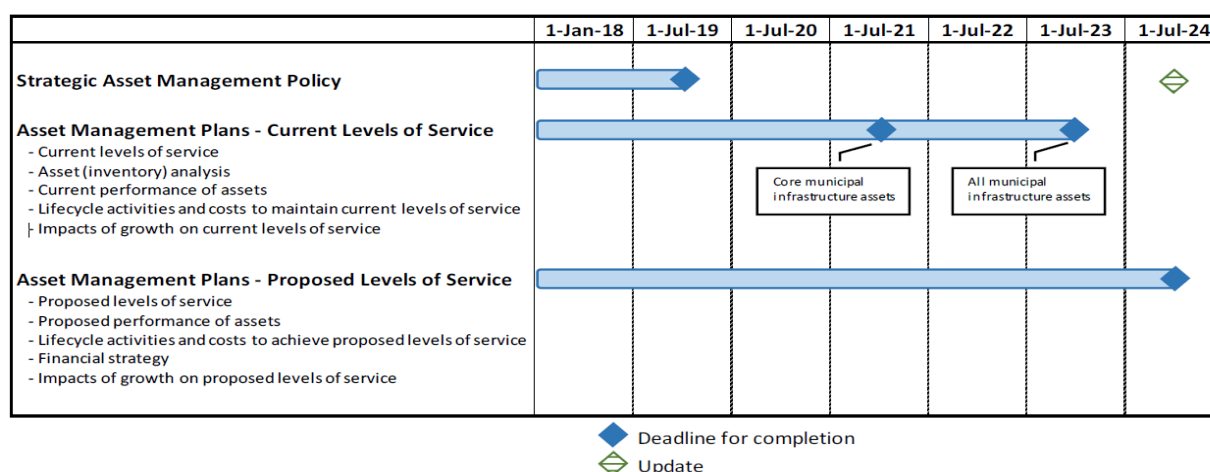
Regulations will prescribe:

- Timing;
- Contents of the plans;
- Which identified portions of the plan will require certification;
- Public consultation process; and
- Limitations, updates, refinements, etc.

As noted earlier, it is expected that this Act will implement the principles of the S.W.S.S.A. once all regulations are put in place.

1.7 Infrastructure for Jobs and Prosperity Act, 2015 (I.J.P.A.)

On June 4, 2015, the Province of Ontario passed the I.J.P.A. which, over time, will require municipalities to undertake and implement asset management plans for all infrastructure they own. On December 27, 2017, the Province released Ontario Regulation 588/17 under the I.J.P.A. which has three phases that municipalities must meet:



Every municipality in Ontario will have to prepare a strategic asset management policy by July 1, 2019. Municipalities will be required to review their strategic asset management policies at least every five years and make updates as necessary. The subsequent phases are as follows:

- Phase 1 – Asset Management Plan (by July 1, 2021):
 - For core assets, municipalities must have the following:
 - Inventory of assets;
 - Current levels of service measured by standard metrics; and
 - Costs to maintain levels of service.
- Phase 2 – Asset Management Plan (by July 1, 2023):
 - Same steps as Phase 1 but for all assets.
- Phase 3 – Asset Management Plan (by July 1, 2024):
 - Builds on Phase 1 and 2 by adding:
 - Proposed levels of service; and
 - Lifecycle management and financial strategy.

In relation to water and wastewater (which is considered a core asset), municipalities will need to have an asset management plan that addresses the related infrastructure by July 1, 2021 (Phase 1). O.Reg. 588/17 specifies that the municipality's asset management plan must include the following for each asset category:

- The current levels of service being provided, determined in accordance with the following qualitative descriptions and technical metrics and based on data



- from at most the two calendar years prior to the year in which all information required under this section is included in the asset management plan;
- The current performance of each asset category, including:
 - a summary of the assets in the category;
 - the replacement cost of the assets in the category;
 - the average age of the assets in the category, determined by assessing the average age of the components of the assets;
 - the information available on the condition of the assets in the category;
 - a description of the municipality's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate; and
 - The lifecycle activities that would need to be undertaken to maintain the current levels of service.

Upon completion of the asset management plan for water and wastewater services, the Town will need to consider the impacts on the capital plan provided herein.

1.8 Forecast Growth and Servicing Requirements

The Town of Kingsville services 8,136 metered water customers whom are charged similar rates and 5,170 wastewater customers who pay different charges by area; 566 in Cottam pay based on one structure of charges and 4,604 in Kingsville and Lakeshore West who pay based on a different rate structure. Information on the existing number of customers and existing billable volumes was obtained from the Town.

For future water and wastewater customers to be added to the systems, consideration has been given to development potential within the serviced areas of the Town over the forecast period 2019 to 2028.

The growth forecast provided herein is based on the forecast used for the Town's development charge study, modified by Town staff to reflect a more realistic development forecast. For operating revenue purposes, it would be undesirable to forecast too high as it could produce a potential operating deficit should the growth not materialize. Forecasting higher amounts for development charge purposes, however, ensures that capital infrastructure is in place so as not to inhibit development.



The Town of Kingsville purchases water from the Union Water Supply System. For the forecast 2019 to 2028 period, billable volumes to be purchased from Union Water Supply System are anticipated to continue to grow to 5.8 million by 2028. Based on an analysis of the previous 5-year period, the average annual unaccounted-for water amounts to approximately 11.4% per year. This estimate is utilized for each year in the forecast period to calculate purchased water volumes.

Table 1-3 provides for the forecast of water users and volumes for Kingsville (including estimated water purchases), while Tables 1-4 and 1-5 provide the forecasts of wastewater users and volumes for the Cottam and Kingsville/Lakeshore West sanitary systems, respectively.



Table 1-3
Town of Kingsville
2019 to 2028 Water System Forecast

Water Users Forecast

Year	Total Users	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	114		57	114	114	114	114	114	114	114	114	114
2020	114			57	114	114	114	114	114	114	114	114
2021	114				57	114	114	114	114	114	114	114
2022	96					48	96	96	96	96	96	96
2023	96						48	96	96	96	96	96
2024	96							48	96	96	96	96
2025	96								48	96	96	96
2026	96									48	96	96
2027	94										47	94
2028	94											47
Total	1,011	-	57	171	285	390	486	582	678	774	869	963
m ³ /user	175	175	175	175	175	175	175	175	175	175	175	175
Annual Flow		-	9,975	29,934	49,893	68,276	85,076	101,876	118,676	135,476	152,101	168,593

Water Customer Forecast	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136
New - Growth	-	57	171	285	390	486	582	678	774	869	963
Total	8,136	8,193	8,307	8,421	8,526	8,622	8,718	8,814	8,910	9,005	9,099

Water Volume Forecast (m ³)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	5,630,126	5,630,126	5,630,126	5,630,126	5,630,126	5,630,126	5,630,126	5,630,126	5,630,126	5,630,126	5,630,126
New	-	9,975	29,934	49,893	68,276	85,076	101,876	118,676	135,476	152,101	168,593
Total	5,630,126	5,640,101	5,660,060	5,680,019	5,698,402	5,715,202	5,732,002	5,748,802	5,765,602	5,782,227	5,798,719

Water Purchase from Union Water	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Billable Volumes	5,630,126	5,640,101	5,660,060	5,680,019	5,698,402	5,715,202	5,732,002	5,748,802	5,765,602	5,782,227	5,798,719
Assumed Unaccounted for Water	12.7%	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%
Total Purchased Water	6,345,269	6,283,743	6,305,980	6,328,216	6,348,698	6,367,415	6,386,132	6,404,849	6,423,567	6,442,089	6,460,463
Union Water Rates	0.6088	0.6210	0.6458	0.6716	0.6985	0.7265	0.7555	0.7857	0.8172	0.8498	0.8838
Total	3,863,000	3,902,054	4,072,496	4,250,331	4,434,651	4,625,635	4,824,801	5,032,500	5,249,095	5,474,800	5,710,031



Table 1-4
Town of Kingsville - Cottam
2019 to 2028 Wastewater System Forecast

Wastewater Users Forecast - Cottam

Year	Total Users	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	3		2	3	3	3	3	3	3	3	3	3
2020	3			2	3	3	3	3	3	3	3	3
2021	3				2	3	3	3	3	3	3	3
2022	3					2	3	3	3	3	3	3
2023	3						2	3	3	3	3	3
2024	3							2	3	3	3	3
2025	3								2	3	3	3
2026	3									2	3	3
2027	3										2	3
2028	8											4
Total	35	-	2	5	8	11	14	17	20	23	26	31
m ³ /user	175	175	175	175	175	175	175	175	175	175	175	175
Annual Flow		-	350	875	1,400	1,925	2,450	2,975	3,500	4,025	4,550	5,425

Wastewater Customer Forecast	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	566	566	566	566	566	566	566	566	566	566	566
New - Growth	-	2	5	8	11	14	17	20	23	26	31
Total	566	568	571	574	577	580	583	586	589	592	597

Billable Metered Flows for Wastewater Forecast (m ³)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	129,993	129,993	129,993	129,993	129,993	129,993	129,993	129,993	129,993	129,993	129,993
New	-	350	875	1,400	1,925	2,450	2,975	3,500	4,025	4,550	5,425
Total	129,993	130,343	130,868	131,393	131,918	132,443	132,968	133,493	134,018	134,543	135,418

Billable Metered Flows for Wastewater Forecast (m ³) Residential Flows Only	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	123,248	123,248	123,248	123,248	123,248	123,248	123,248	123,248	123,248	123,248	123,248
New	-	350	875	1,400	1,925	2,450	2,975	3,500	4,025	4,550	5,425
Total	123,248	123,598	124,123	124,648	125,173	125,698	126,223	126,748	127,273	127,798	128,673



Table 1-5
Town of Kingsville – Kingsville/Lakeshore West
2019 to 2028 Wastewater System Forecast

Wastewater Users Forecast - Kingsville & Lakeshore West

Year	Total Users	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	111		56	111	111	111	111	111	111	111	111	111
2020	111			56	111	111	111	111	111	111	111	111
2021	111				56	111	111	111	111	111	111	111
2022	93					47	93	93	93	93	93	93
2023	93						47	93	93	93	93	93
2024	93							47	93	93	93	93
2025	93								47	93	93	93
2026	93									47	93	93
2027	91										46	91
2028	86											43
Total	975	-	56	167	278	380	473	566	659	752	844	932
m ³ /user	175	175	175	175	175	175	175	175	175	175	175	175
Annual Flow		-	9,800	29,225	48,650	66,500	82,775	99,050	115,325	131,600	147,700	163,100

Wastewater Customer Forecast	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604
New - Growth	-	56	167	278	380	473	566	659	752	844	932
Total	4,604	4,660	4,771	4,882	4,984	5,077	5,170	5,263	5,356	5,448	5,536

Billable Metered Flows for Wastewater Forecast (m ³)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	1,249,409	1,249,409	1,249,409	1,249,409	1,249,409	1,249,409	1,249,409	1,249,409	1,249,409	1,249,409	1,249,409
New	-	9,800	29,225	48,650	66,500	82,775	99,050	115,325	131,600	147,700	163,100
Total	1,249,409	1,259,209	1,278,634	1,298,059	1,315,909	1,332,184	1,348,459	1,364,734	1,381,009	1,397,109	1,412,509

Billable Metered Flows for Wastewater Forecast (m ³) Residential Flows Only	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	921,042	921,042	921,042	921,042	921,042	921,042	921,042	921,042	921,042	921,042	921,042
New	-	9,800	29,225	48,650	66,500	82,775	99,050	115,325	131,600	147,700	163,100
Total	921,042	930,842	950,267	969,692	987,542	1,003,817	1,020,092	1,036,367	1,052,642	1,068,742	1,084,142



Chapter 2

Capital Infrastructure Needs



2. Capital Infrastructure Needs

2.1 Capital Forecast

Capital forecasts have been provided for the water and wastewater systems and are presented in Tables 2-1, 2-2, and 2-3 (note: the costs are provided in uninflated dollars). The basis for these forecasts is the Town's capital budgets and works identified as asset replacement needs based on the inventory data provided for the water and wastewater systems, as well as discussions with staff.

A summary of the capital works related to water and wastewater services is provided in the following tables.



Table 2-1
Town of Kingsville
2019 to 2028 Water Capital Forecast Summary (Uninflated \$)

Description	Total 2019-2028	Years Undertaken
Capital Expenditures		
2008 GMC Sierra 2500 HD 4x4	62,000	2019
2006 Ford F-350 Extended Cab Service	62,000	2020
2006 Ford F-350 Extended Cab Service	62,000	2020
2010 Case 580SM Backhoe (water portion)	20,000	2021
2010 Case 521E Loader (water portion)	15,000	2021
2012 International Workstar Tandem Dump	140,000	2023
2013 Ford F-150 4x4 extended cab	35,000	2024
2012 Valve Exercising/Hydro-Excavation Trailer	74,000	2025
New Fleet:		
17-03 Ford F250 Pickup Truck with Cap	60,000	2027
Growth Related:		
<u>SW Service Area Upgrade</u>		
Stage 1 - two 400mm watermains	5,200,000	2019-2020
Stage 2 - 400mm watermain	1,500,000	2019-2020
Stage 3 - 300mm watermain	1,700,000	2020-2021
Stage 4 - 1050mm trunk watermain twinning	4,100,000	2025-2026
Stage 5 - 600mm trunk watermain twinning	3,850,000	2026-2027
Stage 6 - 600mm trunk watermain twinning	3,450,000	2027-2028
Total	20,330,000	

Table 2-2
Cottam
2019 to 2028 Wastewater Capital Forecast Summary (Uninflated \$)

Description	Total 2019-2028	Years Undertaken
Capital Expenditures		
OCWA:		
Major Maintenance	300,000	2019-2028
Growth Related:		
Cottam Sewage Lagoon - Phase 2 (Aeration Pond & Pond 3)	3,223,000	2028
Total	3,523,000	



Table 2-3
Kingsville/Lakeshore West
2019 to 2028 Wastewater Capital Forecast Summary (Uninflated \$)

Description	Total 2019-2028	Years Undertaken
Capital Expenditures		
OCWA:		
<u>Lakeshore West WWTP</u>		
Major Maintenance - Lakeshore West	3,580,000	2019-2028
<u>Kingsville Wastewater Lagoons</u>		
Major Maintenance - Kingsville Lagoons	320,000	2019-2028
Fleet Replacement:		
2004 Kubota 32 HP Front Mount Lawnmower	62,500	2019, 2023-2028
1999 Daewoo Extended Boom Litruck	50,000	2019, 2023-2028
1997 International Dump	25,000	2019, 2023-2028
2012 Kubota Tractor	75,000	2022-2028
2013 Kioti Tractor CK20S	50,000	2023-2028
Growth Related:		
Phase II Capacity Expansion Lakeshore West PCP	2,886,600	2025-2026
Kingsville PCP Lagoons Quality Upgrade	1,089,000	2022-2023
Wastewater Master Plan	-	
Ruthven PS Upgrade	500,000	2023-2024
LSE Trunk Sewer & PS	3,951,000	2020
Lakeside Park Sanitary Sewer Twinning	2,069,000	2019-2020
Total	14,658,100	



Chapter 3

Lifecycle Costing



3. Lifecycle Costing

3.1 Overview of Lifecycle Costing

3.1.1 *Definition*

For many years, lifecycle costing has been used in the field of maintenance engineering and to evaluate the advantages of using alternative materials in construction or production design. The method has gained wider acceptance and use in the areas of industrial decision-making and the management of physical assets.

By definition, lifecycle costs are all the costs which are incurred during the lifecycle of a physical asset, from the time its acquisition is first considered to the time it is taken out of service for disposal or redeployment. The stages which the asset goes through in its lifecycle are specification, design, manufacture (or build), install, commission, operate, maintain, and disposal. Figure 3-1 depicts these stages in a schematic form.

3.1.2 *Financing Costs*

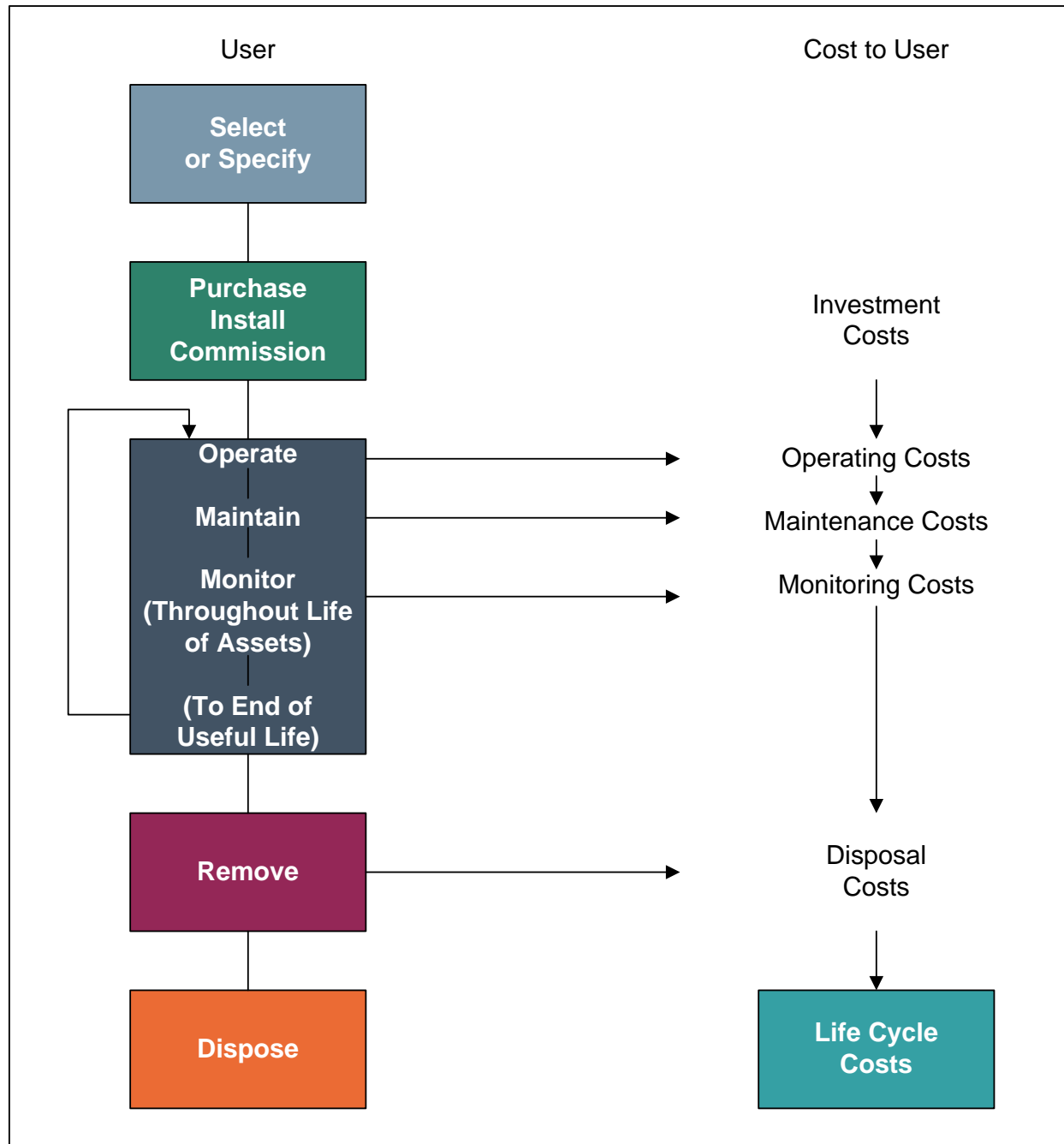
This section will focus on financing mechanisms in place to fund the costs incurred throughout the asset's life.

In a municipal context, services are provided to benefit tax/rate payers. Acquisition of assets is normally timed in relation to direct needs within the community. At times, economies of scale or technical efficiencies will lead to oversizing an asset to accommodate future growth within the Town. Over the past few decades, new financing techniques such as development charges have been employed based on the underlying principle of having tax/rate payers who benefit directly from the service paying for that service. Operating costs which reflect the cost of the service for that year are charged directly to all existing tax/rate payers who have received the benefit. Operating costs are normally charged through the tax base or user rates.

Capital expenditures are recouped through several methods, with operating budget contributions, development charges, reserves, developer contributions, and debentures, being the most common.



Figure 3-1
Lifecycle Costing



New construction related to growth could produce development charges and developer contributions (e.g. works internal to a subdivision which are the responsibility of the developer to construct) to fund a significant portion of projects, where new assets are



being acquired to allow growth within the Town to continue. As well, debentures could be used to fund such works, with the debt charge carrying costs recouped from tax/rate payers in the future.

Capital construction to replace existing infrastructure, however, is largely not growth-related and will therefore not yield development charges or developer contributions to assist in financing these works. Hence, a municipality will be dependent upon debentures, reserves, and contributions from the operating budget to fund these works.

Figure 3-2 depicts the costs of an asset from its initial conception through to replacement and then continues to follow the associated costs through to the next replacement.

As discussed previously, growth-related financing methods such as development charges and developer contributions could be utilized to finance the growth-related component of the new asset. These revenues are collected (indirectly) from the new homeowner who benefits directly from the installation of this asset. Other financing methods may be used as well to finance the non-growth-related component of this project, such as reserves which have been collected from past tax/rate payers, operating budget contributions which are collected from existing tax/rate payers and debenturing which will be carried by future tax/rate payers. Ongoing costs for monitoring, operating and maintaining the asset will be charged annually to the existing tax/rate payer.

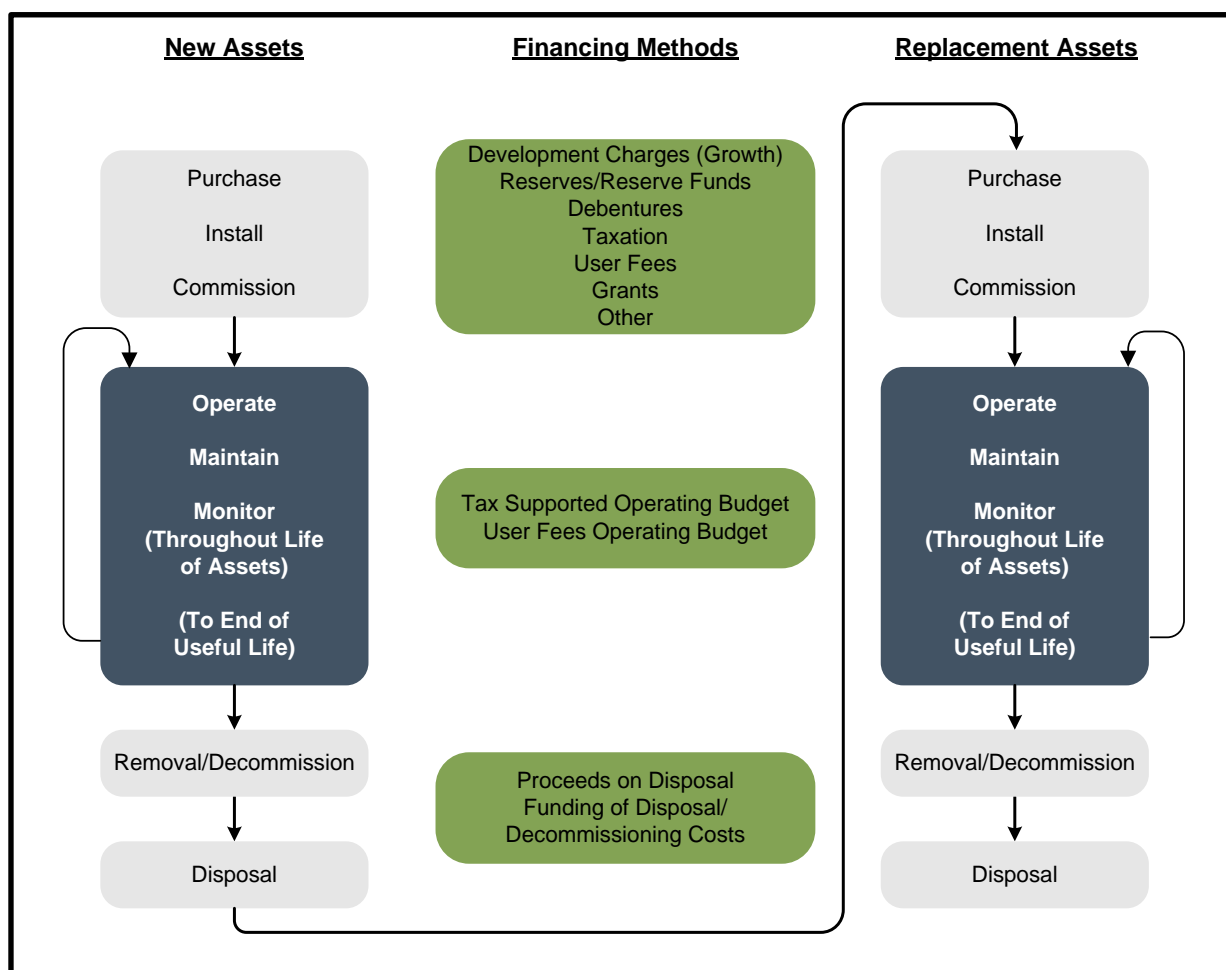
When the asset requires replacement, the sources of financing will be limited to reserves, debentures and contributions from the operating budget. At this point, the question is raised: "If the cost of replacement is to be assessed against the tax/rate payer who benefits from the replacement of the asset, should the past tax/rate payer pay for this cost or should future rate payers assume this cost?" If the position is taken that the past user has used up the asset, hence he should pay for the cost of replacement, then a charge should be assessed annually through the life of the asset, to have funds available to replace it when the time comes. If the position is taken that the future tax/rate payer should assume this cost, then debenturing and, possibly, a contribution from the operating budget should be used to fund this work.

Charging for the cost of using up an asset is the fundamental concept behind depreciation methods utilized by the private sector. This concept allows for expending



the asset as it is used up in the production process. The tracking of these costs forms part of the product's selling price and, hence, end-users are charged for the asset's depreciation. The same concept can be applied in a municipal setting to charge existing users for the asset's use and set those funds aside in a reserve to finance the cost of replacing the asset in the future.

Figure 3-2
Financing Lifecycle Costs



3.1.3 Costing Methods

There are two fundamental methods of calculating the cost of the usage of an asset and for the provision of the revenue required when the time comes to retire and replace it. The first method is the Depreciation Method. This method recognizes the reduction in the value of the asset through wear-and-tear and aging. There are two commonly used



forms of depreciation: the straight-line method and the reducing-balance method (shown graphically in Figure 3-3).

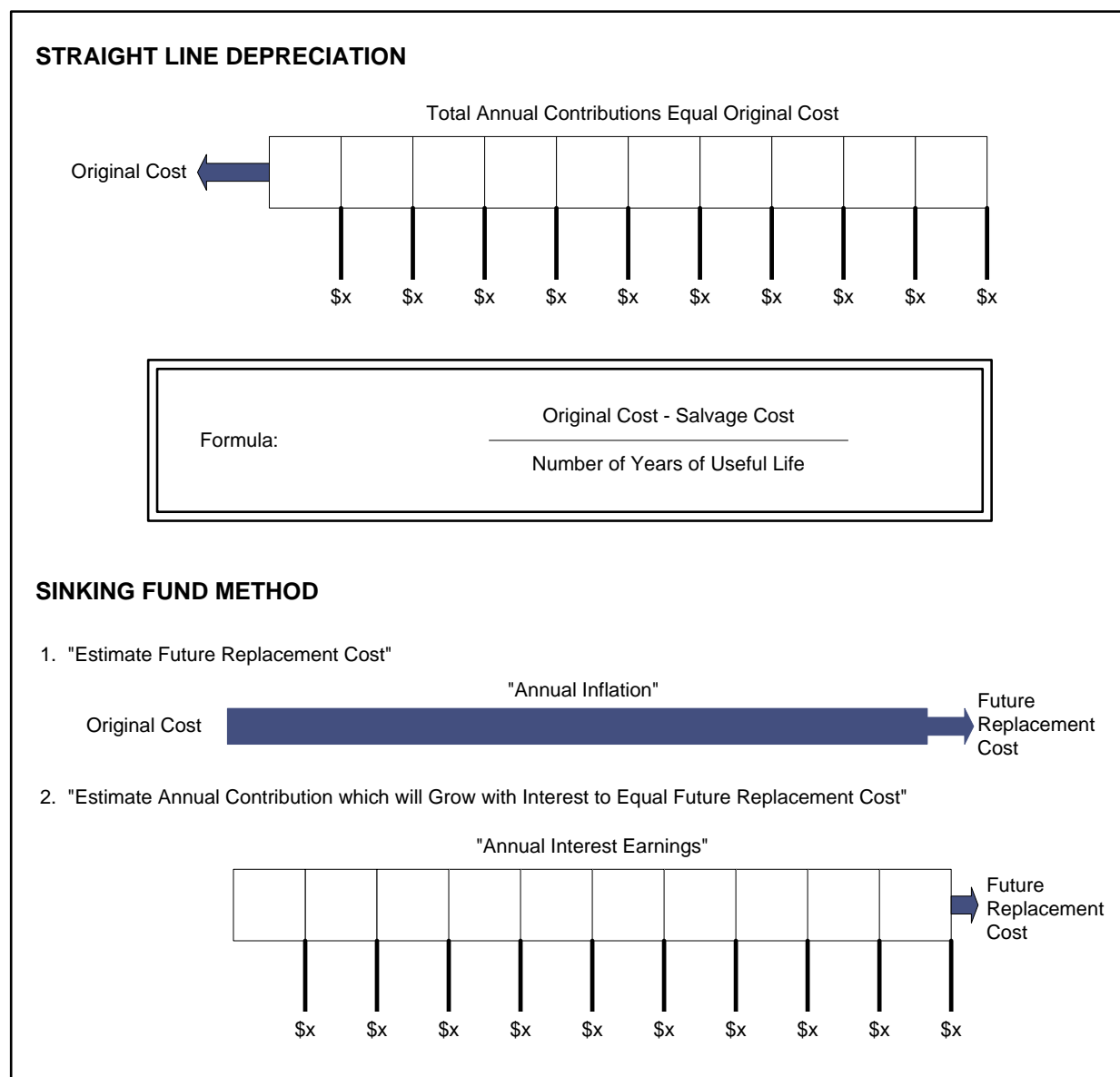
The straight-line method is calculated by taking the original cost of the asset, subtracting its estimated salvage value (estimated value of the asset at the time it is disposed of) and dividing this by the estimated number of years of useful life. The reducing balance method is calculated by utilizing a fixed percentage rate and this rate is applied annually to the undepreciated balance of the asset value.

The second method of lifecycle costing is the sinking fund method. This method first estimates the future value of the asset at the time of replacement. This is done by inflating the original cost of the asset at an assumed annual inflation rate. A calculation is then performed to determine annual contributions (equal or otherwise) which, when invested, will grow with interest to equal the future replacement cost.

The preferred method used herein for forecasting purposes is the sinking fund method of lifecycle costing.



Figure 3-3



3.2 Impact on Budgets

Detailed water and wastewater systems inventory information was obtained from the Town. The age of the water system dates back to the 1950s. The water system has been expanded throughout the years. The wastewater system dates back to the 1960s. The total value of existing water infrastructure is \$99.85 million, the value of existing



wastewater infrastructure in Cottam is \$6.25 million and the value of existing wastewater infrastructure in Kingsville/Lakeshore West is \$88.24 million.

The detailed water and wastewater inventories are provided in Appendices A and B, respectively. As well, the lifecycle “sinking fund” contribution amounts for each piece of infrastructure have also been included. These calculations determine the level of investment the Town may wish to consider as part of its budgeting practices. Additionally, the straight-line depreciation method has been included for comparison purposes. This information is summarized in Figure 3-4.

Figure 3-4
Town of Kingsville
Summary of Water and Wastewater Infrastructure

Area	Total Replacement Value	Suggested amount to be included in 10-year forecast based on estimated life	Amount included in 10-year forecast	Net Replacement for Future Lifecycle	Annual Lifecycle Replacement (sinking fund method)	Annual Lifecycle Replacement (straight-line method)
Water						
Watermains	99,846,750	-	530,000	99,316,750	2,885,598	1,659,836
Total Water	99,846,750	-	530,000	99,316,750	2,885,598	1,659,836
Wastewater - Cottam						
Wastewater Facilities	1,620,000	-	300,000	5,952,380	55,322	36,359
Sanitary Sewers	4,632,380	-			129,517	72,811
Total Wastewater - Cottam	6,252,380	-	300,000	5,952,380	184,839	109,170
Wastewater - Kingsville/Lakeshore West						
Wastewater Facilities	21,482,500	1,700,000	4,162,500	84,073,850	950,237	727,251
Sanitary Sewers	66,753,850	3,760,630			1,794,905	1,012,966
Total Wastewater - Kingsville/Lakeshore West	88,236,350	5,460,630	4,162,500	84,073,850	2,745,142	1,740,217
Total	194,335,480	5,460,630	4,992,500	189,342,980	5,815,579	3,509,224

Investment per customer is \$12,272 for water, \$11,047 for wastewater in Cottam, and \$19,165 for wastewater in Kingsville/Lakeshore West

With respect to lifecycle costing contained in the Appendices, the following information was taken into consideration:

- approximate age;
- material type;
- main lengths;
- diameter of the mains;
- estimated useful life; and
- estimated replacement costs.

Summaries of both water and wastewater assets are shown in Figures 3-5 through 3-7. These figures show when the assets are due to be replaced (based on age) and the cost of replacement in 2019 dollars.

The Town completed an Asset Management Plan in 2013 that provided a detailed plan for water and wastewater services. The Town is currently in the process of reviewing and updating their asset management database. As a result, the water and wastewater



assets were reviewed in further detail resulting in variations from the 2013 Asset Management Plan. The results provided herein show higher replacement costs for the existing systems and investments per household relative to the findings in the 2013 Asset Management Plan.



Figure 3-5
Town of Kingsville
Summary of Water Infrastructure Replacement Years (2019 \$)

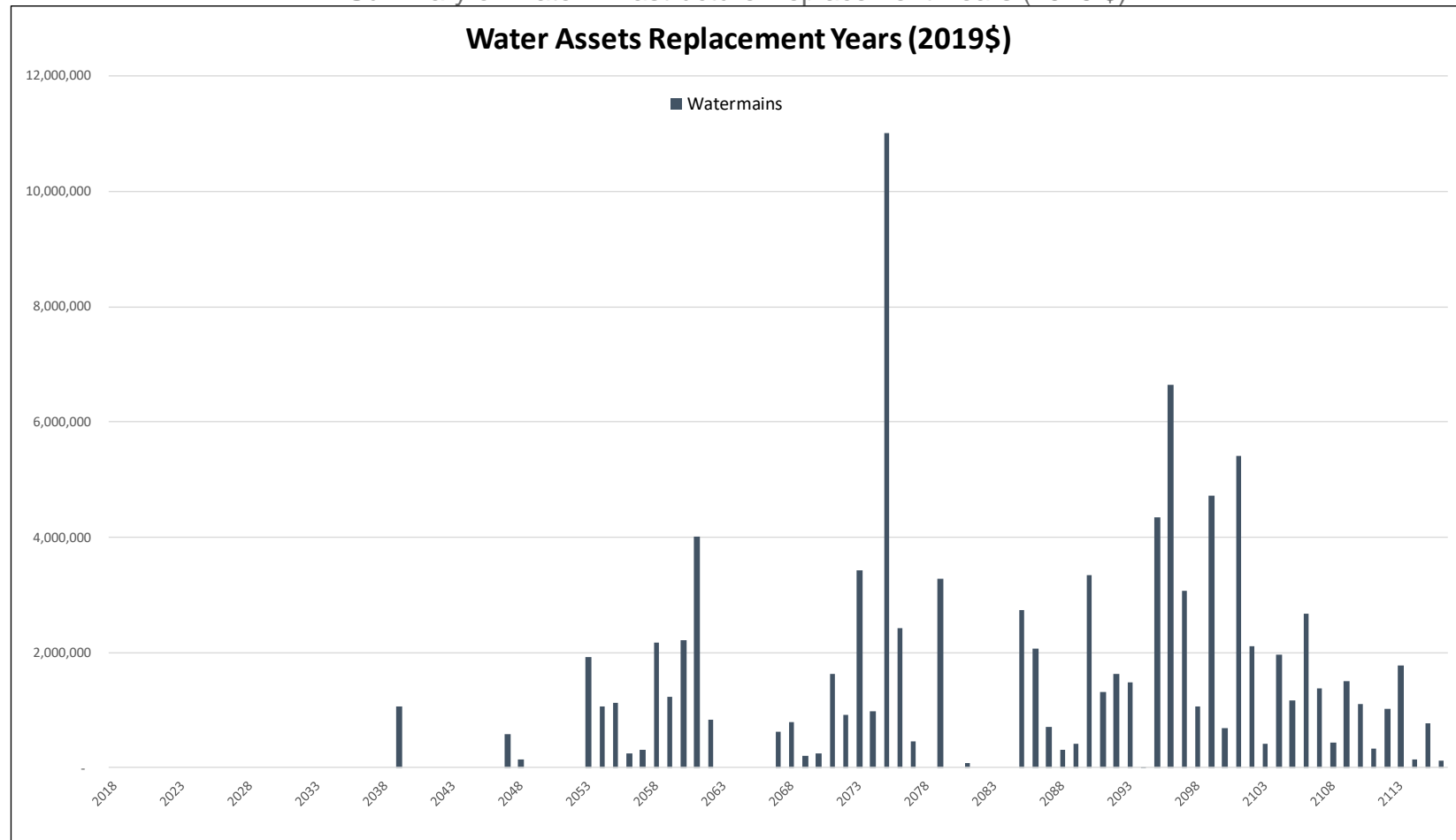




Figure 3-6
Town of Kingsville
Summary of Wastewater Infrastructure Replacement Years (2019 \$)
Cottam

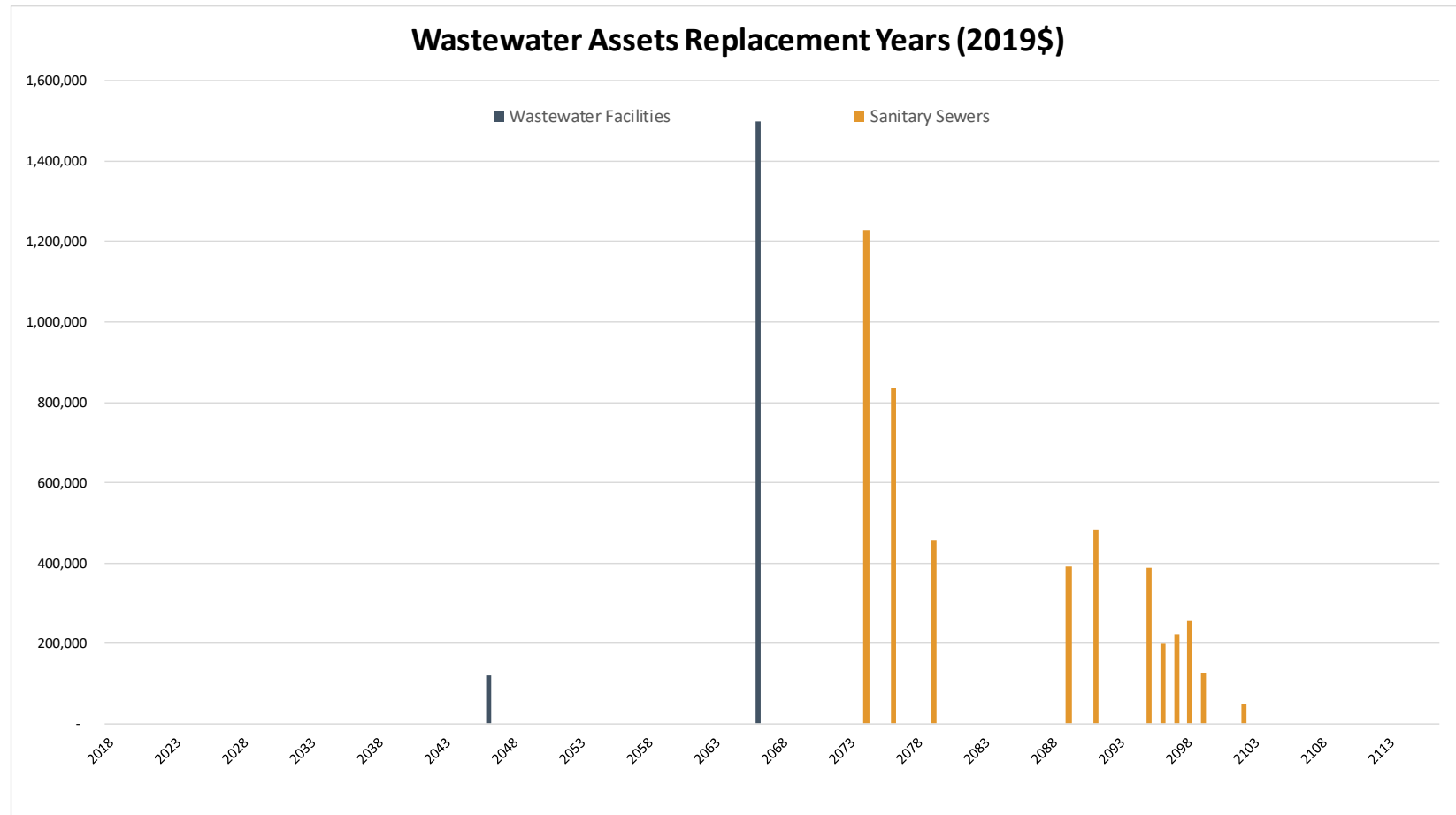
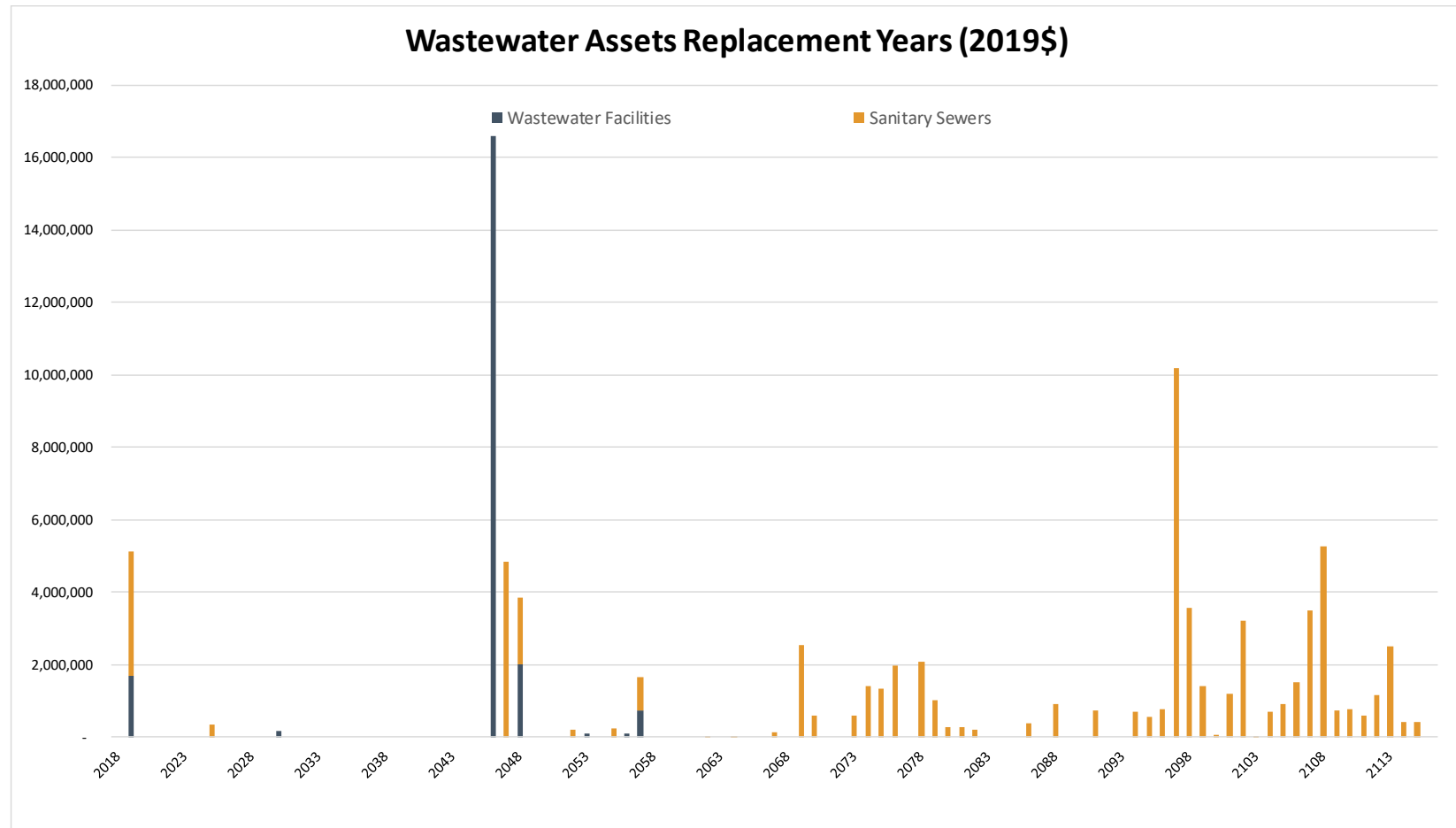




Figure 3-7
Town of Kingsville
Summary of Wastewater Infrastructure Replacement Years (2019 \$)
Kingsville/Lakeshore West





Chapter 4

Capital Cost Financing Options



4. Capital Cost Financing Options

4.1 Summary of Capital Cost Financing Alternatives

Historically, the powers that municipalities had to raise alternative revenues to taxation to fund capital services have been restrictive. Over the past decade, legislative reforms have been introduced. Some of these have expanded municipal powers (e.g. Bill 26 introduced in 1996 to provide for expanded powers for imposing fees and charges), while others appear to restrict them (Bill 98 in 1997 providing amendments to the D.C.A.).

The Province passed a new *Municipal Act* which came into force on January 1, 2003. Part XII of the Act and O.Reg. 584/06 govern a municipality's ability to impose fees and charges. In contrast to the previous *Municipal Act*, this Act provides municipalities with broadly defined powers and does not differentiate between fees for operating and capital purposes. It is anticipated that the powers to recover capital costs under the previous *Municipal Act* will continue within the new Statutes and Regulations, as indicated by s.9(2) and s.452 of the new *Municipal Act*.

Under s.484 of *Municipal Act, 2001*, the *Local Improvement Act* was repealed with the in-force date of the *Municipal Act* (January 1, 2003). The municipal powers granted under the *Local Improvement Act* now fall under the jurisdiction of the *Municipal Act*. To this end, on December 20, 2002, O.Reg. 390/02 was filed, which allowed for the *Local Improvement Act* to be deemed to remain in force until April 1, 2003. O.Reg. 119/03 was enacted on April 19, 2003, which restored many of the previous *Local Improvement Act* provisions; however, the authority is now provided under the *Municipal Act*.

The methods of capital cost recovery available to municipalities are provided as follows:

Recovery Methods	Section Reference
• <i>Development Charges Act, 1997</i>	4.2
• <i>Municipal Act</i>	4.3
○ Fees and Charges	
○ Sewer and Water Area Charges	
○ Connection Fees	
○ Local Improvements	



Recovery Methods

Section Reference

- | | |
|--|-----|
| • <i>Grant Funding</i> | 4.4 |
| • <i>Existing Reserves/Reserve Funds</i> | 4.5 |
| • <i>Debenture Financing</i> | 4.6 |
| • <i>Infrastructure Ontario</i> | 4.7 |

4.2 Development Charges Act, 1997

In November 1996, the Ontario Government introduced Bill 98, a new *Development Charges Act*. The Province's stated intentions were to "create new construction jobs and make home ownership more affordable" by reducing the charges and to "make municipal Council decisions more accountable and more cost effective." The basis for this Act is to allow municipalities to recover the growth-related capital cost of infrastructure necessary to accommodate new growth within the municipality. Generally, the Act provided the following changes to the former Act:

- Replace those sections of the 1989 Act that govern municipal development charges;
- Limit services which can be financed from development charges, specifically excluding parkland acquisition, administration buildings, and cultural, entertainment, tourism, solid waste management and hospital facilities;
- Ensure that the level of service used in the calculation of capital costs will not exceed the average level of service over the previous decade. Level of service is to be measured from both a quality and quantity perspective;
- Provide that uncommitted excess capacity available in existing municipal facilities and benefits to existing residents are removed from the calculation of the charge;
- Ensure that the development charge revenues collected by municipalities are spent only on those capital costs identified in the calculation of the development charge;
- Require municipalities to contribute funds (e.g. taxes, user charges or other non-development charge revenues) to the financing of certain projects primarily funded from development charges. The municipal contribution is 10 percent for services such as recreation, parkland development, libraries, etc.;



- Permit (but apparently not require) municipalities to grant developers credits for the direct provision of services identified in the development charge calculation and, when credits are granted, require the municipality to reimburse the developer for the costs the municipality would have incurred if the project had been financed from the development charge reserve fund;
- Set out provisions for front-end financing capital projects (limited to essential services) required to service new development; and
- Set out provisions for appeals and complaints.

In late 2015, the Province approved further amendments to the D.C.A. With respect to water and wastewater, the only changes are for the municipality to provide an asset management calculation for the growth-related works and for the Council to consider (but not necessarily approve) area-specific rates.

4.3 Municipal Act

Part XII of the *Municipal Act* provides municipalities with broad powers to impose fees and charges via passage of a by-law. These powers, as presented in s.391(1), include imposing fees or charges:

- “for services or activities provided or done by or on behalf of it;
- for costs payable by it for services or activities provided or done by or on behalf of any other municipality or local board; and
- for the use of its property including property under its control.”

Restrictions are provided to ensure that the form of the charge is not akin to a poll tax. Any charges not paid under this authority may be added to the tax roll and collected in a like manner. The fees and charges imposed under this part are not appealable to the Local Planning Appeal Tribunal (L.P.A.T., formerly known as the O.M.B.).

Section 221 of the previous *Municipal Act* permitted municipalities to impose charges, by by-law, on owners or occupants of land who would or might derive benefit from the construction of sewage (storm and sanitary) or water works being authorized (in a specific benefit area). For a by-law imposed under this section of the previous Act:



- A variety of different means could be used to establish the rate and recovery of the costs and could be imposed by a number of methods at the discretion of Council (i.e. lot size, frontage, number of benefiting properties, etc.);
- Rates could be imposed with respect to costs of major capital works, even though an immediate benefit was not enjoyed;
- Non-abutting owners could be charged;
- Recovery was authorized against existing works, where a new water or sewer main was added to such works, "notwithstanding that the capital costs of existing works has in whole or in part been paid;"
- Charges on individual parcels could be deferred;
- Exemptions could be established;
- Repayment was secured; and
- L.P.A.T. approval was not required.

While under the new *Municipal Act* no provisions are provided specific to the previous s.221, the intent to allow capital cost recovery through fees and charges is embraced within s.391. The new *Municipal Act* also maintains the ability of municipalities to impose capital charges for water and sewer services on landowners not receiving an immediate benefit from the works. Under s.391(2) of the Act, "a fee or charge imposed under subsection (1) for capital costs related to sewage or water services or activities may be imposed on persons not receiving an immediate benefit from the services or activities but who will receive a benefit at some later point in time." Also, capital charges imposed under s.391 are not appealable to the L.P.A.T. on the grounds that the charges are "unfair or unjust."

Section 222 of the previous *Municipal Act* permitted municipalities to pass a by-law requiring buildings to connect to the municipality's sewer and water systems, charging the owner for the cost of constructing services from the mains to the property line. Under the new *Municipal Act*, this power still exists under Part II, General Municipal Powers (s.9 (3) b of the *Municipal Act*). Enforcement and penalties for this use of power are contained in s.427 (1) of the *Municipal Act*.



Under the previous *Local Improvement Act*:

- A variety of different types of works could be undertaken, such as watermain, storm and sanitary sewer projects, supply of electrical light or power, bridge construction, sidewalks, road widening and paving;
- Council could pass a by-law for undertaking such work on petition of a majority of benefiting taxpayers, on a 2/3 vote of Council and on sanitary grounds, based on the recommendation of the Minister of Health. The by-law was required to go to the L.P.A.T., which might hold hearings and alter the by-law, particularly if there were objections;
- The entire cost of a work was assessed only upon the lots abutting directly on the work, according to the extent of their respective frontages, using an equal special rate per metre of frontage; and
- As noted, this Act was repealed as of April 1, 2003; however, O.Reg. 119/03 was enacted on April 19, 2003 which restores many of the previous *Local Improvement Act* provisions; however, the authority is now provided under the *Municipal Act*.

4.4 Grant Funding Availability

Federal Infrastructure Funding

Phase 1 (April 1, 2016 to March 31, 2018)

Funding was provided by the Government of Canada to expressly help municipalities with repair and rehabilitation projects. Funding was mainly provided through the Clean Water and Wastewater Fund (C.W.W.F.) and Public Transit Infrastructure Fund (P.T.I.F.) in Federal Phase 1 projects. The C.W.W.F. was announced in Ontario on September 15, 2016. The Fund is \$1.1 billion for water, wastewater, and storm water systems in Ontario. The federal government provided \$569 million and Ontario and municipal governments provided \$275 million each.

Over 1,300 water, wastewater, and storm water projects have been approved in Ontario through the C.W.W.F. In Ontario, P.T.I.F. accounted for nearly \$1.5 billion of the national total of \$3.4 billion. The program was allocated by ridership numbers from the Canadian Urban Transit Association. The Association of Municipalities of Ontario (A.M.O.) understands that \$1 billion of Ontario's share has been approved.



Phase 2: Next Steps

The federal government announced Phase 2 of its infrastructure funding plan with a total of \$180 billion spent over 11 years. In addition to the balance of funding for previous green, social, and public transit infrastructure funds (\$20 billion each, including Phase 1), the government has added \$10.1 billion for trade and transportation infrastructure and \$2 billion for rural and northern communities.

In Phase 2, Ontario will be eligible for \$11.8 billion including \$8.3 billion for transit, \$2.8 billion for green infrastructure, \$407 million for community, culture and recreation and \$250 million for rural and northern communities.

Federal Gas Tax

The federal Gas Tax is a permanent source of funding provided up front, twice-a-year, to Provinces and Territories, who in turn flow this funding to their municipalities to support local infrastructure priorities. Municipalities can pool, bank and borrow against this funding, providing significant financial flexibility. Every year, the federal Gas Tax provides over \$2 billion and supports approximately 2,500 projects in communities across Canada. Each municipality selects how best to direct the funds with the flexibility provided to make strategic investments across 18 different project categories, which include other water and wastewater servicing.

Ontario Government

The Province has taken steps to increase municipal infrastructure funding. The Ontario Community Infrastructure Fund (O.C.I.F.) was increased in 2016 with formula-based support growing to \$200 million, and application funding growing to \$100 million annually by 2018/2019. As well, \$15 million annually will go to the new Connecting Links program to help pay for the construction and repair costs of municipal roads that connect communities to provincial highways. This is on top of the Building Ontario Up investment of \$130 billion in public infrastructure over 10 years starting in 2015.

4.5 Existing Reserves/Reserve Funds

The Town has established reserves and reserve funds for water and wastewater costs. The following table summarizes the water and wastewater reserves and reserve funds



utilized in this analysis as well as their respective estimated balances at December 31, 2018:

Reserve	Estimated Dec. 31 2018
Water	
Working Capital Reserve	522,156
Development Charges Reserve Fund	310,673
MOE Reserves - GS	59,278
Future Waterline Maintenance Reserve	2,047,019
Meter Changeout Reserve	25,000
Equipment Reserve	51,559
Wastewater - Cottam	
Working Capital Reserve	(1,219,041)
Equipment Reserve	7,500
Wastewater - Kingsville & Lakeshore West	
Working Capital Reserve	297,584
Capital Connection Charges Reserve	187,811
Equipment Reserve	124,916
Sewer Capital Reserve	890,383
Wastewater Development Charges	
Development Charges Reserve Fund	353,729

4.6 Debenture Financing

Although it is not a direct method of minimizing the overall cost to the ratepayer, debentures are used by municipalities to assist in cash-flowing large capital expenditures.

The Ministry of Municipal Affairs regulates the level of debt incurred by Ontario municipalities, through its powers established under the *Municipal Act*. Ontario Regulation 403/02 provides the current rules respecting municipal debt and financial obligations. Through the rules established under these regulations, a municipality's debt capacity is capped at a level where no more than 25% of the municipality's own purpose revenue may be allotted for servicing the debt (i.e. debt charges). The Town of Kingsville's 2017 calculation on Debt Capacity is shown on Schedule 81 of the Town's most recent Financial Information Return (F.I.R.). This calculates to the Town's estimated annual repayment limit of approximately \$4.97 million. Based upon 10-year financing at an assumed rate of 3.5%, the available debt for the Town is approximately \$41.4 million.



4.7 Infrastructure Ontario

Infrastructure Ontario (I.O.) is an arms-length crown corporation, which has been set up as a tool to offer low-cost and longer-term financing to assist municipalities in renewing their infrastructure (this corporation has merged the former O.S.I.F.A. into its operations). I.O. combines the infrastructure renewal needs of municipalities into an infrastructure investment “pool.” I.O. will raise investment capital to finance loans to the public sector by selling a new investment product called Infrastructure Renewal Bonds to individual and institutional investors.

I.O. provides access to infrastructure capital that would not otherwise be available to smaller borrowers. Larger borrowers receive a longer term on their loans than they could obtain in the financial markets and can also benefit from significant savings on transaction costs such as legal costs and underwriting commissions. Under the I.O. approach, all borrowers receive the same low interest rate. I.O. will enter into a financial agreement with each municipality subject to technical and credit reviews, for a loan up to the maximum amount of the loan request.

The first round of the former O.S.I.F.A.’s 2004/2005 infrastructure renewal program was focused on municipal priorities of clean water infrastructure, sewage treatment facilities, municipal roads and bridges, public transit and waste management infrastructure. The focus of the program was expanded in 2005/2006 somewhat to include:

- clean water infrastructure;
- sewage infrastructure;
- waste management infrastructure;
- municipal roads and bridges;
- public transit;
- municipal long-term care homes;
- renewal of municipal social housing and culture; and
- tourism and recreation infrastructure.

With the merging of O.S.I.F.A. and I.O., the program was broadened in late 2006 to also include municipal administrative buildings, local police and fire stations, emergency vehicles and equipment, ferries, docks and municipal airports.



To be eligible to receive these loans, municipalities must submit a formal application along with pertinent financial information. Allotments are prioritized and distributed based upon the Province's assessment of need.

The analysis provided herein assumes that the Town will require debt financing for capital projects identified. The interest rate and term utilized for debenture calculations is 4% and 20 years based on discussions with Town staff.

4.8 Recommended Capital Financing Approach

Of the various funding alternatives provided in this section, the following are recommended for further consideration by the Town of Kingsville for the capital expenditures (inflated) provided in Chapter 2:

Description	Water 2019-2028	Wastewater - Cottam 2019-2028	Wastewater - Kingsville/Lakeshore West 2019-2028
Capital Financing			
Provincial/Federal Grants	-	-	-
Development Charges Reserve Fund	3,763,250	929,000	3,003,200
Non-Growth Related Debenture Requirements	-	-	1,100,000
Growth Related Debenture Requirements	13,000,000	3,000,000	6,300,000
Operating Contributions	-	-	-
Water/Wastewater Reserves	6,168,750	335,000	5,644,800
Total Capital Financing	22,932,000	4,264,000	16,048,000

Tables 4-1, 4-2, and 4-3 provide for the full capital expenditure and funding program by year for water and wastewater (Cottam and Kingsville/Lakeshore West), respectively.



Table 4-1
Town of Kingsville
Capital Budget Forecast – Water (inflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
Ruthven Industrial Park Oversizing within Development	-	-	-	-	-	-	-	-	-	-	-
Source Water Protection (Year 3 of 3)	-	-	-	-	-	-	-	-	-	-	-
Waterline Looping Cedar Island (2 Canal Crossings)	-	-	-	-	-	-	-	-	-	-	-
Water Rate Study/Financial Plan	-	-	-	-	-	-	-	-	-	-	-
Water Distribution Master Plan	-	-	-	-	-	-	-	-	-	-	-
SW Region Class EA	-	-	-	-	-	-	-	-	-	-	-
Road 11 W - Hydrants	-	-	-	-	-	-	-	-	-	-	-
County Rd 18 - Watermain Extension Oversizing	-	-	-	-	-	-	-	-	-	-	-
Fleet Replacement:	-	-	-	-	-	-	-	-	-	-	-
Fleet Replacement - 2004 Ford F-350 Extended Cab Service	-	-	-	-	-	-	-	-	-	-	-
2008 GMC Sierra 2500 HD 4x4	63,000	63,000	-	-	-	-	-	-	-	-	-
2006 Ford F-350 Extended Cab Service	65,000	-	65,000	-	-	-	-	-	-	-	-
2006 Ford F-350 Extended Cab Service	65,000	-	65,000	-	-	-	-	-	-	-	-
2010 Case 580SM Backhoe (water portion)	21,000	-	-	21,000	-	-	-	-	-	-	-
2010 Case 521E Loader (water portion)	16,000	-	-	16,000	-	-	-	-	-	-	-
2012 International Workstar Tandem Dump	155,000	-	-	-	-	155,000	-	-	-	-	-
2013 Ford F-150 4x4 extended cab	39,000	-	-	-	-	-	39,000	-	-	-	-
2012 Valve Exercising/Hydro-Excavation Trailer	85,000	-	-	-	-	-	-	85,000	-	-	-
New Fleet:	-	-	-	-	-	-	-	-	-	-	-
17-03 Ford F250 Pickup Truck with Cap	72,000	-	-	-	-	-	-	-	-	72,000	-
Growth Related:	-	-	-	-	-	-	-	-	-	-	-
SW Service Area Upgrade	-	-	-	-	-	-	-	-	-	-	-
Stage 1 - two 400mm watermain	5,401,000	450,000	4,951,000	-	-	-	-	-	-	-	-
Stage 2 - 400mm watermain	1,558,000	130,000	1,428,000	-	-	-	-	-	-	-	-
Stage 3 - 300mm watermain	1,802,000	-	133,000	1,669,000	-	-	-	-	-	-	-
Stage 4 - 1050mm trunk watermain twinning	4,797,000	-	-	-	-	-	-	353,000	4,444,000	-	-
Stage 5 - 600mm trunk watermain twinning	4,594,000	-	-	-	-	-	-	-	338,000	4,256,000	-
Stage 6 - 600mm trunk watermain twinning	4,199,000	-	-	-	-	-	-	-	-	309,000	3,890,000
Total Capital Expenditures	22,932,000	643,000	6,642,000	1,706,000	-	155,000	39,000	438,000	4,782,000	4,637,000	3,890,000
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	3,763,250	435,000	884,000	251,750	-	-	-	264,750	586,500	423,750	917,500
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	13,000,000	-	4,000,000	1,000,000	-	-	-	-	3,000,000	3,000,000	2,000,000
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
MOE Reserves - GS	-	-	-	-	-	-	-	-	-	-	-
Future Waterline Maintenance	5,587,750	145,000	1,628,000	417,250	-	-	-	88,250	1,195,500	1,141,250	972,500
Water Meter Changeout	-	-	-	-	-	-	-	-	-	-	-
Equipment	581,000	63,000	130,000	37,000	-	155,000	39,000	85,000	-	72,000	-
Water Reserve	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	22,932,000	643,000	6,642,000	1,706,000	-	155,000	39,000	438,000	4,782,000	4,637,000	3,890,000



Table 4-2
Cottam
Capital Budget Forecast – Wastewater (inflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:	-	-	-	-	-	-	-	-	-	-	-
Lagoon Interconnect Valve Replacement	-	-	-	-	-	-	-	-	-	-	-
Pump Station #1 pump station indoor refurbishing	-	-	-	-	-	-	-	-	-	-	-
Arc Flash Assessment	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Growth Related:	-	-	-	-	-	-	-	-	-	-	-
Cottam Sewage Lagoon - Phase 2 (Aeration Pond & Pond 3)	3,929,000	-	-	-	-	-	-	-	-	-	3,929,000
Total Capital Expenditures	4,264,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	3,966,000
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	929,000	-	-	-	-	-	-	-	-	-	929,000
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	3,000,000	-	-	-	-	-	-	-	-	-	3,000,000
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Cottam Equipment Reserve	-	-	-	-	-	-	-	-	-	-	-
Cottam Working Capital Reserve	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Total Capital Financing	4,264,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	3,966,000



Table 4-3
Kingsville/Lakeshore West
Capital Budget Forecast – Wastewater (inflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:	-	-	-	-	-	-	-	-	-	-	-
Lakeshore West WWTP	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance - Lakeshore West	3,997,000	365,000	372,000	380,000	388,000	395,000	403,000	411,000	419,000	428,000	436,000
Kingsville Wastewater Lagoons	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance - Kingsville Lagoons	357,000	33,000	33,000	34,000	35,000	35,000	36,000	37,000	37,000	38,000	39,000
Fleet Replacement:	-	-	-	-	-	-	-	-	-	-	-
2004 Kubota 32 HP Front Mount Lawnmower	69,000	26,000	-	-	-	7,000	7,000	7,000	7,000	7,000	8,000
1999 Daewoo Extended Boom Lifttruck	56,000	20,000	-	-	-	6,000	6,000	6,000	6,000	6,000	6,000
1997 International Dump	28,000	10,000	-	-	-	3,000	3,000	3,000	3,000	3,000	3,000
2012 Kubota Tractor	84,000	-	-	-	32,000	8,000	8,000	9,000	9,000	9,000	9,000
2013 Kioti Tractor CK20S	58,000	-	-	-	-	28,000	6,000	6,000	6,000	6,000	6,000
Growth Related:	-	-	-	-	-	-	-	-	-	-	-
Phase II Capacity Expansion Lakeshore West PCP	3,377,000	-	-	-	-	-	-	249,000	3,128,000	-	-
Kingsville PCP Lagoons Quality Upgrade	1,200,000	-	-	-	88,000	1,112,000	-	-	-	-	-
Wastewater Master Plan	-	-	-	-	-	-	-	-	-	-	-
Ruthven PS Upgrade	562,000	-	-	-	-	41,000	521,000	-	-	-	-
LSE Trunk Sewer & PS	4,111,000	-	4,111,000	-	-	-	-	-	-	-	-
Lakeside Park Sanitary Sewer Twinning	2,149,000	158,000	1,991,000	-	-	-	-	-	-	-	-
Total Capital Expenditures	16,048,000	612,000	6,507,000	414,000	543,000	1,635,000	990,000	728,000	3,615,000	497,000	507,000
Capital Financing											
Provincial/Federal Grants	-	-	-	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	3,003,200	142,200	575,150	-	44,000	590,850	442,850	236,550	971,600	-	-
Non-Growth Related Debenture Requirements	1,100,000	-	500,000	-	-	300,000	-	-	300,000	-	-
Growth Related Debenture Requirements	6,300,000	-	4,300,000	-	-	-	-	-	2,000,000	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Capital Connection Charges Reserve	-	-	-	-	-	-	-	-	-	-	-
Equipment Reserve	444,000	78,000	12,000	11,000	43,000	67,000	45,000	46,000	47,000	47,000	48,000
Sewer Capital Reserve	5,200,800	391,800	1,119,850	403,000	456,000	677,150	502,150	445,450	296,400	450,000	459,000
Working Capital Reserve	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	16,048,000	612,000	6,507,000	414,000	543,000	1,635,000	990,000	728,000	3,615,000	497,000	507,000



Chapter 5

Overview of Expenditures and Revenues



5. Overview of Expenditures and Revenues

5.1 Water Operating Expenditures

In this report, the forecast water budget figures (2019 to 2028) are based on the 2018 operating budgets. The costs for each component of the operating budget have been reviewed with staff to establish forecast inflationary adjustments. Most of the expenditures have been assumed to increase at a rate of 2% annually based on the Town's budget estimates. Operating expenditures that involve utilities have been inflated by 5% annually and increases in rates for purchased water from Union Water Supply System have been provided at 2% for 2019 then 4% thereafter. Note that annual contributions have been provided to the capital reserves in order to minimize the need for additional debt to finance the capital program. Also included are any debenture expenditures and contributions to reserve funds.

5.2 Water Operating Revenues

The Town has base charges and miscellaneous revenue sources to help contribute towards operating expenditures. These miscellaneous revenues, including penalties and interest, fee revenue, investment income, and other fees have been assumed to increase at 2% annually over the forecast period. Table 5-1 provides for the operating budget for the water system.



Table 5-1
Operating Budget Forecast – Water (inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Salaries - Full Time	546,200	557,100	568,200	579,600	591,200	603,000	615,100	627,400	639,900	652,700
Salaries - Overtime	14,500	14,800	15,100	15,400	15,700	16,000	16,300	16,600	16,900	17,200
Salaries - Student	10,500	10,700	10,900	11,100	11,300	11,500	11,700	11,900	12,100	12,300
Committee Honorarium	12,300	12,500	12,800	13,100	13,400	13,700	14,000	14,300	14,600	14,900
Vehicle Expense	-	-	-	-	-	-	-	-	-	-
Benefits - EI	9,700	9,900	10,100	10,300	10,500	10,700	10,900	11,100	11,300	11,500
Benefits - CPP	21,500	21,900	22,300	22,700	23,200	23,700	24,200	24,700	25,200	25,700
Benefits - EHT	11,400	11,600	11,800	12,000	12,200	12,400	12,600	12,900	13,200	13,500
Benefits - OMERS	55,300	56,400	57,500	58,700	59,900	61,100	62,300	63,500	64,800	66,100
Benefits - Health Coverage	70,600	72,000	73,400	74,900	76,400	77,900	79,500	81,100	82,700	84,400
Benefits - WSIB	11,800	12,000	12,200	12,400	12,600	12,900	13,200	13,500	13,800	14,100
Benefits - Uniforms	5,600	5,700	5,800	5,900	6,000	6,100	6,200	6,300	6,400	6,500
Benefits - Meal Allowance	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Benefits - Eyeglasses	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
Benefits - Ortho	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Training & Development	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Office Supplies	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
Computer Supplies	500	500	500	500	500	500	500	500	500	500
Postage Supplies	30,600	31,200	31,800	32,400	33,000	33,700	34,400	35,100	35,800	36,500
Courier & Express	500	500	500	500	500	500	500	500	500	500
Advertising	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
Computer Maintenance	500	500	500	500	500	500	500	500	500	500
Computer Consultants	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
General Insurance	23,700	24,200	24,700	25,200	25,700	26,200	26,700	27,200	27,700	28,300
Utilities	-	-	-	-	-	-	-	-	-	-
Facility Maintenance	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Equipment Repair	17,300	17,600	18,000	18,400	18,800	19,200	19,600	20,000	20,400	20,800
Miscellaneous	500	500	500	500	500	500	500	500	500	500
Equipment Rental	500	500	500	500	500	500	500	500	500	500
Professional Svc (Legal Audits)	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400	4,500
Membership & Subscription	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
Write offs	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Professional Fees (Engineering)	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
Communication	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
Shop Supplies	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Fuel & Oil	23,100	24,300	25,500	26,800	28,100	29,500	31,000	32,600	34,200	35,900
Licences & Permits	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000	6,100	6,200
Safety Supplies	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
Small Tools	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
Mileage	500	500	500	500	500	500	500	500	500	500
Curb Stop Repairs	9,700	9,900	10,100	10,300	10,500	10,700	10,900	11,100	11,300	11,500
Back Flow Program	25,500	26,000	26,500	27,000	27,500	28,100	28,700	29,300	29,900	30,500
Road Repair / Restoration	17,900	18,300	18,700	19,100	19,500	19,900	20,300	20,700	21,100	21,500
Meter Reading Expense	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
Water Purchases - Estimated	3,902,000	4,072,000	4,250,000	4,435,000	4,626,000	4,825,000	5,032,000	5,249,000	5,475,000	5,710,000
Water Meters	56,100	57,200	58,300	59,500	60,700	61,900	63,100	64,400	65,700	67,000
Water Meter Maintenance	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Water Locates	7,700	7,900	8,100	8,300	8,500	8,700	8,900	9,100	9,300	9,500
Water Service Connections	61,200	62,400	63,600	64,900	66,200	67,500	68,900	70,300	71,700	73,100
Watermain Line Breaks	45,900	46,800	47,700	48,700	49,700	50,700	51,700	52,700	53,800	54,900
Water Line Maintenance	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Hydrant Maintenance	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800	24,300
Property Taxes	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900
Program Support Costs	198,800	202,800	206,900	211,000	215,200	219,500	223,900	228,400	233,000	237,700
Sub Total Operating	5,307,300	5,505,900	5,713,000	5,928,000	6,149,400	6,379,500	6,618,300	6,867,800	7,126,800	7,395,800



Table 5-1 (Cont'd)
Operating Budget Forecast – Water (inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital-Related										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)	-	-	134,327	173,282	180,213	187,422	194,918	202,715	311,569	424,777
New Growth Related Debt (Interest)	-	-	160,000	194,627	187,696	180,487	172,990	165,194	277,085	384,622
Existing Debt (Principal) - Non-Growth Related										
Existing Debt (Interest) - Non-Growth Related										
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to DC Reserve Fund (from Waterline Maintenance)	-	397,444	155,139	-	-	-	165,881	542,502	600,574	1,301,778
Transfer to Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Transfer to MOE Reserves - GS	-	-	-	-	-	-	-	-	-	-
Transfer to Future Waterline Maintenance Reserve	846,986	891,025	931,803	968,553	1,002,846	1,034,469	1,063,702	1,088,953	1,169,571	1,248,009
Transfer to Water Meter Changeout Reserve	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Transfer to Water Equipment Reserve	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000
Sub Total Capital Related	946,986	1,388,469	1,481,269	1,436,462	1,470,754	1,502,378	1,697,492	2,099,363	2,458,799	3,459,187
Total Expenditures	6,254,286	6,894,369	7,194,269	7,364,462	7,620,154	7,881,878	8,315,792	8,967,163	9,585,599	10,854,987
Revenues										
Base Charge	664,588	715,765	770,884	830,246	894,175	963,027	1,037,179	1,117,042	1,203,054	1,295,723
Other Revenue										
Service Connection Installation	51,000	52,000	53,000	54,100	55,200	56,300	57,400	58,500	59,700	60,900
Meter Installation/ Maintenance	7,100	7,200	7,300	7,400	7,500	7,700	7,900	8,100	8,300	8,500
Extra Charges	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
Recovered Wages	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000
Account Set-up Fees	14,300	14,600	14,900	15,200	15,500	15,800	16,100	16,400	16,700	17,000
Watermain Dev. Review	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Water Meter Sales	22,400	22,800	23,300	23,800	24,300	24,800	25,300	25,800	26,300	26,800
Miscellaneous Revenue	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Penalties & Interest	14,300	14,600	14,900	15,200	15,500	15,800	16,100	16,400	16,700	17,000
Investment Income	-	-	-	-	-	-	-	-	-	-
Contributions from Development Charges Reserve Fund	-	-	294,327	367,909	367,909	367,909	367,909	367,909	588,654	809,399
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from MOE Reserves - GS	-	-	-	-	-	-	-	-	-	-
Contributions from Future Waterline Maintenance Reserve (for DC Reserve Fund Interim Financing)	-	397,444	155,139	-	-	-	165,881	542,502	600,574	1,301,778
Contributions from Future Waterline Maintenance Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Water Meter Changeout Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Water Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	783,388	1,234,309	1,343,850	1,324,155	1,390,584	1,462,035	1,704,669	2,163,753	2,531,282	3,548,600
Water Billing Recovery - Total	5,470,898	5,660,060	5,850,419	6,040,306	6,229,570	6,419,843	6,611,123	6,803,411	7,054,317	7,306,386



5.3 Wastewater Operating Expenditures

The wastewater operating expenditures have been adjusted over the forecast period by an annual inflationary factor of 2.0% based on the Town's budget estimates. Also included are contributions to the reserves.

Cottam

The transfer to the Working Capital Reserve has been derived to decrease the current deficit over the 10-year forecast period. Operating expenditures are the same in both rate structure options; the current structure (residential pays only a fixed monthly charge and non-residential pays only a variable rate) and the alternative structure (non-residential continues to pay only a variable rate, residential pays monthly base charge and variable rate). A lifecycle contribution made to the Working Capital Reserve is utilized to balance the rates for each rate structure and to build up the reserve for future capital expenditures.

Kingsville/Lakeshore West

Transfers to the D.C. reserve fund are provided for the interim financing requirements over the forecast period. Operating expenditures are the same in both rate structure options; the current structure (residential pays only a fixed monthly charge and non-residential pays only a variable rate) and the alternative structure (non-residential continues to pay only a variable rate, residential pays monthly base charge and a variable rate). A lifecycle contribution made to the Sewer Capital Reserve is utilized to balance the rates for each rate structure and to build up the reserve for future capital expenditures.

5.4 Wastewater Operating Revenues

Under the current rate structure, the operating revenue for the wastewater program comes mainly from base charges from residential users and from volumetric revenue from non-residential customers. A small amount of revenue is also generated from penalties and interest, and other miscellaneous revenue. Tables 5-2 through 5-5 outline



the operating budget for the Town's wastewater system for Cottam and Kingsville/Lakeshore West, respectively.



Table 5-2
Cottam – Current Rate Structure (Fixed Monthly Charge)
Operating Budget Forecast – Wastewater (inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Utilities	11,800	12,400	13,000	13,700	14,400	15,100	15,900	16,700	17,500	18,400
Write Offs	-	-	-	-	-	-	-	-	-	-
Communication Expense	600	600	600	600	600	600	600	600	600	600
Property Taxes	8,900	9,100	9,300	9,500	9,700	9,900	10,100	10,300	10,500	10,700
Sewer Service Connection	-	-	-	-	-	-	-	-	-	-
Sanitary Backwater Valve Program	-	-	-	-	-	-	-	-	-	-
OCWA Billing	72,400	73,800	75,300	76,800	78,300	79,900	81,500	83,100	84,800	86,500
OCWA Billing (Lagoon Batch Treatment 2-43)	-	-	-	-	-	-	-	-	-	-
Sewer Flush & Mtce (Sanitary)	6,100	6,200	6,300	6,400	6,500	6,600	6,700	6,800	6,900	7,000
Cottam System Repairs	-	-	-	-	-	-	-	-	-	-
Sub Total Operating	99,800	102,100	104,500	107,000	109,500	112,100	114,800	117,500	120,300	123,200
Capital-Related										
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Transfer to Working Capital Reserve	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Sub Total Capital Related	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Total Expenditures	192,657	197,570	202,602	196,756	213,035	218,441	223,978	229,649	235,456	242,233
Revenues										
Base Charge	201,822	212,001	222,689	233,893	245,688	258,082	271,084	284,699	299,007	315,073
Penalties & Interest	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-
Contributions from Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	203,022	213,201	223,889	235,093	246,888	259,282	272,284	285,899	300,207	316,273
Wastewater Billing Recovery - Operating	(10,365)	(15,631)	(21,287)	(38,337)	(33,853)	(40,841)	(48,305)	(56,250)	(64,751)	(74,040)
Lifecycle Contribution (\$)	18,821	24,467	30,527	47,982	43,903	51,363	59,300	67,717	76,757	86,586
Wastewater Billing Recovery - Total	8,456	8,836	9,241	9,645	10,050	10,522	10,994	11,467	12,006	12,546



Table 5-3
Cottam – Alternative Rate Structure (Base Charge and Variable Rate)
Operating Budget Forecast – Wastewater (inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Utilities	11,800	12,400	13,000	13,700	14,400	15,100	15,900	16,700	17,500	18,400
Write Offs	-	-	-	-	-	-	-	-	-	-
Communication Expense	600	600	600	600	600	600	600	600	600	600
Property Taxes	8,900	9,100	9,300	9,500	9,700	9,900	10,100	10,300	10,500	10,700
Sewer Service Connection	-	-	-	-	-	-	-	-	-	-
Sanitary Backwater Valve Program	-	-	-	-	-	-	-	-	-	-
OCWA Billing	72,400	73,800	75,300	76,800	78,300	79,900	81,500	83,100	84,800	86,500
OCWA Billing (Lagoon Batch Treatment 2-43)	-	-	-	-	-	-	-	-	-	-
Sewer Flush & Mtce (Sanitary)	6,100	6,200	6,300	6,400	6,500	6,600	6,700	6,800	6,900	7,000
Cottam System Repairs	-	-	-	-	-	-	-	-	-	-
Sub Total Operating	99,800	102,100	104,500	107,000	109,500	112,100	114,800	117,500	120,300	123,200
Capital-Related										
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Transfer to Working Capital Reserve (Deficit Reduction)	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Sub Total Capital Related	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Total Expenditures	192,657	197,570	202,602	196,756	213,035	218,441	223,978	229,649	235,456	242,233
Revenues										
Base Charge	170,400	173,013	175,644	178,362	181,099	183,855	186,629	189,493	192,376	195,935
Non-residential and Greenhouse Rate Revenue	8,634	8,971	9,308	9,713	10,118	10,522	10,927	11,332	11,804	12,276
Penalties & Interest	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-
Contributions from Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	180,234	183,184	186,152	189,275	192,417	195,577	198,756	202,025	205,380	209,411
Wastewater Billing Recovery - Operating	12,423	14,386	16,450	7,481	20,618	22,864	25,222	27,624	30,076	32,822
Lifecycle Contribution (\$)	23,319	26,896	31,213	47,613	42,970	50,543	59,600	66,043	73,397	81,430
Wastewater Billing Recovery - Total	35,742	41,282	47,663	55,094	63,588	73,408	84,822	93,667	103,473	114,251



Table 5-4
Kingsville/Lakeshore West
Current Rate Structure (Fixed Monthly Charge)
Operating Budget Forecast – Wastewater (inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Salaries - Full Time	62,800	64,100	65,400	66,700	68,000	69,400	70,800	72,200	73,600	75,100
Salaries - Overtime	-	-	-	-	-	-	-	-	-	-
Vehicle Expense	-	-	-	-	-	-	-	-	-	-
Benefits - EI	900	900	900	900	900	900	900	900	900	900
Benefits - CPP	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Benefits - EHT	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Benefits - OMERS	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500	7,600	7,700
Benefits - Health Coverage	4,600	4,700	4,800	4,900	5,000	5,100	5,200	5,300	5,400	5,500
Benefits - WSIB	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Training & Development	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Courier Expense	100	100	100	100	100	100	100	100	100	100
Advertising	300	300	300	300	300	300	300	300	300	300
Utilities	299,300	314,300	330,000	346,500	363,800	382,000	401,100	421,200	442,300	464,400
Facility Maintenance	500	500	500	500	500	500	500	500	500	500
Equipment Repair & Mice	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
Miscellaneous	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Professional Svcs (Legal Audits)	-	-	-	-	-	-	-	-	-	-
Membership & Subscription	300	300	300	300	300	300	300	300	300	300
Write Offs	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Professional Fees	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Sewer Report	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Licences Permits & Certification	500	500	500	500	500	500	500	500	500	500
Safety Supplies	500	500	500	500	500	500	500	500	500	500
Waste Disposal	-	-	-	-	-	-	-	-	-	-
Sewer Locates	-	-	-	-	-	-	-	-	-	-
Property Taxes	39,300	40,100	40,900	41,700	42,500	43,400	44,300	45,200	46,100	47,000
OCWA Billing	989,400	1,009,200	1,029,400	1,050,000	1,071,000	1,092,400	1,114,200	1,136,500	1,159,200	1,182,400
OCWA Billing Lagoons (Batch Treat 2-42)	-	-	-	-	-	-	-	-	-	-
Sewer Flush & Mice (Sanitary)	35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800	42,600
Lakeshore West Repairs	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Sewer Service Connections	8,200	8,400	8,600	8,800	9,000	9,200	9,400	9,600	9,800	10,000
Sanitary Backwater Valve Program	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Storm Backwater Valve Program	-	-	-	-	-	-	-	-	-	-
Sub Total Operating	1,493,100	1,531,200	1,570,400	1,610,800	1,652,500	1,695,700	1,740,200	1,786,200	1,833,700	1,882,800
Capital-Related										
Existing Debt (Principal) - Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Growth Related	-	-	144,402	150,178	156,185	162,432	168,929	175,687	249,877	259,873
New Growth Related Debt (Principal)	-	-	172,000	166,224	160,217	153,969	147,472	140,715	213,688	203,692
Existing Debt (Principal) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
Existing Debt (Interest) - Non-Growth Related	-	-	16,791	17,463	18,161	28,962	30,120	31,325	42,653	44,359
New Non-Growth Related Debt (Principal)	-	-	20,000	19,328	18,630	29,903	28,745	27,540	38,287	36,581
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to DC Reserve Fund (From Sewer Capital)	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,894
Transfer to Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Connection Charge Reserve	22,397	22,968	23,556	24,162	24,788	25,436	26,103	26,793	27,506	28,242
Transfer to Equipment Reserve	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Transfer to Sewer Capital Reserve	223,965	169,833	235,560	241,620	247,875	254,355	261,030	267,930	275,055	282,420
Sub Total Capital Related	286,362	232,801	668,782	764,582	1,313,243	1,189,276	985,030	1,722,266	1,073,844	1,994,061
Total Expenditures	1,779,462	1,764,001	2,239,182	2,375,382	2,965,743	2,884,976	2,725,230	3,508,466	2,907,544	3,876,861
Revenues										
Base Charge	1,608,818	1,712,980	1,823,134	1,935,387	2,050,093	2,171,400	2,298,878	2,433,338	2,573,853	2,719,726
Misc. Revenue	510	520	530	540	550	560	570	580	590	600
Penalties & Interest	7,650	7,800	7,960	8,120	8,280	8,450	8,620	8,790	8,970	9,150
Contributions from Development Charges Reserve Fund	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Capital Connection Charge Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Sewer Capital Reserve (for DC Reserve Fund Interim Financing)	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,894
Contributions from Sewer Capital Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	1,616,978	1,721,300	2,164,500	2,366,056	3,022,712	2,991,031	2,907,100	3,771,386	3,233,757	4,291,935
Wastewater Billing Recovery - Operating	162,483	42,701	74,683	9,326	(56,969)	(106,054)	(181,870)	(262,920)	(326,213)	(415,074)
Lifecycle Contribution (\$)	249,201	385,489	370,583	453,671	538,355	606,814	702,660	804,397	889,362	1,000,881
Wastewater Billing Recovery - Total	411,685	428,191	445,266	462,997	481,386	500,760	520,790	541,477	563,149	585,807



Table 5-5
Kingsville/Lakeshore West
Alternative Rate Structure (Base Charge and Variable Rate)
Operating Budget Forecast – Wastewater (inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Salaries - Full Time	62,800	64,100	65,400	66,700	68,000	69,400	70,800	72,200	73,600	75,100
Salaries - Overtime	-	-	-	-	-	-	-	-	-	-
Vehicle Expense	-	-	-	-	-	-	-	-	-	-
Benefits - EI	900	900	900	900	900	900	900	900	900	900
Benefits - CPP	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Benefits - EHT	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Benefits - OMERS	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500	7,600	7,700
Benefits - Health Coverage	4,600	4,700	4,800	4,900	5,000	5,100	5,200	5,300	5,400	5,500
Benefits - WSIB	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Training & Development	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Courier Expense	100	100	100	100	100	100	100	100	100	100
Advertising	300	300	300	300	300	300	300	300	300	300
Utilities	299,300	314,300	330,000	346,500	363,800	382,000	401,100	421,200	442,300	464,400
Facility Maintenance	500	500	500	500	500	500	500	500	500	500
Equipment Repair & Mce	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
Miscellaneous	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Professional Svcs (Legal Audits)	-	-	-	-	-	-	-	-	-	-
Membership & Subscription	300	300	300	300	300	300	300	300	300	300
Write Offs	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Professional Fees	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Sewer Report	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Licences Permits & Certification	500	500	500	500	500	500	500	500	500	500
Safety Supplies	500	500	500	500	500	500	500	500	500	500
Waste Disposal	-	-	-	-	-	-	-	-	-	-
Sewer Locates	-	-	-	-	-	-	-	-	-	-
Property Taxes	39,300	40,100	40,900	41,700	42,500	43,400	44,300	45,200	46,100	47,000
OCWA Billing	989,400	1,009,200	1,029,400	1,050,000	1,071,000	1,092,400	1,114,200	1,136,500	1,159,200	1,182,400
OCWA Billing Lagoons(Batch Treat 2-42)	-	-	-	-	-	-	-	-	-	-
Sewer Flush & Mce (Sanitary)	35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800	42,600
Lakeshore West Repairs	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Sewer Service Connections	8,200	8,400	8,600	8,800	9,000	9,200	9,400	9,600	9,800	10,000
Sanitary Backwater Valve Program	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Storm Backwater Valve Program	-	-	-	-	-	-	-	-	-	-
Sub Total Operating	1,493,100	1,531,200	1,570,400	1,610,800	1,652,500	1,695,700	1,740,200	1,786,200	1,833,700	1,882,800
Capital-Related										
Existing Debt (Principal) - Growth Related	-	-	144,402	150,178	156,185	162,432	168,929	175,687	249,877	259,873
Existing Debt (Interest) - Growth Related	-	-	172,000	166,224	160,217	153,969	147,472	140,715	213,688	203,692
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	16,791	17,463	18,161	28,962	30,120	31,325	42,653	44,359
Existing Debt (Principal) - Non-Growth Related	-	-	20,000	19,328	18,630	29,903	28,745	27,540	38,287	36,581
Existing Debt (Interest) - Non-Growth Related	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to DC Reserve Fund (From Sewer Capital)	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,895
Transfer to Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Connection Charge Reserve	22,397	22,968	23,556	24,162	24,788	25,436	26,103	26,793	27,506	28,242
Transfer to Equipment Reserve	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Transfer to Sewer Capital Reserve	223,965	169,833	235,560	241,620	247,875	254,355	261,030	267,930	275,055	282,420
Sub Total Capital Related	286,362	232,801	668,782	764,582	1,313,243	1,189,276	985,030	1,722,266	1,073,844	1,994,062
Total Expenditures	1,779,462	1,764,001	2,239,182	2,375,382	2,965,743	2,884,976	2,725,230	3,508,466	2,907,544	3,876,862
Revenues										
Base Charge	1,398,000	1,459,926	1,523,770	1,586,706	1,648,603	1,712,304	1,777,841	1,845,249	1,914,209	1,984,324
Non-residential Variable Revenue	420,310	436,728	453,146	472,848	492,551	512,253	531,955	551,657	574,642	597,628
Misc. Revenue	510	520	530	540	550	560	570	580	590	600
Penalties & Interest	7,650	7,800	7,960	8,120	8,280	8,450	8,620	8,790	8,970	9,150
Contributions from Development Charges Reserve Fund	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Capital Connection Charge Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Sewer Capital Reserve (for DC Reserve Fund Interim Financing)	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,895
Contributions from Sewer Capital Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	1,826,470	1,904,974	2,318,282	2,490,224	3,113,773	3,044,187	2,918,017	3,734,953	3,148,756	4,154,162
Wastewater Billing Recovery - Operating	(47,008)	(140,973)	(79,099)	(114,842)	(148,031)	(159,211)	(192,788)	(226,487)	(241,211)	(277,300)
Lifecycle Contribution (\$)	279,719	414,650	400,067	491,095	587,702	673,337	766,935	867,546	957,268	1,076,313
Wastewater Billing Recovery - Total	232,711	273,677	320,968	376,254	439,672	514,126	574,147	641,059	716,057	799,013



Chapter 6

Pricing Structures

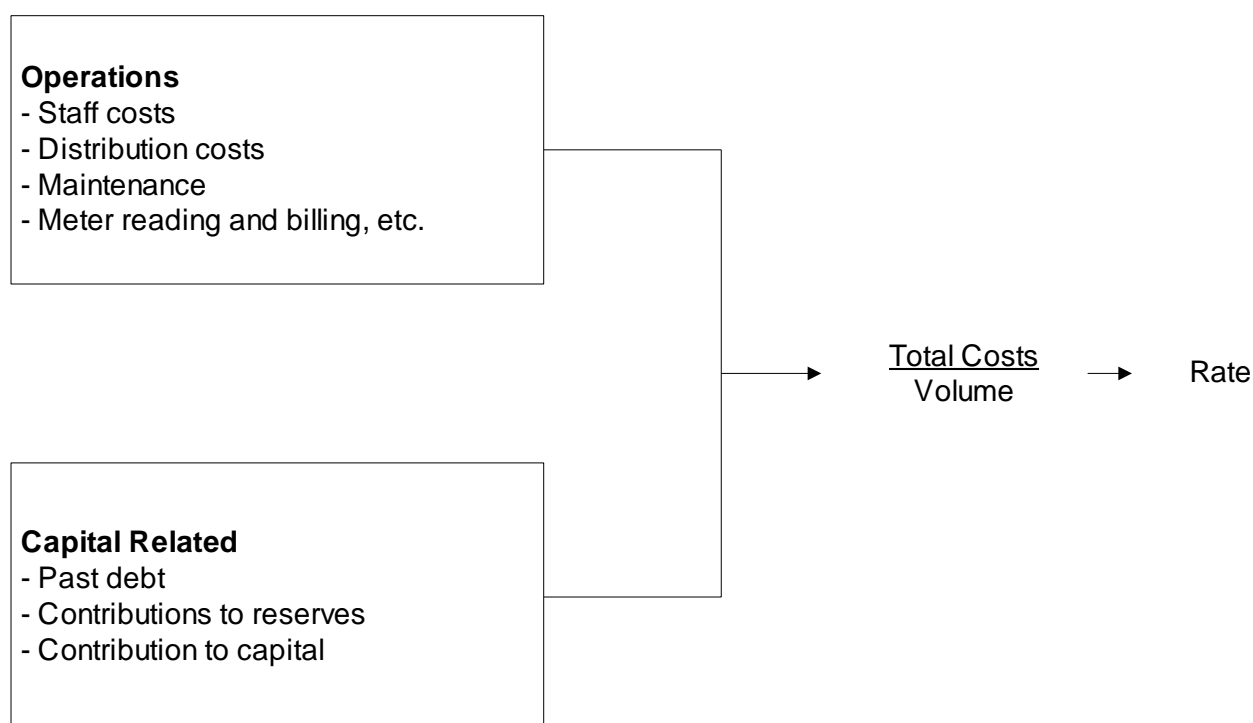


6. Pricing Structures

6.1 Introduction

Rates, in their simplest form, can be defined as total costs to maintain the utility function divided by the total expected volume to be generated for the period. Total costs are usually a combination of operating costs (e.g. staff costs, distribution costs, maintenance, administration, etc.) and capital-related costs (e.g. past debt to finance capital projects, transfers to reserves to finance future expenditures, etc.). The schematic below provides a simplified illustration of the rate calculation for water.

“Annual Costs”



These operating and capital expenditures will vary over time. Examples of factors that will affect the expenditures over time are provided below.

Operations

- Inflation;



- Increased maintenance as system ages; and
- Changes to provincial legislation.

Capital Related

- New capital will be built as areas expand;
- Replacement capital needed as system ages; and
- Financing of capital costs are a function of policy regarding reserves and direct financing from rates (pay as you go), debt and user pay methods (development charges, *Municipal Act*).

6.2 Alternative Pricing Structures

Throughout Ontario, and as well, Canada, the use of pricing mechanisms varies between municipalities. The use of a particular form of pricing depends upon numerous factors, including Council preference, administrative structure, surplus/deficit system capacities, economic/demographic conditions, to name a few.

Municipalities within Ontario have two basic forms of collecting revenues for water purposes, those being through incorporation of the costs within the tax rate charged on property assessment and/or through the establishment of a specific water rate billed to the customer. Within the rate methods, there are five basic rate structures employed along with other variations:

- Flat Rate (non-metered customers);
- Constant Rate;
- Declining Block Rate;
- Increasing (or Inverted) Block Rate;
- Hump Back Block Rate; and
- Base Charges.

The definitions and general application of the various methods are as follows:

Property Assessment: This method incorporates the total costs of providing water into the general requisition or the assessment base of the municipality. This form of collection is a "wealth tax," as payment increases directly with the value of property owned and bears no necessary relationship to actual consumption. This form is easy to



administer as the costs to be recovered are incorporated in the calculation for all general services, normally collected through property taxes.

Flat Rate: This rate is a constant charge applicable to all customers served. The charge is calculated by dividing the total number of user households and other entities (e.g. businesses) into the costs to be recovered. This method does not recognize differences in actual consumption but provides for a uniform spreading of costs across all users. Some municipalities define users into different classes of similar consumption patterns, that is, a commercial user, residential user and industrial user, and charge a flat rate by class. Each user is then billed on a periodic basis. No meters are required to facilitate this method, but an accurate estimate of the number of users is required. This method ensures set revenue for the collection period but is not sensitive to consumption, hence may cause a shortfall or surplus of revenues collected.

Constant Rate: This rate is a volume-based rate, in which the consumer pays the same price per unit consumed, regardless of the volume. The price per unit is calculated by dividing the total cost of the service by the total volume used by total consumers. The bill to the consumer climbs uniformly as the consumption increases. This form of rate requires the use of meters to record the volume consumed by each user. This method closely aligns the revenue recovery with consumption. Revenue collected varies directly with the consumption volume.

Declining Block Rates: This rate structure charges a successively lower price for set volumes, as consumption increases through a series of "blocks." That is to say that within set volume ranges, or blocks, the charge per unit is set at one rate. Within the next volume range, the charge per unit decreases to a lower rate, and so on. Typically, the first, or first and second blocks cover residential and light commercial uses. Subsequent blocks normally are used for heavier commercial and industrial uses. This rate structure requires the use of meters to record the volume consumed by each type of user. This method requires the collection and analysis of consumption patterns by user classification to establish rates at a level which does not over or under collect revenue from rate payers.

Increasing or Inverted Block Rates: The increasing block rate works essentially the same way as the declining block rate, except that the price of water in successive blocks increases rather than declines. Under this method the consumer's bill rises faster with higher volumes used. This rate structure also requires the use of meters to



record the volume consumed by each user. This method requires, as with the declining block structure, the collection and analysis of consumption patterns by user classification to establish rates at a level which does not over or under collect from rate payers.

The Hump Back Rate: The hump back rate is a combination of an increasing block rate and the declining block rate. Under this method the consumer's bill rises with higher volumes used up to a certain level and then begins to fall for volumes in excess of levels set for the increasing block rate.

6.3 Assessment of Alternative Pricing Structures

The adoption by a municipality or utility of any one particular pricing structure is normally a function of a variety of administrative, social, demographic and financial factors. The number of factors, and the weighting each particular factor receives, can vary between municipalities. The following is a review of some of the more prevalent factors.

Cost Recovery

Cost recovery is a prime factor in establishing a particular pricing structure. Costs can be loosely defined into different categories: operations, maintenance, capital, financing and administration. These costs often vary between municipalities and even within a municipality, based on consumption patterns, infrastructure age, economic growth, etc.

The pricing alternatives defined earlier can all achieve the cost recovery goal, but some do so more precisely than others. Fixed pricing structures, such as Property Assessment and Flat Rate, are established on the value of property or on the number of units present in the municipality, but do not adjust in accordance with consumption. Thus, if actual consumption for the year is greater than projected, the municipality incurs a higher cost of production, but the revenue base remains static (since it was determined at the beginning of the year), thus potentially providing a funding shortfall. Conversely, if the consumption level declines below projections, fixed pricing structures will produce more revenue than actual costs incurred.



The other pricing methods (declining block, constant rate, increasing block) are consumption-based and generally will generate revenues in proportion to actual consumption.

Administration

Administration is defined herein as the staffing, equipment and supplies required to support the undertaking of a particular pricing strategy. This factor not only addresses the physical tangible requirements to support the collection of the revenues, but also the intangible requirements, such as policy development.

The easiest pricing structure to support is the Property Assessment structure. As municipalities undertake the process of calculating property tax bills and the collection process for their general services, the incorporation of the water costs into this calculation would have virtually no impact on the administrative process and structure.

The Flat Rate pricing structure is relatively easy to administer as well. It is normally calculated to collect a set amount, either on a monthly, quarterly, semi-annual or annual basis, and is billed directly to the customer. The impact on administration centres mostly on the accounts receivable or billing area of the municipality, but normally requires minor additional staff or operating costs to undertake.

The three remaining methods, those being Increasing Block Rate, Constant Rate and Declining Block Rate, have a more dramatic effect on administration. These methods are dependent upon actual consumption and hence involve a major structure in place to administer. First, meters must be installed in all existing units in the municipality, and units to be subsequently built must be required to include these meters. Second, meter readings must be undertaken periodically. Hence staff must be available for this purpose or a service contract must be negotiated. Third, the billings process must be expanded to accommodate this process. Billing must be done per a defined period, requiring staff to produce the bills. Lastly, either through increased staffing or by service contract, an annual maintenance program must be set up to ensure meters are working effectively in recording consumed volumes.

The benefit derived from the installation of meters is that information on consumption patterns becomes available. This information provides benefit to administration in calculating rates which will ensure revenue recovery. Additionally, when planning what



services are to be constructed in future years, the municipality or utility has documented consumption patterns distinctive to its own situation, which can be used to project sizing of growth-related works.

Equity

Equity is always a consideration in the establishment of pricing structures but its definition can vary depending on a municipality's circumstances and based on the subjective interpretation of those involved. For example: is the price charged to a particular class of rate payer consistent with those of a similar class in surrounding municipalities; through the pricing structure does one class of rate payer pay more than another class; should one pay based on ability to pay, or on the basis that a unit of water costs the same to supply no matter who consumes it; etc.? There are many interpretations. Equity therefore must be viewed broadly in light of many factors as part of achieving what is best for the municipality as a whole.

Conservation

In today's society, conservation of natural resources is increasingly being more highly valued. Controversy continuously focuses on the preservation of non-renewable resources and on the proper management of renewable resources. Conservation is also a concept which applies to a municipality facing physical limitations in the amount of water which can be supplied to an area. As well, financial constraints can encourage conservation in a municipality where the cost of providing each additional unit is increasing.

Pricing structures such as property assessment and flat rate do not, in themselves, encourage conservation. In fact, depending on the price which is charged, they may even encourage resource "squandering," either because consumers, without the price discipline, consume water at will, or the customer wants to get his money's worth and hence adopts more liberal consumption patterns. The fundamental reason for this is that the price paid for the service bears no direct relationship to the volume consumed and hence is viewed as a "tax," instead of being viewed as the price of a purchased commodity.

The Declining Block Rate provides a decreasing incentive towards conservation. By creating awareness of volumes consumed, the consumer can reduce his total costs by



restricting consumption; however, the incentive lessens as more water is consumed, because the marginal cost per unit declines as the consumer enters the next block pricing range. Similarly, those whose consumption level is at the top end of a block have less incentive to reduce consumption.

The Constant Rate structure presents the customer with a linear relationship between consumption and the cost thereof. As the consumer pays a fixed cost per unit, his bill will vary directly with the amount consumed. This method presents tangible incentive for consumers to conserve water. As metering provides direct feedback as to usage patterns and the consumer has direct control over the total amount paid for the commodity, the consumer is encouraged to use only those volumes that are reasonably required.

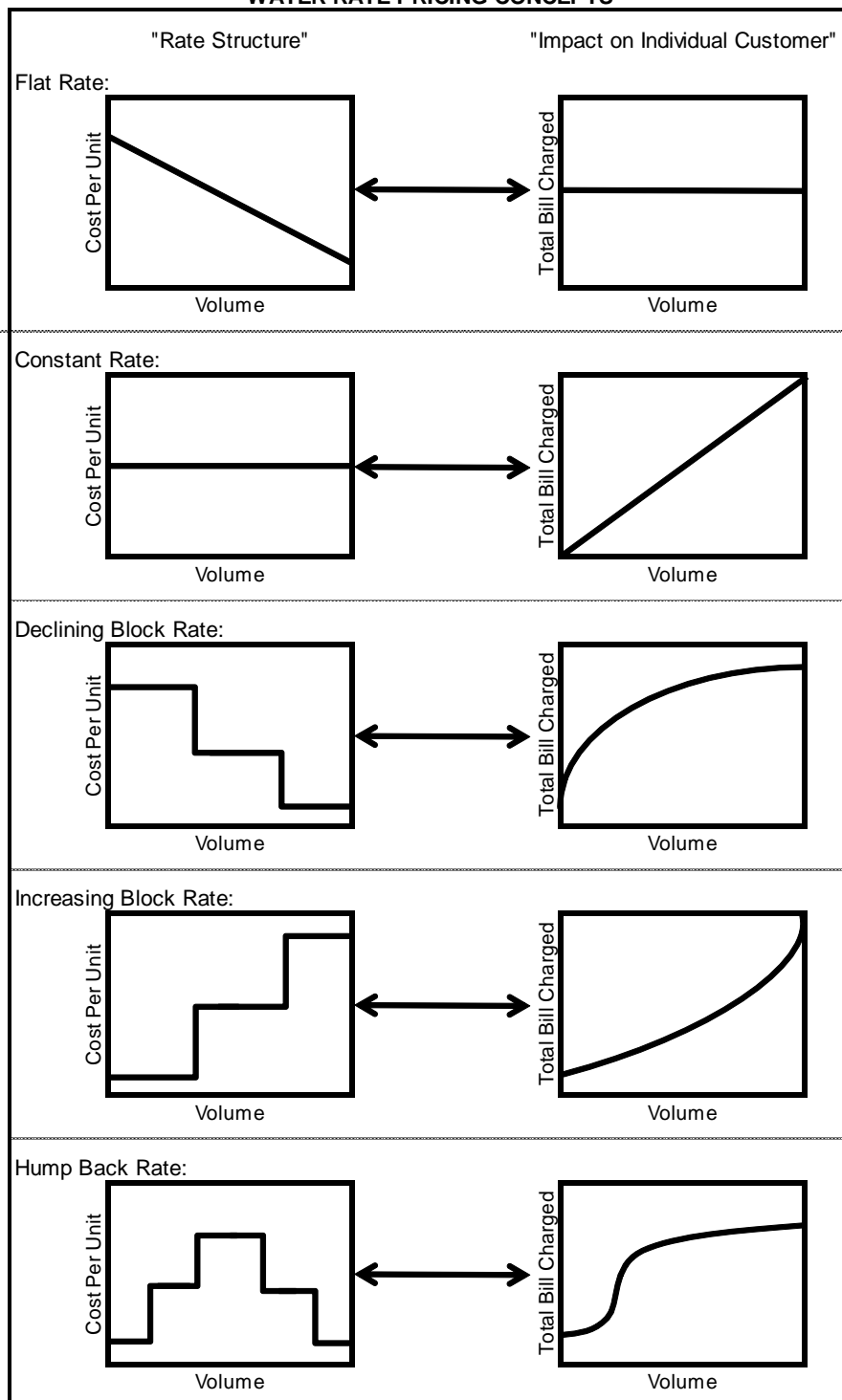
The Inverted Block method presents the most effective pricing method for encouraging conservation. Through this method, the price per unit consumed increases as total volumes consumed grow. The consumer becomes aware of consumption through metering with the charges increasing dramatically with usage. Hence, there normally is awareness that exercising control over usage can produce significant savings. This method not only encourages conservation methods but may also penalize legitimate high-volume users if not properly structured.

Figure 6-1 provides a schematic representation of the various rate structures (note property tax as a basis for revenue recovery has not been presented for comparison, as the proportion of taxes paid varies in direct proportion to the market value of the property). The graphs on the left-hand side of the figure present the cost per unit for each additional amount of water consumed. The right-hand side of the figure presents the impact on the customer's bill as the volume of water increases. Following the schematic is a table summarizing each rate structure.



Figure 6-1

WATER RATE PRICING CONCEPTS





RATE STRUCTURE	COST PER UNIT AS VOLUME INCREASES	IMPACT ON CUSTOMER BILL AS VOLUME INCREASES
Flat Rate	Cost per unit decreases as more volume consumed	Bill remains the same no matter how much volume is consumed
Constant Rate	Cost per unit remains the same	Bill increases in direct proportion to consumption
Declining Block	Cost per unit decreases as threshold targets are achieved	Bill increases at a slower rate as volumes increases
Increasing Block	Cost per unit increases as threshold targets are achieved	Bill increases at a faster rate as volumes increase
Hump Back Rate	Combination of an increasing block at the lower consumption volumes and then converts to a declining block for the high consumption	Bill increases at a faster rate at the lower consumption amounts and then slows as volumes increase

6.4 Rate Structures in Ontario

In a past survey of over 170 municipalities (approximately half of the municipalities who provide water and/or sewer), all forms of rate structures are in use by Ontario municipalities. The most common rate structure is the constant rate (for metered municipalities). Most municipalities (approximately 92%) who have volume rate structures also impose a base monthly charge.

Historically, the development of a base charge often reflected either the recovery of meter reading/billing/collection costs, plus administration or those costs plus certain fixed costs (such as capital contributions or reserve contributions). More recently, many municipalities have started to establish base charges based on ensuring a secure portion of the revenue stream which does not vary with volume consumption. Selection of the quantum of the base charge is a matter of policy selected by individual municipalities.



6.5 Recommended Rate Structures

6.5.1 *Recommendations and Considerations*

Based on the foregoing, the following recommendations are provided for Council's consideration:

Water

It is recommended that the current rate structure continue.

Wastewater

Two options are provided for Council's consideration:

1. Current rate structure – residential customers pay only fixed monthly charge; non-residential users pay only variable rate; and
2. Alternative rate structure – residential customers pay monthly base charge and variable rate (similar to water); non-residential users pay only variable rate.

6.5.2 *Items Addressed in Calculations*

As noted earlier, the estimated rate increases for each rate structure are aimed at addressing the following:

Water

Significant capital costs are anticipated in the latter part of the forecast period. Additionally, as the Town just recently implemented a D.C. for water, the 2018 beginning balance is 0. As a result, the Town will have to interim finance some of the growth-related capital costs until such time that the D.C. reserve fund can pay back the other reserves. Additionally, the base charges are targeted to recover the full annual lifecycle replacement costs by 2039.

Wastewater - Cottam

In the past few years, large capital expenditures have occurred in the Cottam system, resulting in a current deficit of \$1.25 million in the Working Capital reserve. The rates



have been provided herein to decrease this deficit and reach a positive balance in 15 years. The base charges are anticipated to recover the annual lifecycle replacement costs by 2025 in the alternative rate structure scenario.

Wastewater – Kingsville/Lakeshore West

As a result of large growth-related capital expenditure requirements over the forecast period (\$9.3 million), the Town will need to interim finance a portion of the growth-related expenditures from existing reserves until such time that the D.C. reserve fund can repay the reserves. Additionally, major maintenance capital costs are anticipated to average approximately \$430,000 per year. As a result, the Town will need to issue non-growth-related debt to cash-flow some of the works.

For water and wastewater, increases of approximately 4% for the average water bill and 4% for the average wastewater bill have been estimated.

6.5.3 Base Charges

The base charge increases are targeted to ensure that the annual lifecycle replacement costs are fully funded by the base charge by 2039 (at the latest) in the alternative rate structure scenarios.

The above increases are recommended to provide that the Town can fund the capital and operating costs while minimizing the need for debentures. The forecast water and wastewater base charges and corresponding revenue are provided in Tables 6-1 through 6-5.



Table 6-1
Town of Kingsville
Base Charge Forecast – Water

Water	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136
New	-	57	171	285	390	486	582	678	774	869	963
Total Customers	8,136	8,193	8,307	8,421	8,526	8,622	8,718	8,814	8,910	9,005	9,099
Total Annual Revenue	\$617,360	\$664,588	\$715,765	\$770,884	\$830,246	\$894,175	\$963,027	\$1,037,179	\$1,117,042	\$1,203,054	\$1,295,723

All Meter Sizes	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136	8,136
New	0	57	171	285	390	486	582	678	774	869	963
Subtotal Customers	8,136	8,193	8,307	8,421	8,526	8,622	8,718	8,814	8,910	9,005	9,099
Monthly Base Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Total Annual Revenue	\$617,360	\$664,588	\$715,765	\$770,884	\$830,246	\$894,175	\$963,027	\$1,037,179	\$1,117,042	\$1,203,054	\$1,295,723

Table 6-2
Cottam – Current Rate Structure (fixed charge only)
Base Charge Forecast – Wastewater

Wastewater - Cottam	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	566	566	566	566	566	566	566	566	566	566	566
New	-	2	5	8	11	14	17	20	23	26	31
Subtotal Customers	566	568	571	574	577	580	583	586	589	592	597
Total Annual Revenue	\$192,440	\$201,822	\$212,001	\$222,689	\$233,893	\$245,688	\$258,082	\$271,084	\$284,699	\$299,007	\$315,073

All Meter Sizes	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	566	566	566	566	566	566	566	566	566	566	566
New	0	2	5	8	11	14	17	20	23	26	31
Subtotal Customers	566	568	571	574	577	580	583	586	589	592	597
Monthly Base Charge	\$28.33	\$29.61	\$30.94	\$32.33	\$33.78	\$35.30	\$36.89	\$38.55	\$40.28	\$42.09	\$43.98
Annual Base Charge	\$340.00	\$355.32	\$371.28	\$387.96	\$405.36	\$423.60	\$442.68	\$462.60	\$483.36	\$505.08	\$527.76
Total Annual Revenue	\$192,440	\$201,822	\$212,001	\$222,689	\$233,893	\$245,688	\$258,082	\$271,084	\$284,699	\$299,007	\$315,073

Table 6-3
Cottam – Alternative Rate Structure (base charge and variable rate)
Base Charge Forecast – Wastewater

Wastewater - Cottam	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	566	566	566	566	566	566	566	566	566	566	566
New	-	2	5	8	11	14	17	20	23	26	31
Subtotal Customers	566	568	571	574	577	580	583	586	589	592	597
Total Annual Revenue	\$192,440	\$170,400	\$173,013	\$175,644	\$178,362	\$181,099	\$183,855	\$186,629	\$189,493	\$192,376	\$195,935

All Meter Sizes	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	566	566	566	566	566	566	566	566	566	566	566
New	0	2	5	8	11	14	17	20	23	26	31
Subtotal Customers	566	568	571	574	577	580	583	586	589	592	597
Monthly Base Charge	\$28.33	\$25.00	\$25.25	\$25.50	\$25.76	\$26.02	\$26.28	\$26.54	\$26.81	\$27.08	\$27.35
Annual Base Charge	\$340.00	\$300.00	\$303.00	\$306.00	\$309.12	\$312.24	\$315.36	\$318.48	\$321.72	\$324.96	\$328.20
Total Annual Revenue	\$192,440	\$170,400	\$173,013	\$175,644	\$178,362	\$181,099	\$183,855	\$186,629	\$189,493	\$192,376	\$195,935



Table 6-4
Kingsville/Lakeshore West – Current Rate Structure (fixed charge only)
Base Charge Forecast – Wastewater

Wastewater - Kingsville & Lakeshore West	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604
New	-	56	167	278	380	473	566	659	752	844	932
Subtotal Customers	4,604	4,660	4,771	4,882	4,984	5,077	5,170	5,263	5,356	5,448	5,536
Total Annual Revenue	\$1,528,528	\$1,608,818	\$1,712,980	\$1,823,134	\$1,935,387	\$2,050,093	\$2,171,400	\$2,298,878	\$2,433,338	\$2,573,853	\$2,719,726

All Meter Sizes	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604
New	0	56	167	278	380	473	566	659	752	844	932
Subtotal Customers	4,604	4,660	4,771	4,882	4,984	5,077	5,170	5,263	5,356	5,448	5,536
Monthly Base Charge	\$27.67	\$28.77	\$29.92	\$31.12	\$32.36	\$33.65	\$35.00	\$36.40	\$37.86	\$39.37	\$40.94
Annual Base Charge	\$332.00	\$345.24	\$359.04	\$373.44	\$388.32	\$403.80	\$420.00	\$436.80	\$454.32	\$472.44	\$491.28
Total Annual Revenue	\$1,528,528	\$1,608,818	\$1,712,980	\$1,823,134	\$1,935,387	\$2,050,093	\$2,171,400	\$2,298,878	\$2,433,338	\$2,573,853	\$2,719,726

Table 6-5
Kingsville/Lakeshore West – Alternative Rate Structure (base charge and variable rate)
Base Charge Forecast – Wastewater

Wastewater - Kingsville & Lakeshore West	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604
New	-	56	167	278	380	473	566	659	752	844	932
Subtotal Customers	4,604	4,660	4,771	4,882	4,984	5,077	5,170	5,263	5,356	5,448	5,536
Total Annual Revenue	\$1,528,528	\$1,398,000	\$1,459,926	\$1,523,770	\$1,586,706	\$1,648,603	\$1,712,304	\$1,777,841	\$1,845,249	\$1,914,209	\$1,984,324

All Meter Sizes	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604	4,604
New	0	56	167	278	380	473	566	659	752	844	932
Subtotal Customers	4,604	4,660	4,771	4,882	4,984	5,077	5,170	5,263	5,356	5,448	5,536
Monthly Base Charge	\$27.67	\$25.00	\$25.50	\$26.01	\$26.53	\$27.06	\$27.60	\$28.15	\$28.71	\$29.28	\$29.87
Annual Base Charge	\$332.00	\$300.00	\$306.00	\$312.12	\$318.36	\$324.72	\$331.20	\$337.80	\$344.52	\$351.36	\$358.44
Total Annual Revenue	\$1,528,528	\$1,398,000	\$1,459,926	\$1,523,770	\$1,586,706	\$1,648,603	\$1,712,304	\$1,777,841	\$1,845,249	\$1,914,209	\$1,984,324



Chapter 7

Analysis of Water and Wastewater Rates and Policy Matters



7. Analysis of Water and Wastewater Rates and Policy Matters

7.1 Introduction

To summarize the analysis undertaken thus far, Chapter 2 reviewed capital-related issues and responds to the provincial directives to maintain and upgrade infrastructure to required levels. Chapter 4 provided a review of capital financing options to which water and wastewater reserve contributions will be the predominant basis for financing future capital replacement. Chapter 5 established the 10-year operating forecast of expenditures including an annual capital reserve contribution. The base charge revenues are to ensure that fixed costs are recovered regardless of the amount of volume used by customers. This chapter will provide for the calculation of the volume rates over the forecast period. These calculations will be based on the net operating expenditures (the variable costs) provided in Chapter 5, divided by the water consumption forecast and wastewater volumes provided in section 1.8.

7.2 Water Rates

Based on the discussion of rate structures provided in section 6.5 and the recommendation to continue with the present structure, the rates are calculated by taking the net recoverable amounts from Table 5-1 (the product of total expenditures less non-rate revenues and deduct the base charge amounts provided in section 6.5) and completes the calculation by dividing them by the volumes resulting in the forecasted rates. As stated earlier, the needs for water are significant near the end of the 10-year forecast period and the Town would like to recover the annual lifecycle replacement costs identified in Figure 3-4 with the base charge by 2039. Volume rates are anticipated to increase at 3% annually and base charge rates are anticipated to increase by approximately 6.5% annually. The annual increase in the water bill is anticipated to be 4.1% until 2025, then 4.6% to 2028. Detailed calculations of the volume rates are provided in Appendix C. A summary of the recommended base charge and volume rates along with the total annual bill for an average residential user who consumes 175 cu.m per year are provided in the following table:



Table 7-1
Town of Kingsville
Average Annual Residential Water Bill (Based on an Annual Usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90

7.3 Wastewater Rates - Cottam

As noted above, two rate structure options have been analysed.

Current Rate Structure

For the current rate structure, no variable rate for residential customers is calculated. Instead, the residential customers pay only a base charge. For non-residential users, a variable charge has been calculated similar to water. The calculation of the rates takes the net recoverable amounts from Table 5-2 and completes the calculation by dividing them by the non-residential volumes, resulting in the forecast rates. Detailed calculations are provided in Appendix D. As mentioned in Chapter 6, the Town aims to reduce the working capital reserve deficit to zero over a 15 to 20-year period.

Based on the above, the wastewater non-residential volume rates are anticipated to increase by 4.5% per year and the residential base charge rates are anticipated to increase by 4.5% annually.

The following summarizes the recommended rates for wastewater and provides the average annual bill for a residential customer who uses 175 cu.m per year:



Table 7-2
Town of Kingsville
Cottam – Current Rate Structure (Fixed Monthly Charge)
Average Annual Residential Wastewater Bill (Based on an Annual Usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Wastewater											
Base Monthly Charge	\$28.33	\$29.61	\$30.94	\$32.33	\$33.78	\$35.30	\$36.89	\$38.55	\$40.28	\$42.09	\$43.98
Volume Rate	-	-	-	-	-	-	-	-	-	-	-
Annual Base Charge	\$340.00	\$355.32	\$371.28	\$387.96	\$405.36	\$423.60	\$442.68	\$462.60	\$483.36	\$505.08	\$527.76
Annual Volume Charge	-	-	-	-	-	-	-	-	-	-	-
Total Wastewater Bill	\$340.00	\$355.32	\$371.28	\$387.96	\$405.36	\$423.60	\$442.68	\$462.60	\$483.36	\$505.08	\$527.76

Alternative Rate Structure

For the alternative rate structure, a variable rate for residential customers is introduced to accompany the fixed monthly charge. For non-residential users, it is anticipated that the variable charge will continue and increase at 4% per year. The calculation of the residential volume rates takes the net recoverable amounts from Table 5-3 and completes the calculation by dividing them by the residential volumes, resulting in the forecast rates. Detailed calculations are provided in Appendix D. As mentioned in Chapter 6, the Town aims to reduce the working capital reserve deficit to zero over a 15 to 20-year period.

Based on the above, the wastewater residential volume rates are anticipated to be introduced in 2019 at \$0.33 per cu.m then increase by 15% per year until 2025, then 10% per year thereafter. The residential base charge rates are anticipated to decrease to \$25 per month in 2019 then increase by 1% annually. Overall, the average annual increase in the typical wastewater bill is anticipated to be approximately 3.6% annually.

The following summarizes the recommended rates for wastewater and provides the average annual bill for a residential customer who uses 175 cu.m per year:



Table 7-3
Town of Kingsville
Cottam – Alternative Rate Structure (base charge and variable rate)
Average Annual Residential Wastewater Bill (Based on an Annual Usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Wastewater											
Base Monthly Charge	\$28.33	\$25.00	\$25.25	\$25.50	\$25.76	\$26.02	\$26.28	\$26.54	\$26.81	\$27.08	\$27.35
Volume Rate	\$0.00	\$0.29	\$0.33	\$0.38	\$0.44	\$0.51	\$0.58	\$0.67	\$0.74	\$0.81	\$0.89
Annual Base Charge	\$340.00	\$300.00	\$303.00	\$306.00	\$309.12	\$312.24	\$315.36	\$318.48	\$321.72	\$324.96	\$328.20
Annual Volume Charge	\$0.00	\$50.75	\$58.45	\$67.20	\$77.35	\$88.90	\$102.20	\$117.60	\$129.33	\$142.28	\$156.45
Total Wastewater Bill	\$340.00	\$350.75	\$361.45	\$373.20	\$386.47	\$401.14	\$417.56	\$436.08	\$451.05	\$467.24	\$484.65

7.4 Wastewater Rates – Kingsville/Lakeshore West

As noted above, two rate structure options have been analysed.

Current Rate Structure

For the current rate structure, no variable rate for residential customers is calculated. Instead, the residential customers pay only a base charge. For non-residential users, a variable charge has been calculated similar to water. The calculation of the rates takes the net recoverable amounts from Table 5-4 and completes the calculation by dividing them by the non-residential volumes, resulting in the forecast rates. Detailed calculations are provided in Appendix D. As mentioned in Chapter 6, the Town needs to interim finance growth-related expenditures and is targeting the base charge to cover the annual lifecycle replacement costs by 2039.

Based on the above, the wastewater non-residential volume rates are anticipated to increase by 4% per year and the residential base charge rates are anticipated to increase by 4% annually.

The following summarizes the recommended rates for wastewater and provides the average annual bill for a residential customer who uses 175 cu.m per year:



Table 7-4
Town of Kingsville
Kingsville/Lakeshore West – Current Rate Structure (Fixed Monthly Charge)
Average Annual Residential Wastewater Bill (Based on an Annual Usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Wastewater											
Base Monthly Charge	\$27.67	\$28.77	\$29.92	\$31.12	\$32.36	\$33.65	\$35.00	\$36.40	\$37.86	\$39.37	\$40.94
Volume Rate	-	-	-	-	-	-	-	-	-	-	-
Annual Base Charge	\$332.00	\$345.24	\$359.04	\$373.44	\$388.32	\$403.80	\$420.00	\$436.80	\$454.32	\$472.44	\$491.28
Annual Volume Charge	-	-	-	-	-	-	-	-	-	-	-
Total Wastewater Bill	\$332.00	\$345.24	\$359.04	\$373.44	\$388.32	\$403.80	\$420.00	\$436.80	\$454.32	\$472.44	\$491.28

Alternative Rate Structure

For the alternative rate structure, a variable rate for residential customers is introduced to accompany the fixed monthly charge. For non-residential users, it is anticipated that the variable charge will continue and increase at 4% per year. The calculation of the residential volume rates takes the net recoverable amounts from Table 5-5 and completes the calculation by dividing them by the residential volumes, resulting in the forecast rates. Detailed calculations are provided in Appendix D. As mentioned in Chapter 6, the Town needs to interim finance growth-related expenditures and is targeting the base charge to cover the annual lifecycle replacement costs by 2039.

Based on the above, the wastewater residential volume rates are anticipated to be introduced in 2019 at \$0.25 per cu.m then increase by 15% per year until 2024, then 10% per year thereafter. The residential base charge rates are anticipated to decrease to \$25 per month in 2019 then increase by 2% annually. Overall, the average annual increase in the typical wastewater bill is anticipated to be approximately 4% annually.

The following summarizes the recommended rates for wastewater and provides the average annual bill for a residential customer who uses 175 cu.m per year:



Table 7-5
Town of Kingsville

Kingsville/Lakeshore West – Alternative Rate Structure (base charge and variable rate)
Average Annual Residential Wastewater Bill (Based on an Annual Usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Wastewater											
Base Monthly Charge	\$27.67	\$25.00	\$25.50	\$26.01	\$26.53	\$27.06	\$27.60	\$28.15	\$28.71	\$29.28	\$29.87
Volume Rate	\$0.00	\$0.25	\$0.29	\$0.33	\$0.38	\$0.44	\$0.50	\$0.55	\$0.61	\$0.67	\$0.74
Annual Base Charge	\$332.00	\$300.00	\$306.00	\$312.12	\$318.36	\$324.72	\$331.20	\$337.80	\$344.52	\$351.36	\$358.44
Annual Volume Charge	\$0.00	\$43.75	\$50.40	\$57.93	\$66.68	\$76.65	\$88.20	\$96.95	\$106.58	\$117.25	\$128.98
Total Wastewater Bill	\$332.00	\$343.75	\$356.40	\$370.05	\$385.04	\$401.37	\$419.40	\$434.75	\$451.10	\$468.61	\$487.42

7.5 Forecast of Combined Water and Wastewater Impact for the Average Residential Customer

Based on the foregoing information, the combined impact of the water and wastewater base charge and volume rate charges are as follows:

For water and wastewater, increases of approximately 4% for the average water bill and 4% for the average wastewater bill have been estimated, with some variation. This is achieved by the following:

- To meet the needs of the water forecast, an annual increase in the volume rate of 3% is provided along with a 6.5% annual increase in the base charge amount. This results in an annual increase of approximately 4% on a typical user's water bill (or an annual average of approximately \$12);
- For Cottam wastewater rates:
 - Fixed charge rate structure – an annual increase in the wastewater bill of 4.5% or an average of \$18.80 per year, is provided;
 - Base charge and variable rate structure – annual increases in the wastewater bill of 3-4% or an average of \$14.50 per year, is provided;
- For Kingsville/Lakeshore West wastewater rates:
 - Fixed charge rate structure – an annual increase in the wastewater bill of 4% or an average of \$15.90 per year, is provided;
 - Base charge and variable rate structure – annual increases in the wastewater bill of 4% or an average of \$15.50 per year, is provided;
- The combined impact of the water and wastewater rates above provides the average annual percentage increase in the total bill as follows:
 - Cottam – Fixed charge Rate Structure - 4.4% or \$30.90 per year;



- Cottam – Base charge and variable – 3.8% or \$26.60 per year;
- Kingsville/Lakeshore West – Fixed charge Rate Structure – 4.1% or \$28.10 per year;
- Kingsville/Lakeshore West – Base charge and variable – 4% or \$27.70 per year.

It is anticipated that the average new user will use an average of 175 cu.m annually which may be less than the average existing user. This is due to new homes being constructed on smaller lots and being equipped with newer, more energy efficient appliances. Tables 7-6 through 7-9 present the forecast combined annual bills for new customers (175 cu.m annually).



Table 7-6
Town of Kingsville
Cottam – Current Rate Structure (Fixed Monthly Charge for Wastewater)
Average Annual Residential Water and Wastewater Bill (Based on an annual usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90
Wastewater											
Base Monthly Charge	\$28.33	\$29.61	\$30.94	\$32.33	\$33.78	\$35.30	\$36.89	\$38.55	\$40.28	\$42.09	\$43.98
Volume Rate	-	-	-	-	-	-	-	-	-	-	-
Annual Base Charge	\$340.00	\$355.32	\$371.28	\$387.96	\$405.36	\$423.60	\$442.68	\$462.60	\$483.36	\$505.08	\$527.76
Annual Volume Charge	-	-	-	-	-	-	-	-	-	-	-
Total Wastewater Bill	\$340.00	\$355.32	\$371.28	\$387.96	\$405.36	\$423.60	\$442.68	\$462.60	\$483.36	\$505.08	\$527.76
Total Water and Wastewater Bill	\$581.34	\$606.19	\$632.44	\$659.75	\$688.24	\$718.06	\$749.14	\$781.52	\$815.23	\$852.18	\$890.66
Annual % Increase (rounded)	-	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.5%	4.5%
Annual Dollar Increase	-	\$24.84	\$26.26	\$27.31	\$28.48	\$29.82	\$31.09	\$32.38	\$33.71	\$36.95	\$38.48



Table 7-7
Town of Kingsville
Cottam – Alternative Rate Structure (Base Charge and Variable Rate for Water and Wastewater)
Average Annual Residential Water and Wastewater Bill (Based on an annual usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90
Wastewater											
Base Monthly Charge	\$28.33	\$25.00	\$25.25	\$25.50	\$25.76	\$26.02	\$26.28	\$26.54	\$26.81	\$27.08	\$27.35
Volume Rate	\$0.00	\$0.29	\$0.33	\$0.38	\$0.44	\$0.51	\$0.58	\$0.67	\$0.74	\$0.81	\$0.89
Annual Base Charge	\$340.00	\$300.00	\$303.00	\$306.00	\$309.12	\$312.24	\$315.36	\$318.48	\$321.72	\$324.96	\$328.20
Annual Volume Charge	\$0.00	\$50.75	\$58.45	\$67.20	\$77.35	\$88.90	\$102.20	\$117.60	\$129.33	\$142.28	\$156.45
Total Wastewater Bill	\$340.00	\$350.75	\$361.45	\$373.20	\$386.47	\$401.14	\$417.56	\$436.08	\$451.05	\$467.24	\$484.65
Total Water and Wastewater Bill	\$581.34	\$601.62	\$622.61	\$644.99	\$669.35	\$695.60	\$724.02	\$755.00	\$782.91	\$814.33	\$847.55
Annual % Increase (rounded)	-	3.5%	3.5%	3.6%	3.8%	3.9%	4.1%	4.3%	3.7%	4.0%	4.1%
Annual Dollar Increase	-	\$20.27	\$21.00	\$22.38	\$24.35	\$26.25	\$28.43	\$30.98	\$27.91	\$31.42	\$33.22



Table 7-8
Town of Kingsville
Kingsville/Lakeshore West – Current Rate Structure (Fixed Monthly Charge for Wastewater)
Average Annual Residential Water and Wastewater Bill (Based on an annual usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90
Wastewater											
Base Monthly Charge	\$27.67	\$28.77	\$29.92	\$31.12	\$32.36	\$33.65	\$35.00	\$36.40	\$37.86	\$39.37	\$40.94
Volume Rate	-	-	-	-	-	-	-	-	-	-	-
Annual Base Charge	\$332.00	\$345.24	\$359.04	\$373.44	\$388.32	\$403.80	\$420.00	\$436.80	\$454.32	\$472.44	\$491.28
Annual Volume Charge	-	-	-	-	-	-	-	-	-	-	-
Total Wastewater Bill	\$332.00	\$345.24	\$359.04	\$373.44	\$388.32	\$403.80	\$420.00	\$436.80	\$454.32	\$472.44	\$491.28
Total Water and Wastewater Bill	\$573.34	\$596.11	\$620.20	\$645.23	\$671.20	\$698.26	\$726.46	\$755.72	\$786.19	\$819.54	\$854.18
Annual % Increase (rounded)	-	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.2%	4.2%
Annual Dollar Increase	-	\$22.76	\$24.10	\$25.03	\$25.96	\$27.06	\$28.21	\$29.26	\$30.47	\$33.35	\$34.64



Table 7-9
Town of Kingsville
Kingsville/Lakeshore West – Alternative Rate Structure (Base Charge and Variable Rate for Water and Wastewater)
Average Annual Residential Water and Wastewater Bill (Based on an annual usage of 175 cu.m)

Description	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Water											
Base Monthly Charge	\$6.32	\$6.76	\$7.18	\$7.63	\$8.11	\$8.64	\$9.21	\$9.81	\$10.45	\$11.13	\$11.87
Volume Rate	\$0.95	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.12	\$1.15	\$1.18	\$1.22	\$1.26
Annual Base Charge	\$75.88	\$81.12	\$86.16	\$91.54	\$97.38	\$103.71	\$110.46	\$117.67	\$125.37	\$133.60	\$142.40
Annual Volume Charge	\$165.46	\$169.75	\$175.00	\$180.25	\$185.50	\$190.75	\$196.00	\$201.25	\$206.50	\$213.50	\$220.50
Total Water Bill	\$241.34	\$250.87	\$261.16	\$271.79	\$282.88	\$294.46	\$306.46	\$318.92	\$331.87	\$347.10	\$362.90
Wastewater											
Base Monthly Charge	\$27.67	\$25.00	\$25.50	\$26.01	\$26.53	\$27.06	\$27.60	\$28.15	\$28.71	\$29.28	\$29.87
Volume Rate	\$0.00	\$0.25	\$0.29	\$0.33	\$0.38	\$0.44	\$0.50	\$0.55	\$0.61	\$0.67	\$0.74
Annual Base Charge	\$332.00	\$300.00	\$306.00	\$312.12	\$318.36	\$324.72	\$331.20	\$337.80	\$344.52	\$351.36	\$358.44
Annual Volume Charge	\$0.00	\$43.75	\$50.40	\$57.93	\$66.68	\$76.65	\$88.20	\$96.95	\$106.58	\$117.25	\$128.98
Total Wastewater Bill	\$332.00	\$343.75	\$356.40	\$370.05	\$385.04	\$401.37	\$419.40	\$434.75	\$451.10	\$468.61	\$487.42
Total Water and Wastewater Bill	\$573.34	\$594.62	\$617.56	\$641.84	\$667.91	\$695.83	\$725.86	\$753.67	\$782.96	\$815.71	\$850.31
Annual % Increase (rounded)	-	3.7%	3.9%	3.9%	4.1%	4.2%	4.3%	3.8%	3.9%	4.2%	4.2%
Annual Dollar Increase	-	\$21.27	\$22.95	\$24.27	\$26.07	\$27.92	\$30.04	\$27.81	\$29.29	\$32.74	\$34.61



Chapter 8

Recommendations

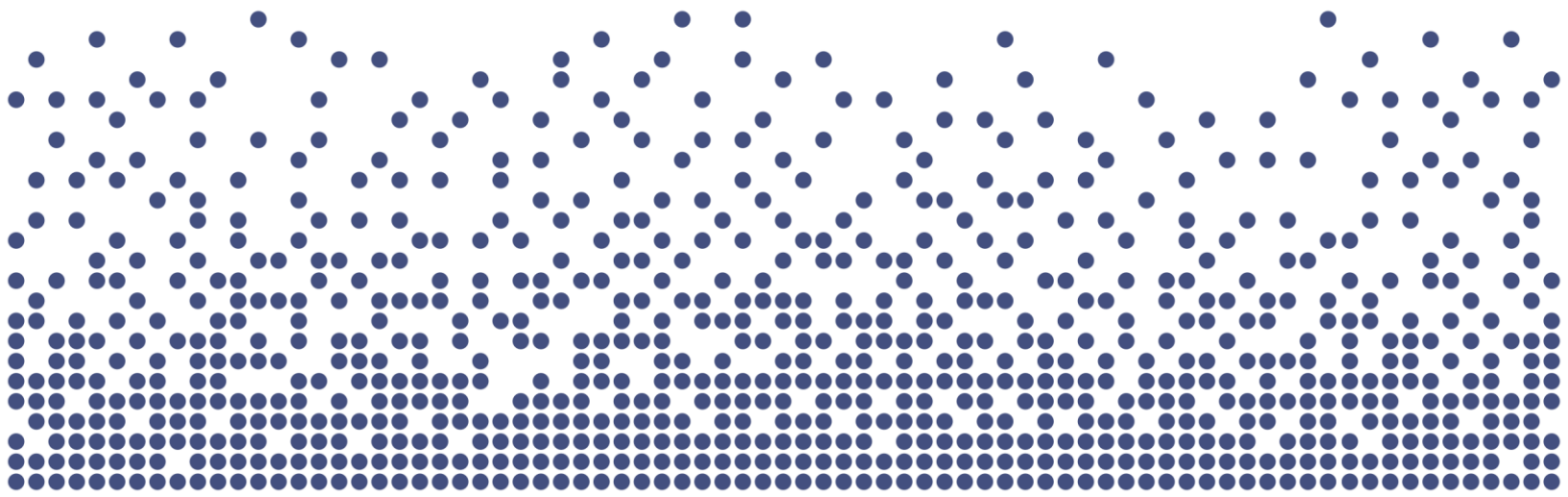


8. Recommendations

As presented within this report, capital and operating expenditures have been identified and forecast over a ten-year period for water and wastewater services.

Based upon the foregoing, the following recommendations are identified for consideration by Town Council:

1. That Council provide for the recovery of all water and wastewater costs through full cost recovery rates over the forecast period.
2. That Council consider the Capital Plans for water and wastewater as provided in Tables 2-1, 2-2, and 2-3 and the associated Capital Financing Plan as set out in Tables 4-1, 4-2, and 4-3.
3. That Council consider the two residential rate structure options for wastewater; the current rate structure (fixed monthly charge) and the alternative rate structure (monthly base charge and variable rate).
4. That Council consider the base charges provided in Table 6-1 for water and Tables 6-2 through 6-5 for wastewater.
5. That Council consider the volume rates for water and wastewater as provided in Tables 7-1 through 7-5.



Appendices



Appendix A

Water System Inventory Data



Appendix A: Water System Inventory Data



Table A-1
Town of Kingsville
Watermains

Import Id	Street	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replace-ment Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution Sinking Fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
WA570	CAMERON SDRD	Rural	1,357	150	AC	1959	100	2059	480	651,260	40	23,807	16,282	-
WA789	COUNTY RD 27 WEST	Urban	370	150	AC	1959	100	2059	580	214,700	40	7,849	5,368	-
WA303	LAIRD AV	Urban	156	100	AC	1960	100	2060	430	67,000	41	2,410	1,634	-
WA349	OLINDA SDRD	Rural	536	150	AC	1960	100	2060	480	257,070	41	9,247	6,270	-
WA5	OLINDA SDRD	Rural	997	150	AC	1960	100	2060	480	478,530	41	17,214	11,671	-
WA435	THOMPSON CR	Urban	307	150	AC	1960	100	2060	580	178,140	41	6,408	4,345	-
WA307	UPCOTT SDRD	Urban	427	300	AC	1960	100	2060	720	307,360	41	11,056	7,497	-
WA338	BRIARWOOD CR	Urban	293	150	AC	1961	100	2061	580	170,030	42	6,022	4,048	-
WA463	BRIARWOOD CR	Urban	158	150	AC	1961	100	2061	580	91,920	42	3,256	2,189	-
WA881	BROOKVIEW DR	Urban	170	100	AC	1961	100	2061	430	73,100	42	2,589	1,740	-
WA339	CAMPBELL LANE	Urban	106	100	AC	1961	100	2061	430	45,670	42	1,618	1,087	-
WA340	CAMPBELL LANE	Urban	194	150	AC	1961	100	2061	580	112,280	42	3,977	2,673	-
WA91	CLIFFSIDE LANE	Urban	111	150	AC	1961	100	2061	580	64,630	42	2,289	1,539	-
WA93	CLOVELLY DR	Urban	341	150	AC	1961	100	2061	580	197,580	42	6,998	4,704	-
WA817	FRANCIS DR	Urban	191	150	AC	1961	100	2061	580	110,860	42	3,926	2,640	-
WA462	GRAHAM SDRD	Rural	329	150	AC	1961	100	2061	480	157,800	42	5,589	3,757	-
WA335	LAKE ERIE DR	Urban	210	150	AC	1961	100	2061	580	121,900	42	4,317	2,902	-
WA90	LAKEVIEW AV	Urban	823	150	AC	1961	100	2061	580	477,340	42	16,906	11,365	-
WA337	LINCOLN RD	Urban	288	150	AC	1961	100	2061	580	167,140	42	5,920	3,980	-
WA95	LYNDON WAY	Urban	421	150	AC	1961	100	2061	580	244,120	42	8,646	5,812	-
WA131	MAIN ST E	Urban	299	200	AC	1961	100	2061	580	173,550	42	6,147	4,132	-
WA521	MCRAE AV	Urban	468	150	AC	1961	100	2061	580	271,560	42	9,618	6,466	-
WA818	MCRAE AV	Urban	93	150	AC	1961	100	2061	580	53,800	42	1,905	1,281	-
WA522	ORCHARD BLVD	Urban	156	150	AC	1961	100	2061	580	90,640	42	3,210	2,158	-
WA98	ORCHARD BLVD	Urban	367	150	AC	1961	100	2061	580	212,660	42	7,532	5,063	-
WA336	PATRICIA BLVD	Urban	419	150	AC	1961	100	2061	580	243,250	42	8,615	5,792	-
WA106	SIMMERS AV	Urban	181	150	AC	1961	100	2061	580	105,060	42	3,721	2,501	-



<i>Import Id</i>	<i>Street</i>	<i>Urban or Rural</i>	<i>Length (m)</i>	<i>Diameter (mm)</i>	<i>Material</i>	<i>Year Installed</i>	<i>Estimated Life</i>	<i>Replacement Year</i>	<i>Replace-ment Cost / m</i>	<i>Total Main Replacement Costs</i>	<i>Years until Replacement</i>	<i>Annual Lifecycle Contribution Sinking Fund</i>	<i>Annual Lifecycle Contribution straight-line</i>	<i>Amount to be included in 10-year Forecast</i>
WA104	SUNCREST RD	Urban	314	150	AC	1961	100	2061	580	182,380	42	6,459	4,342	-
WA107	SUNSET AV	Urban	249	100	AC	1961	100	2061	430	107,010	42	3,790	2,548	-
WA92	TORQUAY DR	Urban	344	150	AC	1961	100	2061	580	199,490	42	7,065	4,750	-
WA132	WIGLE GROVE RD	Urban	464	150	AC	1961	100	2061	580	269,170	42	9,533	6,409	-
WA123	BAYFIELD CR	Urban	176	100	AC	1967	100	2067	430	75,710	48	2,468	1,577	-
WA253	FAIRLEA CR	Urban	264	150	AC	1967	100	2067	580	153,150	48	4,993	3,191	-
WA86	MAYFAIR ST	Urban	206	150	AC	1967	100	2067	580	119,350	48	3,891	2,486	-
WA84	REGENT ST	Urban	310	150	AC	1967	100	2067	580	179,860	48	5,864	3,747	-
WA85	ROAD 2 E	Rural	189	150	AC	1967	100	2067	480	90,620	48	2,954	1,888	-
WA130	CENTENNIAL CR	Urban	264	150	AC	1969	100	2069	580	152,830	50	4,864	3,057	-
WA822	TOWNLINE RD S	Urban	91	150	AC	1969	100	2069	580	52,870	50	1,682	1,057	-
WA119	RAVINE LINE RD	Urban	202	150	AC	1970	100	2070	580	117,380	51	3,693	2,302	-
WA342	SUNNYBROOK CR	Urban	244	150	AC	1970	100	2070	580	141,420	51	4,449	2,773	-
WA568	COTTONWOOD AV	Urban	299	150	AC	1971	100	2071	580	173,220	52	5,389	3,331	-
WA114	GREENWOOD RD	Urban	280	150	AC	1971	100	2071	580	162,300	52	5,049	3,121	-
WA115	REDWOOD RD	Urban	279	150	AC	1971	100	2071	580	161,800	52	5,033	3,112	-
WA116	WHITEWOOD RD	Urban	263	150	AC	1971	100	2071	580	152,610	52	4,748	2,935	-
WA569	WHITEWOOD RD	Urban	150	150	AC	1971	100	2071	580	86,950	52	2,705	1,672	-
WA100	BAINBRIDGE AV	Urban	351	150	AC	1972	100	2072	580	203,680	53	6,268	3,843	-
WA101	NOTTINGHAM AV	Urban	273	150	AC	1972	100	2072	580	158,100	53	4,865	2,983	-
WA820	OXFORD AV	Urban	166	150	AC	1972	100	2072	580	96,410	53	2,967	1,819	-
WA102	OXFORD AV E	Urban	361	150	AC	1972	100	2072	580	209,290	53	6,441	3,949	-
WA819	OXFORD AV W	Urban	339	150	AC	1972	100	2072	580	196,600	53	6,050	3,709	-
WA790	COUNTY RD 50	Urban	1,259	200	AC	1973	100	2073	580	730,410	54	22,243	13,526	-
WA332	JASPERSON LANE	Urban	254	300	AC	1973	100	2073	720	182,650	54	5,562	3,382	-
WA482	ROAD 2 W	Rural	3,315	250	AC	1973	100	2073	540	1,789,900	54	54,507	33,146	-
WA254	SERVICE RD	Urban	204	150	AC	1973	100	2073	580	118,510	54	3,609	2,195	-
WA87	WILLOW DR	Urban	123	150	AC	1973	100	2073	580	71,290	54	2,171	1,320	-
WA81	WOOD-FERN AV	Urban	402	150	AC	1973	100	2073	580	233,120	54	7,099	4,317	-



<i>Import Id</i>	<i>Street</i>	<i>Urban or Rural</i>	<i>Length (m)</i>	<i>Diameter (mm)</i>	<i>Material</i>	<i>Year Installed</i>	<i>Estimated Life</i>	<i>Replacement Year</i>	<i>Replace-ment Cost / m</i>	<i>Total Main Replacement Costs</i>	<i>Years until Replacement</i>	<i>Annual Lifecycle Contribution Sinking Fund</i>	<i>Annual Lifecycle Contribution straight-line</i>	<i>Amount to be included in 10-year Forecast</i>
WA540	COUNTY RD 18	Urban	498	150	AC	1974	100	2074	580	288,970	55	8,711	5,254	-
WA78	COUNTY RD 18	Urban	516	150	AC	1974	100	2074	580	299,310	55	9,022	5,442	-
WA825	1ST BLVD	Urban	36	100	AC	1975	100	2075	430	15,640	56	467	279	-
WA413	2ND BLVD	Urban	34	50	AC	1975	100	2075	430	14,670	56	438	262	-
WA414	3RD BLVD	Urban	33	50	AC	1975	100	2075	430	14,240	56	425	254	-
WA415	4TH BLVD	Urban	35	50	AC	1975	100	2075	430	15,080	56	450	269	-
WA416	5TH BLVD	Urban	40	50	AC	1975	100	2075	430	16,990	56	507	303	-
WA184	6TH BLVD	Urban	47	100	AC	1975	100	2075	430	20,020	56	598	358	-
WA267	BAYVIEW AV	Urban	290	150	AC	1975	100	2075	580	168,440	56	5,027	3,008	-
WA273	BIRCH AV	Urban	205	150	AC	1975	100	2075	580	118,710	56	3,543	2,120	-
WA280	CANAL ST	Urban	103	150	AC	1975	100	2075	580	59,820	56	1,785	1,068	-
WA276	CEDAR DR	Urban	140	150	AC	1975	100	2075	580	81,340	56	2,428	1,453	-
WA277	CEDAR DR	Urban	205	150	AC	1975	100	2075	580	118,980	56	3,551	2,125	-
WA182	CEDAR ISLAND DR	Urban	117	50	AC	1975	100	2075	430	50,440	56	1,505	901	-
WA186	CEDAR ISLAND DR	Urban	140	250	AC	1975	100	2075	650	90,730	56	2,708	1,620	-
WA359	CEDAR ISLAND DR	Urban	154	250	AC	1975	100	2075	650	99,780	56	2,978	1,782	-
WA54	CEDAR ISLAND DR	Urban	236	250	AC	1975	100	2075	650	153,670	56	4,587	2,744	-
WA185	CEDAR ISLAND LANE	Urban	385	100	AC	1975	100	2075	430	165,340	56	4,935	2,953	-
WA809	CENTRE AV	Urban	92	150	AC	1975	100	2075	580	53,620	56	1,600	958	-
WA281	CHELSEA CR	Urban	282	150	AC	1975	100	2075	580	163,470	56	4,879	2,919	-
WA278	CHERRY AV	Urban	205	150	AC	1975	100	2075	580	118,930	56	3,550	2,124	-
WA812	COUNTY RD 18	Urban	25	150	AC	1975	100	2075	580	14,660	56	438	262	-
WA791	COUNTY RD 50	Urban	338	250	AC	1975	100	2075	650	219,600	56	6,554	3,921	-
WA792	COUNTY RD 50	Urban	366	250	AC	1975	100	2075	650	237,820	56	7,098	4,247	-
WA793	COUNTY RD 50	Urban	365	250	AC	1975	100	2075	650	236,970	56	7,073	4,232	-
WA794	COUNTY RD 50	Urban	365	250	AC	1975	100	2075	650	237,040	56	7,075	4,233	-
WA795	COUNTY RD 50	Urban	365	250	AC	1975	100	2075	650	237,350	56	7,084	4,238	-
WA796	COUNTY RD 50	Urban	396	250	AC	1975	100	2075	650	257,720	56	7,692	4,602	-
WA797	COUNTY RD 50	Urban	336	250	AC	1975	100	2075	650	218,500	56	6,521	3,902	-



<i>Import Id</i>	<i>Street</i>	<i>Urban or Rural</i>	<i>Length (m)</i>	<i>Diameter (mm)</i>	<i>Material</i>	<i>Year Installed</i>	<i>Estimated Life</i>	<i>Replacement Year</i>	<i>Replace-ment Cost / m</i>	<i>Total Main Replacement Costs</i>	<i>Years until Replacement</i>	<i>Annual Lifecycle Contribution Sinking Fund</i>	<i>Annual Lifecycle Contribution straight-line</i>	<i>Amount to be included in 10-year Forecast</i>
WA798	COUNTY RD 50	Urban	366	250	AC	1975	100	2075	650	238,100	56	7,106	4,252	-
WA799	COUNTY RD 50	Urban	365	250	AC	1975	100	2075	650	237,300	56	7,083	4,238	-
WA800	COUNTY RD 50	Urban	338	250	AC	1975	100	2075	650	219,970	56	6,565	3,928	-
WA801	COUNTY RD 50	Urban	755	250	AC	1975	100	2075	650	490,540	56	14,641	8,760	-
WA803	COUNTY RD 50	Urban	155	250	AC	1975	100	2075	650	100,810	56	3,009	1,800	-
WA367	DIX ALLEY	Urban	62	50	AC	1975	100	2075	430	26,560	56	793	474	-
WA366	EASEMENT	Rural	245	250	AC	1975	100	2075	540	132,550	56	3,956	2,367	-
WA183	EDITH PL	Urban	107	250	AC	1975	100	2075	650	69,750	56	2,082	1,246	-
WA270	ERIE AV	Urban	672	150	AC	1975	100	2075	580	389,610	56	11,629	6,957	-
WA347	FORD RD	Urban	237	150	AC	1975	100	2075	580	137,270	56	4,097	2,451	-
WA89	FULLER DR	Urban	270	150	AC	1975	100	2075	580	156,370	56	4,667	2,792	-
WA274	HEMLOCK AV	Urban	204	150	AC	1975	100	2075	580	118,200	56	3,528	2,111	-
WA363	LEWIS AV	Urban	532	150	AC	1975	100	2075	580	308,460	56	9,206	5,508	-
WA823	LORNA ST	Urban	140	250	AC	1975	100	2075	650	90,740	56	2,708	1,620	-
WA284	MALO ST	Urban	208	150	AC	1975	100	2075	580	120,440	56	3,595	2,151	-
WA266	MALOTT AV	Urban	254	150	AC	1975	100	2075	580	147,400	56	4,399	2,632	-
WA272	MAPLE AV	Urban	205	150	AC	1975	100	2075	580	118,690	56	3,542	2,119	-
WA495	MCCAIN SDRD	Rural	2,678	250	AC	1975	100	2075	540	1,446,040	56	43,159	25,822	-
WA500	MCCAIN SDRD	Rural	1,439	250	AC	1975	100	2075	540	776,880	56	23,187	13,873	-
WA675	MCCAIN SDRD	Rural	615	250	AC	1975	100	2075	540	331,950	56	9,908	5,928	-
WA380	MILL CREEK CR	Urban	92	150	AC	1975	100	2075	580	53,150	56	1,586	949	-
WA271	OAK AV	Urban	206	150	AC	1975	100	2075	580	119,380	56	3,563	2,132	-
WA268	PARK AV	Urban	353	150	AC	1975	100	2075	580	204,910	56	6,116	3,659	-
WA269	PEARSE RD	Urban	187	50	AC	1975	100	2075	430	80,540	56	2,404	1,438	-
WA283	PETER ST	Urban	191	150	AC	1975	100	2075	580	111,050	56	3,314	1,983	-
WA355	PRIVATE	Rural	33	50	AC	1975	100	2075	360	11,780	56	352	210	-
WA357	PRIVATE	Rural	218	250	AC	1975	100	2075	540	117,910	56	3,519	2,106	-
WA358	PRIVATE	Rural	96	250	AC	1975	100	2075	540	51,950	56	1,551	928	-
WA810	ROAD 3 E	Rural	21	150	AC	1975	100	2075	480	10,090	56	301	180	-



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WA256	SABO ST	Urban	177	150	AC	1975	100	2075	580	102,380	56	3,056	1,828	-
WA285	SCOTCH ALLEY	Urban	97	150	AC	1975	100	2075	580	56,240	56	1,679	1,004	-
WA282	SCRATCH LANE	Urban	166	150	AC	1975	100	2075	580	96,340	56	2,875	1,720	-
WA275	SPRUCE AV	Urban	206	150	AC	1975	100	2075	580	119,670	56	3,572	2,137	-
WA279	SYCAMORE AV	Urban	202	150	AC	1975	100	2075	580	117,250	56	3,500	2,094	-
WA194	WATERVIEW RD	Urban	366	250	AC	1975	100	2075	650	237,660	56	7,093	4,244	-
WA346	WATERVIEW RD	Urban	94	250	AC	1975	100	2075	650	60,920	56	1,818	1,088	-
WA503	WATERVIEW RD	Urban	135	250	AC	1975	100	2075	650	87,530	56	2,612	1,563	-
WA768	WRIDE AV	Urban	682	150	AC	1975	100	2075	580	395,340	56	11,800	7,060	-
WA426	COUNTY RD 29	Urban	518	200	CI	1959	80	2039	580	300,480	20	18,376	15,024	-
WA427	COUNTY RD 29	Urban	1,320	150	CI	1959	80	2039	580	765,720	20	46,829	38,286	-
WA204	BAYVIEW CR	Urban	106	150	CI	1973	80	2053	580	61,530	34	2,512	1,810	-
WA82	PEACH DR	Urban	182	100	CI	1973	80	2053	430	78,340	34	3,198	2,304	-
WA403	QUEEN BLVD	Urban	316	150	CI	1973	80	2053	580	183,420	34	7,487	5,395	-
WA247	CAMERON DR	Urban	219	150	CI	1974	80	2054	580	126,970	35	5,079	3,628	-
WA245	PALMER DR	Urban	354	200	CI	1974	80	2054	580	205,440	35	8,218	5,870	-
WA246	WESTLAWN AV	Urban	185	150	CI	1974	80	2054	580	107,500	35	4,300	3,071	-
WA181	AUGUSTINE DR	Urban	321	150	CI	1975	80	2055	580	186,420	36	7,314	5,178	-
WA225	AUGUSTINE DR	Urban	332	150	CI	1975	80	2055	580	192,630	36	7,557	5,351	-
WA224	MCCALLUM DR	Urban	359	150	CI	1975	80	2055	580	208,090	36	8,164	5,780	-
WA30	MCCALLUM DR	Urban	297	250	CI	1975	80	2055	650	192,890	36	7,568	5,358	-
WA195	MILL CREEK CR	Urban	89	150	CI	1975	80	2055	580	51,560	36	2,023	1,432	-
WA29	SUMAC DR	Urban	312	150	CI	1975	80	2055	580	181,160	36	7,107	5,032	-
WA862	SUMAC DR	Urban	187	150	CI	1975	80	2055	580	108,590	36	4,260	3,016	-
WA755	PETERSON RD	Rural	306	600	CPP	1999	80	2079	1,250	382,830	60	11,013	6,381	-
WA756	PETERSON RD	Rural	300	600	CPP	1999	80	2079	1,250	375,310	60	10,797	6,255	-
WA757	PETERSON RD	Rural	300	600	CPP	1999	80	2079	1,250	375,310	60	10,797	6,255	-
WA858	COUNTY RD 31	Urban	218	1,050	CPP	2005	80	2085	1,660	362,610	66	9,943	5,494	-
WA406	COUNTY RD 34	Urban	8	500	CPP	2005	80	2085	910	7,230	66	198	110	-



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WA407	EASEMENT	Rural	837	900	CPP	2005	80	2085	1,380	1,154,720	66	31,664	17,496	-
WA446	EASEMENT	Rural	16	750	CPP	2005	80	2085	1,250	20,190	66	554	306	-
WA408	ROAD 2 E	Rural	9	1,050	CPP	2005	80	2085	1,380	12,740	66	349	193	-
WA127	AUTUMN CT	Urban	54	150	DI	1967	80	2047	580	31,320	28	1,472	1,119	-
WA129	AUTUMN CT	Urban	36	150	DI	1967	80	2047	580	20,800	28	977	743	-
WA124	HICKORY LANE	Urban	83	150	DI	1967	80	2047	580	48,270	28	2,268	1,724	-
WA242	HILLVIEW CR	Urban	258	150	DI	1967	80	2047	580	149,860	28	7,042	5,352	-
WA121	KENYON POINT RD	Urban	434	150	DI	1967	80	2047	580	251,740	28	11,829	8,991	-
WA769	ROWLEY PARK DR	Urban	128	150	DI	1967	80	2047	580	74,220	28	3,488	2,651	-
WA128	ROWLEY PARK DR	Urban	250	150	DI	1968	80	2048	580	144,830	29	6,630	4,994	-
WA212	ALLEN CT	Urban	60	150	DI	1973	80	2053	580	35,010	34	1,429	1,030	-
WA215	COGHILL DR	Urban	467	150	DI	1973	80	2053	580	270,620	34	11,046	7,959	-
WA207	COMMISIONER DR	Urban	204	150	DI	1973	80	2053	580	118,120	34	4,822	3,474	-
WA2	CULL DR	Urban	568	200	DI	1973	80	2053	580	329,420	34	13,446	9,689	-
WA213	LONG CT	Urban	60	150	DI	1973	80	2053	580	34,960	34	1,427	1,028	-
WA159	PARK LANE	Urban	101	150	DI	1973	80	2053	580	58,470	34	2,387	1,720	-
WA205	PARKDALE CR	Urban	70	150	DI	1973	80	2053	580	40,690	34	1,661	1,197	-
WA473	QUEEN BLVD	Urban	133	100	DI	1973	80	2053	430	57,260	34	2,337	1,684	-
WA206	SUMMERSET AV	Urban	320	150	DI	1973	80	2053	580	185,630	34	7,577	5,460	-
WA782	WOODLAWN CR	Urban	640	300	DI	1973	80	2053	720	460,820	34	18,810	13,554	-
WA202	HERRINGTON ST	Urban	220	150	DI	1974	80	2054	580	127,700	35	5,108	3,649	-
WA827	JAMES AV	Urban	193	150	DI	1974	80	2054	580	111,740	35	4,470	3,193	-
WA209	KATRISHE CR	Urban	213	150	DI	1974	80	2054	580	123,250	35	4,930	3,521	-
WA325	OWENWOOD DR	Urban	286	150	DI	1974	80	2054	580	165,900	35	6,636	4,740	-
WA193	QUEEN ST	Urban	130	300	DI	1974	80	2054	720	93,260	35	3,731	2,665	-
WA775	EASEMENT	Rural	174	150	DI	1976	80	2056	480	83,370	37	3,210	2,253	-
WA304	STOCKWELL CR	Urban	125	150	DI	1976	80	2056	580	72,260	37	2,782	1,953	-
WA302	VICTORIA ST	Urban	145	150	DI	1976	80	2056	580	83,910	37	3,231	2,268	-
WA120	AURELIA CR	Urban	167	150	DI	1977	80	2057	580	96,850	38	3,663	2,549	-



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WA770	ROWLEY PARK DR	Urban	131	150	DI	1977	80	2057	580	75,700	38	2,863	1,992	-
WA864	ROWLEY PARK DR	Urban	47	150	DI	1977	80	2057	580	27,210	38	1,029	716	-
WA122	ST. LUKE CR	Urban	176	150	DI	1977	80	2057	580	102,310	38	3,869	2,692	-
WA13	APPLEWOOD RD	Urban	238	150	DI	1978	80	2058	580	137,960	39	5,128	3,537	-
WA249	APPLEWOOD RD	Urban	220	300	DI	1978	80	2058	720	158,080	39	5,876	4,053	-
WA250	CHERRYWOOD DR	Urban	408	150	DI	1978	80	2058	580	236,610	39	8,795	6,067	-
WA293	CLARK ST	Urban	368	150	DI	1978	80	2058	580	213,190	39	7,925	5,466	-
WA544	COUNTY RD 31	Urban	133	150	DI	1978	80	2058	580	77,080	39	2,865	1,976	-
WA546	COUNTY RD 31	Urban	276	150	DI	1978	80	2058	580	159,840	39	5,941	4,098	-
WA547	COUNTY RD 31	Urban	123	150	DI	1978	80	2058	580	71,510	39	2,658	1,834	-
WA75	EASEMENT	Rural	221	150	DI	1978	80	2058	480	105,960	39	3,939	2,717	-
WA373	MAIN ST W	Urban	685	200	DI	1978	80	2058	580	397,220	39	14,765	10,185	-
WA374	MAIN ST W	Urban	296	200	DI	1978	80	2058	580	171,620	39	6,379	4,401	-
WA348	PURPLE PLUM DR	Urban	136	150	DI	1978	80	2058	580	79,140	39	2,942	2,029	-
WA51	REMARK DR	Urban	255	300	DI	1978	80	2058	720	183,770	39	6,831	4,712	-
WA838	ROSEWOOD AV	Urban	85	150	DI	1978	80	2058	580	49,560	39	1,842	1,271	-
WA454	WOODYCREST AV	Urban	45	300	DI	1978	80	2058	720	32,370	39	1,203	830	-
WA785	WOODYCREST AV	Urban	33	300	DI	1978	80	2058	720	24,110	39	896	618	-
WA786	WOODYCREST AV	Urban	85	300	DI	1978	80	2058	720	61,220	39	2,276	1,570	-
WA837	WOODYCREST AV	Urban	39	150	DI	1978	80	2058	580	22,330	39	830	573	-
WA133	MURRAY ST	Urban	189	200	DI	1979	80	2059	580	109,740	40	4,012	2,744	-
WA134	WILLIAM AV	Urban	227	150	DI	1979	80	2059	580	131,890	40	4,821	3,297	-
WA135	WINSTON CR	Urban	204	150	DI	1979	80	2059	580	118,150	40	4,319	2,954	-
WA177	BEECH ST	Urban	313	150	DI	1980	80	2060	580	181,370	41	6,524	4,424	-
WA221	DIVISION ST N	Urban	140	250	DI	1980	80	2060	650	90,920	41	3,271	2,218	-
WA4	DIVISION ST N	Urban	113	200	DI	1980	80	2060	580	65,620	41	2,360	1,600	-
WA152	DOCK RD	Urban	95	200	DI	1980	80	2060	580	55,300	41	1,989	1,349	-
WA379	EASEMENT	Rural	49	150	DI	1980	80	2060	480	23,610	41	849	576	-
WA1841	LAKEVIEW LANE	Urban	19	150	DI	1980	80	2060	580	11,100	41	399	271	-



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WA870	LAKEVIEW LANE	Urban	19	150	DI	1980	80	2060	580	11,100	41	399	271	-
WA150	PARK ST	Urban	346	300	DI	1980	80	2060	720	249,010	41	8,957	6,073	-
WA180	PULFORD ST	Urban	319	300	DI	1980	80	2060	720	229,390	41	8,252	5,595	-
WA328	KINGSWOOD DR	Urban	118	150	DI	1981	80	2061	580	68,650	42	2,431	1,635	-
WA612	COUNTY RD 31	Urban	505	150	DI	1982	80	2062	580	292,730	43	10,213	6,808	-
WA613	COUNTY RD 31	Urban	931	150	DI	1982	80	2062	580	539,810	43	18,834	12,554	-
WA158	DIVISION ST S	Urban	205	200	DI	1988	80	2068	580	118,920	49	3,830	2,427	-
WA162	DIVISION ST S	Urban	376	200	DI	1988	80	2068	580	218,030	49	7,021	4,450	-
WA315	DIVISION ST S	Urban	91	200	DI	1988	80	2068	580	52,620	49	1,695	1,074	-
WA58	DIVISION ST S	Urban	302	200	DI	1988	80	2068	580	175,310	49	5,646	3,578	-
WA59	DIVISION ST S	Urban	105	200	DI	1988	80	2068	580	61,010	49	1,965	1,245	-
WA60	DIVISION ST S	Urban	81	200	DI	1988	80	2068	580	47,100	49	1,517	961	-
WA618	ELM ST	Urban	221	150	DI	1988	80	2068	580	127,910	49	4,119	2,610	-
WA160	DIVISION ST S	Urban	25	150	DI	1991	80	2071	580	14,650	52	456	282	-
WA163	LANDSDOWNE AV	Urban	518	200	DI	1991	80	2071	580	300,700	52	9,355	5,783	-
WA170	LANSLOWNE AV	Urban	415	200	DI	1991	80	2071	580	240,850	52	7,493	4,632	-
WA198	LAUREL ST	Urban	302	150	DI	1991	80	2071	580	175,110	52	5,448	3,368	-
WA155	PARK ST	Urban	132	200	DI	1991	80	2071	580	76,330	52	2,375	1,468	-
WA157	PARK ST	Urban	144	200	DI	1991	80	2071	580	83,440	52	2,596	1,605	-
WA530	VICTORIA AV	Urban	109	150	DI	1992	80	2072	580	63,030	53	1,940	1,189	-
WA629	MAIN ST E	Urban	161	200	DI	1993	80	2073	580	93,650	54	2,852	1,734	-
WA780	MAIN ST E	Urban	361	200	DI	1993	80	2073	580	209,490	54	6,379	3,879	-
WA390	MAIN ST E	Urban	485	200	DI	1994	80	2074	580	281,510	55	8,486	5,118	-
WA55	SPRUCE ST S	Urban	105	200	DI	1994	80	2074	580	61,110	55	1,842	1,111	-
WA850	SPRUCE ST S	Urban	91	200	DI	1994	80	2074	580	52,980	55	1,597	963	-
WA334	ANGEL CT	Urban	190	150	DI	1995	80	2075	580	110,300	56	3,292	1,970	-
WA173	GLADSTONE AV	Urban	176	150	DI	1996	80	2076	580	102,140	57	3,019	1,792	-
WA771	GLADSTONE AV	Urban	95	150	DI	1996	80	2076	580	55,040	57	1,627	966	-
WA772	GLADSTONE AV	Urban	96	150	DI	1996	80	2076	580	55,710	57	1,647	977	-



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WA169	VICTORIA AV	Urban	180	150	DI	1996	80	2076	580	104,590	57	3,092	1,835	-
WA834	FRANCIS ST	Urban	172	150	DI	1997	80	2077	580	99,670	58	2,919	1,718	-
WA294	LYLE ST	Urban	247	150	DI	1997	80	2077	580	142,980	58	4,187	2,465	-
WA702	WILLIAM ST	Urban	378	150	DI	1997	80	2077	580	219,050	58	6,415	3,777	-
WA292	FRANCIS ST	Urban	289	150	DI	1999	80	2079	580	167,770	60	4,826	2,796	-
WA240	MCCALLUM ST	Urban	374	250	DI	1999	80	2079	650	243,090	60	6,993	4,052	-
WA478	ROAD 2 W	Rural	3,610	150	DI	1999	80	2079	480	1,732,680	60	49,846	28,878	-
WA137	KATIE CR	Urban	128	150	DI	2001	80	2081	580	74,100	62	2,096	1,195	-
WA882	COUNTY RD 20	Urban	3,628	150	PVC	1976	100	2076	580	2,103,970	57	62,196	36,912	-
WA588	COUNTY RD 18	Urban	647	100	PVC	1985	100	2085	430	278,270	66	7,631	4,216	-
WA461	ROAD 3 W	Rural	1,036	150	PVC	1985	100	2085	480	497,400	66	13,639	7,536	-
WA461	ROAD 3 W	Rural	693	100	PVC	1985	100	2085	360	249,310	66	6,836	3,777	-
WA431	ROAD 5 W	Rural	432	100	PVC	1985	100	2085	360	155,680	66	4,269	2,359	-
WA596	COUNTY RD 18	Urban	713	100	PVC	1986	100	2086	430	306,400	67	8,341	4,573	-
WA62	ELM ST	Urban	294	150	PVC	1986	100	2086	580	170,280	67	4,636	2,541	-
WA873	ELM ST	Urban	294	150	PVC	1986	100	2086	580	170,280	67	4,636	2,541	-
WA608	KRATZ RD	Urban	718	250	PVC	1986	100	2086	650	466,780	67	12,707	6,967	-
WA609	KRATZ RD	Urban	604	250	PVC	1986	100	2086	650	392,760	67	10,692	5,862	-
WA610	KRATZ RD	Urban	322	250	PVC	1986	100	2086	650	209,610	67	5,706	3,129	-
WA197	QUEEN ST	Urban	391	200	PVC	1986	100	2086	580	226,610	67	6,169	3,382	-
WA57	QUEEN ST	Urban	197	200	PVC	1986	100	2086	580	114,440	67	3,115	1,708	-
WA698	ROAD 3 E	Rural	559	150	PVC	1987	100	2087	480	268,450	68	7,257	3,948	-
WA879	ROAD 5 W	Rural	937	150	PVC	1987	100	2087	480	449,910	68	12,162	6,616	-
WA203	ERIE ST	Urban	265	200	PVC	1988	100	2088	580	153,870	69	4,131	2,230	-
WA153	HARBOUR	Urban	260	150	PVC	1988	100	2088	580	150,950	69	4,053	2,188	-
WA402	ELGIN ST	Urban	374	150	PVC	1989	100	2089	580	216,800	70	5,782	3,097	-
WA776	FOX ST	Urban	349	150	PVC	1989	100	2089	580	202,440	70	5,399	2,892	-
WA216	COUNTY RD 20	Urban	1,475	150	PVC	1990	100	2090	580	855,380	71	22,663	12,048	-
WA372	COUNTY RD 20	Urban	956	150	PVC	1990	100	2090	580	554,490	71	14,691	7,810	-



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WA436	EASEMENT	Rural	513	50	PVC	1990	100	2090	360	184,560	71	4,890	2,599	-
WA432	GRAHAM SDRD	Rural	836	150	PVC	1990	100	2090	480	401,510	71	10,638	5,655	-
WA433	GRAHAM SDRD	Rural	689	100	PVC	1990	100	2090	360	248,170	71	6,575	3,495	-
WA6	GRAHAM SDRD	Rural	353	150	PVC	1990	100	2090	480	169,260	71	4,484	2,384	-
WA437	LONGLEE LANE	Urban	525	50	PVC	1990	100	2090	430	225,650	71	5,978	3,178	-
WA863	OLINDA SDRD	Rural	393	150	PVC	1990	100	2090	480	188,470	71	4,993	2,655	-
WA552	ROAD 5 E	Rural	183	150	PVC	1990	100	2090	480	87,790	71	2,326	1,236	-
WA581	ROAD 6 E	Rural	1,174	100	PVC	1990	100	2090	360	422,720	71	11,200	5,954	-
WA299	DELMER CRES N	Urban	317	150	PVC	1991	100	2091	580	183,980	72	4,844	2,555	-
WA300	DELMER CRES S	Urban	305	150	PVC	1991	100	2091	580	176,740	72	4,653	2,455	-
WA301	HILL ST	Urban	170	150	PVC	1991	100	2091	580	98,680	72	2,598	1,371	-
WA774	HILL ST	Urban	258	150	PVC	1991	100	2091	580	149,440	72	3,934	2,076	-
WA773	KLUNDERT CR	Urban	352	150	PVC	1991	100	2091	580	204,420	72	5,382	2,839	-
WA259	SETTINGINGTON DR	Urban	509	150	PVC	1991	100	2091	580	295,290	72	7,774	4,101	-
WA395	SPINKS DR	Urban	368	150	PVC	1991	100	2091	580	213,450	72	5,619	2,965	-
WA364	EASEMENT	Rural	279	150	PVC	1992	100	2092	480	134,040	73	3,507	1,836	-
WA411	LAWSON LANE	Urban	159	100	PVC	1992	100	2092	430	68,480	73	1,792	938	-
WA529	MILL ST E	Urban	118	150	PVC	1992	100	2092	580	68,360	73	1,789	936	-
WA532	MILL ST E	Urban	40	200	PVC	1992	100	2092	580	23,180	73	606	318	-
WA83	PRINCE ST	Urban	118	100	PVC	1992	100	2092	430	50,650	73	1,325	694	-
WA578	ROAD 6 E	Rural	767	100	PVC	1992	100	2092	360	276,190	73	7,226	3,783	-
WA429	SOUTH TALBOT RD	Rural	466	100	PVC	1992	100	2092	360	167,940	73	4,394	2,301	-
WA430	SOUTH TALBOT RD	Rural	1,785	100	PVC	1992	100	2092	360	642,590	73	16,813	8,803	-
WA109	WELLINGTON UNION AV	Urban	329	150	PVC	1992	100	2092	580	190,580	73	4,986	2,611	-
WA682	DIVISION ST N	Urban	693	300	PVC	1993	100	2093	720	499,310	74	12,986	6,747	-
WA787	DIVISION ST N	Urban	26	300	PVC	1993	100	2093	720	18,610	74	484	251	-
WA243	FERN AV	Urban	84	150	PVC	1993	100	2093	580	48,780	74	1,269	659	-
WA575	INMAN SDRD	Urban	552	100	PVC	1993	100	2093	430	237,490	74	6,176	3,209	-
WA576	INMAN SDRD	Urban	799	100	PVC	1993	100	2093	430	343,610	74	8,936	4,643	-



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WA244	IVY LANE	Urban	138	150	PVC	1993	100	2093	580	80,140	74	2,084	1,083	-
WA96	PORRONE DR	Urban	437	150	PVC	1993	100	2093	580	253,740	74	6,599	3,429	-
WA1509	ORIOLE CT	Urban	54	20	PVC	1994	100	2094	430	23,310	75	603	311	-
WA1509	ORIOLR CT	Urban	11	25	PVC	1994	100	2094	430	4,560	75	118	61	-
WA288	COTTAGE GROVE AV	Urban	569	150	PVC	1995	100	2095	580	330,270	76	8,490	4,346	-
WA607	COUNTY RD 18	Urban	624	100	PVC	1995	100	2095	430	268,270	76	6,897	3,530	-
WA3	COUNTY RD 50	Urban	818	100	PVC	1995	100	2095	430	351,560	76	9,038	4,626	-
WA287	ESSEX ST	Urban	200	150	PVC	1995	100	2095	580	116,090	76	2,984	1,528	-
WA388	GRAHAM SDRD	Rural	691	100	PVC	1995	100	2095	360	248,760	76	6,395	3,273	-
WA389	GRAHAM SDRD	Rural	502	50	PVC	1995	100	2095	360	180,540	76	4,641	2,376	-
WA239	HORWATH AV	Urban	307	200	PVC	1995	100	2095	580	178,190	76	4,581	2,345	-
WA286	LAWNDALE AV	Urban	558	150	PVC	1995	100	2095	580	323,350	76	8,313	4,255	-
WA417	MCCAIN SDRD	Rural	381	50	PVC	1995	100	2095	360	136,990	76	3,522	1,803	-
WA418	MCCAIN SDRD	Rural	581	50	PVC	1995	100	2095	360	209,010	76	5,373	2,750	-
WA393	ROAD 3 E	Rural	595	150	PVC	1995	100	2095	480	285,400	76	7,337	3,755	-
WA722	ROAD 3 E	Rural	456	150	PVC	1995	100	2095	480	218,700	76	5,622	2,878	-
WA434	ROAD 5 E	Rural	710	100	PVC	1995	100	2095	360	255,720	76	6,574	3,365	-
WA878	ROAD 5 E	Rural	710	100	PVC	1995	100	2095	360	255,720	76	6,574	3,365	-
WA616	ROAD 5 W	Rural	465	100	PVC	1995	100	2095	360	167,440	76	4,304	2,203	-
WA573	ROAD 6 E	Rural	704	150	PVC	1995	100	2095	480	338,040	76	8,690	4,448	-
WA739	ROAD 6 E	Rural	626	150	PVC	1995	100	2095	480	300,620	76	7,728	3,956	-
WA238	THORNCREST ST	Urban	298	200	PVC	1995	100	2095	580	172,960	76	4,446	2,276	-
WA538	COUNTY RD 14	Urban	793	150	PVC	1996	100	2096	580	459,800	77	11,755	5,971	-
WA545	COUNTY RD 14	Urban	337	150	PVC	1996	100	2096	580	195,200	77	4,990	2,535	-
WA590	COUNTY RD 14	Urban	3,297	150	PVC	1996	100	2096	580	1,912,020	77	48,880	24,831	-
WA759	COUNTY RD 14	Urban	803	150	PVC	1996	100	2096	580	465,510	77	11,901	6,046	-
WA788	COUNTY RD 27 W	Urban	332	200	PVC	1996	100	2096	580	192,590	77	4,923	2,501	-
WA504	MCCAIN SDRD	Rural	340	150	PVC	1996	100	2096	480	163,430	77	4,178	2,122	-
WA751	MCCAIN SDRD	Rural	300	150	PVC	1996	100	2096	480	143,910	77	3,679	1,869	-



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WA752	MCCAIN SDRD	Rural	351	150	PVC	1996	100	2096	480	168,310	77	4,303	2,186	-
WA753	MCCAIN SDRD	Rural	350	150	PVC	1996	100	2096	480	168,010	77	4,295	2,182	-
WA754	MCCAIN SDRD	Rural	40	150	PVC	1996	100	2096	480	19,090	77	488	248	-
WA693	NORTH TALBOT RD	Rural	393	100	PVC	1996	100	2096	360	141,340	77	3,613	1,836	-
WA695	NORTH TALBOT RD	Rural	423	150	PVC	1996	100	2096	480	202,910	77	5,187	2,635	-
WA176	RAILWAY CT	Urban	67	150	PVC	1996	100	2096	580	38,920	77	995	505	-
WA422	ROAD 6 W	Rural	46	150	PVC	1996	100	2096	480	22,270	77	569	289	-
WA423	ROAD 6 W	Rural	67	150	PVC	1996	100	2096	480	32,100	77	821	417	-
WA505	ROAD 6 W	Rural	348	150	PVC	1996	100	2096	480	166,920	77	4,267	2,168	-
WA506	ROAD 6 W	Rural	180	150	PVC	1996	100	2096	480	86,510	77	2,212	1,124	-
WA507	ROAD 6 W	Rural	352	150	PVC	1996	100	2096	480	168,720	77	4,313	2,191	-
WA508	ROAD 6 W	Rural	350	150	PVC	1996	100	2096	480	167,850	77	4,291	2,180	-
WA509	ROAD 6 W	Rural	351	150	PVC	1996	100	2096	480	168,710	77	4,313	2,191	-
WA510	ROAD 6 W	Rural	353	150	PVC	1996	100	2096	480	169,500	77	4,333	2,201	-
WA511	ROAD 6 W	Rural	352	150	PVC	1996	100	2096	480	168,790	77	4,315	2,192	-
WA512	ROAD 6 W	Rural	352	150	PVC	1996	100	2096	480	168,790	77	4,315	2,192	-
WA513	ROAD 6 W	Rural	349	150	PVC	1996	100	2096	480	167,700	77	4,287	2,178	-
WA514	ROAD 6 W	Rural	290	150	PVC	1996	100	2096	480	139,180	77	3,558	1,808	-
WA691	ROAD 7 EAST	Rural	799	150	PVC	1996	100	2096	480	383,490	77	9,804	4,980	-
WA175	STATION CT	Urban	68	150	PVC	1996	100	2096	580	39,270	77	1,004	510	-
WA494	TRAIN CT	Urban	167	150	PVC	1996	100	2096	580	97,030	77	2,481	1,260	-
WA493	WALKER DR	Urban	374	150	PVC	1996	100	2096	580	216,980	77	5,547	2,818	-
WA571	CAMERON SDRD	Rural	339	150	PVC	1997	100	2097	480	162,780	78	4,139	2,087	-
WA572	CAMERON SDRD	Rural	351	150	PVC	1997	100	2097	480	168,270	78	4,278	2,157	-
WA311	CROSSWINDS BLVD	Urban	260	150	PVC	1997	100	2097	580	150,710	78	3,832	1,932	-
WA365	CROSSWINDS BLVD	Urban	107	150	PVC	1997	100	2097	580	61,940	78	1,575	794	-
WA386	EASEMENT	Rural	163	150	PVC	1997	100	2097	480	78,480	78	1,995	1,006	-
WA558	EASEMENT	Rural	1,044	300	PVC	1997	100	2097	600	626,180	78	15,921	8,028	-
WA384	GRAHAM SDRD	Rural	31	150	PVC	1997	100	2097	480	14,870	78	378	191	-



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WA385	GRAHAM SDRD	Rural	860	200	PVC	1997	100	2097	480	412,960	78	10,500	5,294	-
WA649	GRAHAM SDRD	Rural	18	150	PVC	1997	100	2097	480	8,460	78	215	108	-
WA533	MILL ST E	Urban	271	150	PVC	1997	100	2097	580	157,080	78	3,994	2,014	-
WA842	MILLBROOK DR	Urban	171	300	PVC	1997	100	2097	720	123,400	78	3,138	1,582	-
WA535	PEARL ST E	Urban	314	150	PVC	1997	100	2097	580	182,210	78	4,633	2,336	-
WA516	ROAD 10	Rural	349	150	PVC	1997	100	2097	480	167,340	78	4,255	2,145	-
WA235	ROCKPORT LANE	Urban	212	150	PVC	1997	100	2097	580	122,780	78	3,122	1,574	-
WA234	SADDLE LANE	Urban	239	300	PVC	1997	100	2097	720	171,800	78	4,368	2,203	-
WA846	SADDLE LANE	Urban	57	150	PVC	1997	100	2097	580	33,190	78	844	426	-
WA232	SANDYBROOK WAY	Urban	328	300	PVC	1997	100	2097	720	236,110	78	6,003	3,027	-
WA663	SUMAC DR	Urban	59	150	PVC	1997	100	2097	580	34,020	78	865	436	-
WA664	SUMAC DR	Urban	53	150	PVC	1997	100	2097	580	30,980	78	788	397	-
WA262	VIOLA CR	Urban	209	150	PVC	1997	100	2097	580	121,160	78	3,081	1,553	-
WA290	DIANE D ST	Urban	165	150	PVC	1998	100	2098	580	95,440	79	2,414	1,208	-
WA323	HERITAGE RD	Urban	458	200	PVC	1998	100	2098	580	265,800	79	6,722	3,365	-
WA683	MAIN ST E	Urban	304	200	PVC	1998	100	2098	580	176,140	79	4,455	2,230	-
WA690	MAIN ST E	Urban	232	200	PVC	1998	100	2098	580	134,480	79	3,401	1,702	-
WA217	MAIN ST W	Urban	144	150	PVC	1998	100	2098	580	83,370	79	2,109	1,055	-
WA261	SANTOS DR	Urban	268	150	PVC	1998	100	2098	580	155,380	79	3,930	1,967	-
WA291	SARA ST	Urban	67	150	PVC	1998	100	2098	580	38,600	79	976	489	-
WA289	VERIENA BLVD	Urban	189	150	PVC	1998	100	2098	580	109,380	79	2,766	1,385	-
WA585	COUNTY RD 20	Urban	3,628	150	PVC	1999	100	2099	580	2,103,970	80	52,937	26,300	-
WA419	COUNTY RD 23	Urban	529	100	PVC	1999	100	2099	430	227,500	80	5,724	2,844	-
WA672	COUNTY RD 23	Urban	148	100	PVC	1999	100	2099	430	63,700	80	1,603	796	-
WA443	GREENWOOD AV	Urban	127	150	PVC	1999	100	2099	580	73,490	80	1,849	919	-
WA156	JAN'S CR	Urban	100	150	PVC	1999	100	2099	580	57,920	80	1,457	724	-
WA472	LEE RD	Urban	124	150	PVC	1999	100	2099	580	71,800	80	1,807	898	-
WA167	MYRTLE ST	Urban	266	150	PVC	1999	100	2099	580	154,380	80	3,884	1,930	-
WA839	PURPLE PLUM DR	Urban	30	150	PVC	1999	100	2099	580	17,460	80	439	218	-



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WA296	REDWOOD AV	Urban	187	150	PVC	1999	100	2099	580	108,420	80	2,728	1,355	-
WA835	REDWOOD AV	Urban	100	150	PVC	1999	100	2099	580	58,060	80	1,461	726	-
WA833	ROAD 3 E	Rural	146	300	PVC	1999	100	2099	600	87,580	80	2,204	1,095	-
WA670	ROAD 9 W	Rural	367	100	PVC	1999	100	2099	360	132,070	80	3,323	1,651	-
WA396	SPINKS DR	Urban	1,038	250	PVC	1999	100	2099	650	674,580	80	16,973	8,432	-
WA832	SPINKS DR	Urban	349	300	PVC	1999	100	2099	720	251,000	80	6,315	3,138	-
WA174	VICTORIA AV	Urban	219	150	PVC	1999	100	2099	580	127,100	80	3,198	1,589	-
WA297	WHITEWOOD AV	Urban	191	150	PVC	1999	100	2099	580	110,690	80	2,785	1,384	-
WA871	WRIDE AV	Urban	682	150	PVC	1999	100	2099	580	395,340	80	9,947	4,942	-
WA658	COUNTY RD 27 WEST	Urban	726	150	PVC	2000	100	2100	580	420,880	81	10,536	5,196	-
WA317	EASEMENT	Rural	101	150	PVC	2000	100	2100	480	48,290	81	1,209	596	-
WA161	LAKESIDE CR	Urban	91	150	PVC	2000	100	2100	580	52,500	81	1,314	648	-
WA685	ROAD 11	Rural	349	150	PVC	2000	100	2100	480	167,720	81	4,199	2,071	-
WA231	BROOKSIDE CT	Urban	65	150	PVC	2001	100	2101	580	37,470	82	933	457	-
WA52	BUONA VISTA DR	Urban	241	150	PVC	2001	100	2101	580	139,900	82	3,485	1,706	-
WA345	DIMENNA DR	Urban	235	150	PVC	2001	100	2101	580	136,150	82	3,392	1,660	-
WA237	EASEMENT	Rural	264	150	PVC	2001	100	2101	480	126,650	82	3,155	1,545	-
WA142	ERIEVIEW ST	Urban	179	150	PVC	2001	100	2101	580	103,730	82	2,584	1,265	-
WA139	GLASS AV	Urban	180	150	PVC	2001	100	2101	580	104,510	82	2,603	1,275	-
WA144	LAKEVIEW AV	Urban	165	150	PVC	2001	100	2101	580	95,700	82	2,384	1,167	-
WA228	MILLBROOK DR	Urban	500	150	PVC	2001	100	2101	580	289,980	82	7,224	3,536	-
WA515	ROAD 10	Rural	3,263	150	PVC	2001	100	2101	480	1,566,240	82	39,017	19,100	-
WA149	ROAD 11	Rural	3,628	150	PVC	2001	100	2101	480	1,741,390	82	43,380	21,236	-
WA233	SANDPEBBLE CR	Urban	64	150	PVC	2001	100	2101	580	37,100	82	924	452	-
WA229	SANDYBROOK WAY	Urban	232	300	PVC	2001	100	2101	720	166,690	82	4,152	2,033	-
WA236	TIMBERLAKE DR	Urban	211	150	PVC	2001	100	2101	580	122,610	82	3,054	1,495	-
WA343	VALLOCHIE CT	Urban	124	150	PVC	2001	100	2101	580	71,870	82	1,790	876	-
WA140	WIGLE AV	Urban	468	300	PVC	2001	100	2101	720	337,290	82	8,402	4,113	-
WA816	WIGLE AV	Urban	451	300	PVC	2001	100	2101	720	324,980	82	8,096	3,963	-



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WA53	CATALINA CT	Urban	82	150	PVC	2002	100	2102	580	47,680	83	1,182	574	-
WA361	CEDAR ISLAND RD	Urban	116	150	PVC	2002	100	2102	580	67,260	83	1,667	810	-
WA824	CEDAR ISLAND RD	Urban	82	150	PVC	2002	100	2102	580	47,430	83	1,176	571	-
WA34	CREEKVIEW BLVD	Urban	355	200	PVC	2002	100	2102	580	205,970	83	5,106	2,482	-
WA840	CREEKVIEW BLVD	Urban	97	200	PVC	2002	100	2102	580	56,490	83	1,400	681	-
WA843	CREEKVIEW BLVD	Urban	134	200	PVC	2002	100	2102	580	77,740	83	1,927	937	-
WA308	CREEKVIRE BLVD	Urban	41	200	PVC	2002	100	2102	580	24,060	83	596	290	-
WA48	DIEPPE CR	Urban	529	150	PVC	2002	100	2102	580	306,550	83	7,600	3,693	-
WA188	ELINOR ST	Urban	86	150	PVC	2002	100	2102	580	49,870	83	1,236	601	-
WA46	ELWOOD CR	Urban	92	150	PVC	2002	100	2102	580	53,570	83	1,328	645	-
WA208	JAMES AVE	Urban	208	150	PVC	2002	100	2102	580	120,560	83	2,989	1,453	-
WA333	JASPERSON DR	Urban	500	200	PVC	2002	100	2102	580	290,250	83	7,196	3,497	-
WA251	LUKAS DR	Urban	40	200	PVC	2002	100	2102	580	23,000	83	570	277	-
WA360	MONTEGO BAY CR	Urban	170	150	PVC	2002	100	2102	580	98,430	83	2,440	1,186	-
WA362	MONTEGO BAY CR	Urban	185	150	PVC	2002	100	2102	580	107,070	83	2,654	1,290	-
WA49	NORMANDY AV	Urban	285	150	PVC	2002	100	2102	580	165,070	83	4,092	1,989	-
WA4456	PEACHWOOD DR	Urban	200	200	PVC	2002	100	2102	580	116,000	83	2,876	1,398	-
WA8	PEACHWOOD DR	Urban	441	200	PVC	2002	100	2102	580	255,750	83	6,340	3,081	-
WA320	COUNTY RD 18	Urban	174	300	PVC	2003	100	2103	720	125,630	84	3,100	1,496	-
WA387	GRAHAM SDRD	Rural	285	300	PVC	2003	100	2103	600	170,970	84	4,219	2,035	-
WA26	LEONARD DR	Urban	205	150	PVC	2003	100	2103	580	118,920	84	2,934	1,416	-
WA614	COUNTY RD 31	Urban	458	250	PVC	2004	100	2104	650	297,630	85	7,311	3,502	-
WA615	COUNTY RD 31	Urban	253	250	PVC	2004	100	2104	650	164,390	85	4,038	1,934	-
WA381	EASEMENT	Rural	535	200	PVC	2004	100	2104	480	256,730	85	6,306	3,020	-
WA36	GOLFVIEW DR	Urban	449	200	PVC	2004	100	2104	580	260,400	85	6,396	3,064	-
WA110	MAIN ST UNION	Urban	124	150	PVC	2004	100	2104	580	71,690	85	1,761	843	-
WA168	MAPLE ST	Urban	267	150	PVC	2004	100	2104	580	154,710	85	3,800	1,820	-
WA841	MARSHWOODS BLVD	Urban	96	200	PVC	2004	100	2104	580	55,680	85	1,368	655	-
WA154	METTAWAS LANE	Urban	171	150	PVC	2004	100	2104	580	99,050	85	2,433	1,165	-



<i>Import Id</i>	<i>Street</i>	<i>Urban or Rural</i>	<i>Length (m)</i>	<i>Diameter (mm)</i>	<i>Material</i>	<i>Year Installed</i>	<i>Estimated Life</i>	<i>Replacement Year</i>	<i>Replace-ment Cost / m</i>	<i>Total Main Replacement Costs</i>	<i>Years until Replacement</i>	<i>Annual Lifecycle Contribution Sinking Fund</i>	<i>Annual Lifecycle Contribution straight-line</i>	<i>Amount to be included in 10-year Forecast</i>
WA314	MILL ST W	Urban	214	150	PVC	2004	100	2104	580	124,250	85	3,052	1,462	-
WA230	OAK PARK CR	Urban	221	150	PVC	2004	100	2104	580	128,190	85	3,149	1,508	-
WA534	PEARL ST W	Urban	215	150	PVC	2004	100	2104	580	124,750	85	3,064	1,468	-
WA111	UNION AV	Urban	243	150	PVC	2004	100	2104	580	141,080	85	3,465	1,660	-
WA112	UNION PARK ST	Urban	157	150	PVC	2004	100	2104	580	90,950	85	2,234	1,070	-
WA146	INDUSTRY RD	Urban	343	200	PVC	2005	100	2105	580	198,660	86	4,858	2,310	-
WA12	PINETREE CRES	Urban	306	150	PVC	2005	100	2105	580	177,750	86	4,347	2,067	-
WA944	PINETREE CRES	Urban	306	150	PVC	2005	100	2105	580	177,750	86	4,347	2,067	-
WA64	QUEEN ST	Urban	459	200	PVC	2005	100	2105	580	266,390	86	6,514	3,098	-
WA248	WISTERIA LANE	Urban	137	150	PVC	2005	100	2105	580	79,380	86	1,941	923	-
WA9	WOODYCREST AV	Urban	371	300	PVC	2005	100	2105	720	267,290	86	6,536	3,108	-
WA35	CONSERVATION BLVD	Urban	755	200	PVC	2006	100	2106	580	437,840	87	10,660	5,033	-
WA845	GOLFVIEW DR	Urban	311	200	PVC	2006	100	2106	580	180,240	87	4,388	2,072	-
WA341	GRAHAM SDRD	Rural	782	200	PVC	2006	100	2106	480	375,420	87	9,141	4,315	-
WA681	GRAHAM SDRD	Rural	456	300	PVC	2006	100	2106	600	273,430	87	6,657	3,143	-
WA327	HARBOURVIEW DR	Urban	242	150	PVC	2006	100	2106	580	140,240	87	3,414	1,612	-
WA310	MARSHWOODS BLVD	Urban	390	200	PVC	2006	100	2106	580	226,060	87	5,504	2,598	-
WA65	MCLEAN ST	Urban	217	200	PVC	2006	100	2106	580	125,980	87	3,067	1,448	-
WA22	PRIMROSE DR	Urban	250	150	PVC	2006	100	2106	580	145,010	87	3,531	1,667	-
WA326	QUEEN ST	Urban	241	200	PVC	2006	100	2106	580	139,590	87	3,399	1,604	-
WA1805	SANDYBROOK WAY	Urban	357	300	PVC	2006	100	2106	720	256,880	87	6,254	2,953	-
WA19	SANDYBROOK WAY	Urban	357	300	PVC	2006	100	2106	720	256,880	87	6,254	2,953	-
WA66	SHERMAN RD	Urban	216	150	PVC	2006	100	2106	580	125,060	87	3,045	1,437	-
WA1808	COUNTY RD 14	Urban	803	150	PVC	2007	100	2107	580	465,510	88	11,286	5,290	-
WA148	LAKEVIEW AV	Urban	548	300	PVC	2007	100	2107	720	394,270	88	9,559	4,480	-
WA201	STANLEY ST	Urban	95	150	PVC	2007	100	2107	580	54,820	88	1,329	623	-
WA196	STEWART ST	Urban	402	150	PVC	2007	100	2107	580	233,190	88	5,653	2,650	-
WA196	STEWART ST	Urban	402	150	PVC	2007	100	2107	580	233,190	88	5,653	2,650	-
WA439	HILL ST	Urban	301	150	PVC	2008	100	2108	580	174,310	89	4,208	1,959	-



Import Id	Street	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replace-ment Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution Sinking Fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
WA165	PROSPECT ST	Urban	179	150	PVC	2008	100	2108	580	103,910	89	2,509	1,168	-
WA166	PROSPECT ST	Urban	267	200	PVC	2008	100	2108	580	154,940	89	3,741	1,741	-
WA1819	BRUNER CRT	Urban	24	150	PVC	2009	100	2109	580	13,920	90	335	155	-
	CULL DR	Urban	523	200	PVC	2009	100	2109	580	303,340	90	7,294	3,370	-
WA319	FOX ST	Urban	153	150	PVC	2009	100	2109	580	88,530	90	2,129	984	-
WA440	FOX ST	Urban	155	150	PVC	2009	100	2109	580	89,760	90	2,158	997	-
	FOX ST	Urban	155	150	PVC	2009	100	2109	580	89,760	90	2,158	997	-
WA3147	ORIOLE CT	Urban	12	150	PVC	2009	100	2109	580	6,730	90	162	75	-
WA3147	ORIOLE CT	Urban	8	150	PVC	2009	100	2109	580	4,700	90	113	52	-
WA27	PERAL ST E	Urban	277	200	PVC	2009	100	2109	580	160,570	90	3,861	1,784	-
WA946	PERAL ST E	Urban	277	200	PVC	2009	100	2109	580	160,570	90	3,861	1,784	-
WA211	STONEHEDGE DR	Urban	372	150	PVC	2009	100	2109	580	215,850	90	5,190	2,398	-
WA3147	SUMMERSET AVE	Urban	19	150	PVC	2009	100	2109	580	11,080	90	266	123	-
WA3256	TOWN PROPERTY	Urban	462	150	PVC	2009	100	2109	580	267,960	90	6,443	2,977	-
WA177	WATER ST	Urban	93	200	PVC	2009	100	2109	580	54,090	90	1,301	601	-
WA1925	WATER ST	Urban	72	150	PVC	2009	100	2109	580	41,930	90	1,008	466	-
WA200	CHESTNUT ST	Urban	120	200	PVC	2010	100	2110	580	69,690	91	1,669	766	-
WA6017	COUNTY RD 31	Urban	22	250	PVC	2010	100	2110	650	14,300	91	342	157	-
WA171	GRACE ST	Urban	159	200	PVC	2010	100	2110	580	92,160	91	2,207	1,013	-
WA1788	HAZEL CRES	Urban	519	150	PVC	2010	100	2110	580	300,850	91	7,206	3,306	-
WA329	KING ST	Urban	111	200	PVC	2010	100	2110	580	64,380	91	1,542	707	-
	MULBERRY CRES	Urban	52	150	PVC	2010	100	2110	580	30,160	91	722	331	-
WA219	PRINCE ALBERT ST N	Urban	272	200	PVC	2010	100	2110	580	157,470	91	3,772	1,730	-
WA6018	ROAD 3 E	Rural	22	250	PVC	2010	100	2110	540	11,880	91	285	131	-
WA200	STANLEY ST	Urban	218	200	PVC	2010	100	2110	580	126,180	91	3,022	1,387	-
WA172	WELLINGTON ST	Urban	160	200	PVC	2010	100	2110	580	93,040	91	2,228	1,022	-
	WOODYCRES AVE	Urban	40	150	PVC	2010	100	2110	580	23,200	91	556	255	-
WA10	WOODYCREST AV	Urban	174	300	PVC	2010	100	2110	720	124,970	91	2,993	1,373	-
WA164	ERIE ST	Urban	180	150	PVC	2011	100	2111	580	104,640	92	2,497	1,137	-



<i>Import Id</i>	<i>Street</i>	<i>Urban or Rural</i>	<i>Length (m)</i>	<i>Diameter (mm)</i>	<i>Material</i>	<i>Year Installed</i>	<i>Estimated Life</i>	<i>Replacement Year</i>	<i>Replace-ment Cost / m</i>	<i>Total Main Replacement Costs</i>	<i>Years until Replacement</i>	<i>Annual Lifecycle Contribution Sinking Fund</i>	<i>Annual Lifecycle Contribution straight-line</i>	<i>Amount to be included in 10-year Forecast</i>
WA1580	GREENHILL LANE	Urban	221	200	PVC	2011	100	2111	580	128,180	92	3,058	1,393	-
WA378	PEARL ST W	Urban	176	200	PVC	2011	100	2111	580	101,850	92	2,430	1,107	-
WA6010	BRANCO DR	Urban	206	200	PVC	2012	100	2112	580	119,350	93	2,837	1,283	-
WA283	EASEMENT	Rural	300	150	PVC	2012	100	2112	480	144,000	93	3,423	1,548	-
WA61	MCDONALD ST	Urban	304	200	PVC	2012	100	2112	580	176,320	93	4,191	1,896	-
WA1590	MILL ST W	Urban	296	200	PVC	2012	100	2112	580	171,740	93	4,082	1,847	-
WA6012	NOAH CRES	Urban	206	150	PVC	2012	100	2112	580	119,350	93	2,837	1,283	-
WA289	PEARL ST W	Urban	153	200	PVC	2012	100	2112	580	88,660	93	2,107	953	-
WA376	PEARL ST W	Urban	153	200	PVC	2012	100	2112	580	88,660	93	2,107	953	-
WA1586	PRINCE ALBERT ST S	Urban	192	200	PVC	2012	100	2112	580	111,090	93	2,640	1,195	-
WA5202	EMILY AVE	Urban	480	150	PVC	2013	100	2113	580	278,400	94	6,593	2,962	-
WA5204	EMILY AVE	Urban	15	150	PVC	2013	100	2113	580	8,700	94	206	93	-
WA95	GRANDVIEW AV	Urban	321	150	PVC	2013	100	2113	580	186,180	94	4,409	1,981	-
WA4800	HOUSTON AVE	Urban	286	150	PVC	2013	100	2113	580	165,880	94	3,928	1,765	-
WA1515	MULBERRY CRES	Urban	338	150	PVC	2013	100	2113	580	196,040	94	4,642	2,086	-
WA312	PRINCE ALBERT ST N	Urban	918	200	PVC	2013	100	2113	580	532,700	94	12,615	5,667	-
WA779	SPRUCE ST N	Urban	114	150	PVC	2013	100	2113	580	66,060	94	1,564	703	-
WA128	SPRUCE ST N	Urban	370	150	PVC	2013	100	2113	580	214,600	94	5,082	2,283	-
WA6004	SPRUCE ST N	Urban	10	150	PVC	2013	100	2113	580	5,800	94	137	62	-
WA6005	SPRUCE ST N	Urban	10	150	PVC	2013	100	2113	580	5,800	94	137	62	-
WA6008	SPRUCE ST N	Urban	11	150	PVC	2013	100	2113	580	6,380	94	151	68	-
WA178	WATERMILL ST	Urban	175	150	PVC	2013	100	2113	580	101,690	94	2,408	1,082	-
WA67	MELBOURNE ST	Urban	218	150	PVC	2014	100	2114	580	126,710	95	2,990	1,334	-
WA3252	WOODYCREST AVE	Urban	40	150	PVC	2014	100	2114	580	23,200	95	547	244	-
WA491	CONSERVATION BLVD	Urban	756	200	PVC	2015	100	2115	580	438,480	96	10,310	4,568	-
WA3655	GOLFVIEW DR	Urban	200	200	PVC	2015	100	2115	580	116,000	96	2,728	1,208	-
WA3657	GOLFVIEW DR	Urban	65	200	PVC	2015	100	2115	580	37,700	96	886	393	-
WA3656	MEGHAN AGOSTA DR	Urban	311	200	PVC	2015	100	2115	580	180,240	96	4,238	1,878	-
WA4466	OAKGLEN DR	Urban	208	150	PVC	2016	100	2116	580	120,640	97	2,827	1,244	-



<i>Import Id</i>	<i>Street</i>	<i>Urban or Rural</i>	<i>Length (m)</i>	<i>Diameter (mm)</i>	<i>Material</i>	<i>Year Installed</i>	<i>Estimated Life</i>	<i>Replacement Year</i>	<i>Replace-ment Cost / m</i>	<i>Total Main Replacement Costs</i>	<i>Years until Replacement</i>	<i>Annual Lifecycle Contribution Sinking Fund</i>	<i>Annual Lifecycle Contribution straight-line</i>	<i>Amount to be included in 10-year Forecast</i>
Total			178,768							99,846,750		2,885,598	1,659,836	0



Appendix B

Wastewater System Inventory Data



Appendix B: Wastewater System Inventory Data



Table B-1
Town of Kingsville
Wastewater Facilities

Asset ID	Item	Description	Location	Cottam vs. K/LSW	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10 year Forecast
3120	Blower Building Kingsville Lagoons	blower building	516 COUNTY RD 20	K/LSW	1980	50	2030	182,500	11	18,647	16,591	-
3123	Ruthven PS #1	Pump station	ROAD 2 E	K/LSW	2007	50	2057	750,000	38	28,365	19,737	-
3124	LSW PS #3	Pump station	CEDAR DR	K/LSW	1996	50	2046	120,000	27	5,795	4,444	-
3125	LSW PS #5	Pump station	HERITAGE RD	K/LSW	1996	50	2046	120,000	27	5,795	4,444	-
3126	LSW PS #4	Pump station	HERITAGE RD S/S	K/LSW	1996	50	2046	120,000	27	5,795	4,444	-
3127	Kingsville PS #1	Pump station	QUEEN	K/LSW	1967	50	2019	700,000	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	700,000
3128	LSW PS #1	Pump station	690 HERITAGE RD	K/LSW	1996	50	2046	500,000	27	24,147	18,519	-
3129	Cottam PS #2	Pump station	William St. (adjacent to roll # 3711560000024710000)	Cottam	1996	50	2046	120,000	27	5,795	4,444	-
3130	Kingville PS #2	Pump station	67 HERITAGE RD	K/LSW	1967	50	2019	1,000,000	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	1,000,000
3131	LSW PS #2	Pump station	4th Blvd Cedar Island. (adjacent to rol l# 37112700004700000000)	K/LSW	1996	50	2046	750,000	27	36,220	27,778	-
3132	LSW PS #6	Pump station	Normady Ave (adjacent to rol l# 3711270000311000000)	K/LSW	2003	50	2053	120,000	34	4,898	3,529	-
3133	LSW PS #1 - Sludge Dewatering Building	sludge dewatering building	690 HERITAGE RD	K/LSW	1998	50	2048	2,000,000	29	91,557	68,966	-
3135	LSW Waste Water Treatment Plant	Water Treatment/Filtration/Water Tower/Pumping Station	690 HERITAGE RD	K/LSW	1996	50	2046	15,000,000	27	724,396	555,556	-
3137	Kingsville PS #3	Kingsville PS #3	MCCALLUM DR	K/LSW	2006	50	2056	120,000	37	4,621	3,243	-
22433	Cottam Lagoons/PS #1	Pump station	168 COUNTY RD 27	Cottam	2016	50	2066	1,500,000	47	49,527	31,915	-
Total	Total							23,102,500		1,005,559	763,610	1,700,000
Total	Cottam							1,620,000		55,322	36,359	-
Total	Kingsville/Lakeshore West							21,482,500		950,237	727,251	1,700,000



Table B-2
Town of Kingsville
Sanitary Sewers

Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA453	1ST BLVD	K/LSW	GRAVITY	Urban	41	200	PVC	1998	100	2098	580	23,780	79	601	301	-
SA258	2ND BLVD	K/LSW	GRAVITY	Urban	41	200	PVC	1998	100	2098	580	23,780	79	601	301	-
SA545	3RD BLVD	K/LSW	GRAVITY	Urban	40	200	PVC	1998	100	2098	580	23,200	79	587	294	-
SA547	4TH BLVD	K/LSW	GRAVITY	Urban	47	250	PVC	1998	100	2098	650	30,550	79	773	387	-
SA50	5TH BLVD	K/LSW	GRAVITY	Urban	44	200	PVC	1998	100	2098	580	25,520	79	645	323	-
SA253	6TH BLVD	K/LSW	GRAVITY	Urban	49	200	PVC	1998	100	2098	580	28,420	79	719	360	-
SA136	ALLEN CT	K/LSW	GRAVITY	Urban	45	200	AC	1969	100	2069	580	26,100	50	831	522	-
SA269	ANGEL CT	K/LSW	GRAVITY	Urban	175	250	PVC	1995	100	2095	650	113,750	76	2,924	1,497	-
SA696	ANGEL CT	K/LSW	GRAVITY	Urban	89	250	PVC	1995	100	2095	650	57,850	76	1,487	761	-
SA9	APPLEWOOD RD	K/LSW	GRAVITY	Urban	62	200	PVC	1978	100	2078	580	35,960	59	1,044	609	-
SA10	APPLEWOOD RD	K/LSW	GRAVITY	Urban	99	300	PVC	1978	100	2078	720	71,280	59	2,069	1,208	-
SA11	APPLEWOOD RD	K/LSW	GRAVITY	Urban	65	300	PVC	1978	100	2078	720	46,800	59	1,358	793	-
SA12	APPLEWOOD RD	K/LSW	GRAVITY	Urban	77	300	PVC	1978	100	2078	720	55,440	59	1,609	940	-
SA11	APPLEWOOD RD	K/LSW	GRAVITY	Urban	25	300	PVC	1978	100	2078	720	18,000	59	522	305	-
SA5112	APPLEWOOD RD	K/LSW	GRAVITY	Urban	73	300	PVC	1978	100	2078	720	52,560	59	1,525	891	-
SA11	APPLEWOOD RD	K/LSW	GRAVITY	Urban	16	300	PVC	1978	100	2078	720	11,520	59	334	195	-
SA157	AUGUSTINE DR	K/LSW	GRAVITY	Urban	140	200	AC	1970	100	2070	580	81,200	51	2,554	1,592	-
SA163	AUGUSTINE DR	K/LSW	GRAVITY	Urban	121	200	AC	1970	100	2070	580	70,180	51	2,208	1,376	-
SA164	AUGUSTINE DR	K/LSW	GRAVITY	Urban	86	200	AC	1970	100	2070	580	49,880	51	1,569	978	-
SA167	AUGUSTINE DR	K/LSW	GRAVITY	Urban	86	200	AC	1970	100	2070	580	49,880	51	1,569	978	-
SA168	AUGUSTINE DR	K/LSW	GRAVITY	Urban	144	200	AC	1970	100	2070	580	83,520	51	2,627	1,638	-
SA233	BAYVIEW AV	K/LSW	GRAVITY	Urban	285	200	PVC	1997	100	2097	580	165,300	78	4,203	2,119	-
SA122	BAYVIEW CR	K/LSW	GRAVITY	Urban	116	200	AC	1973	100	2073	580	67,280	54	2,049	1,246	-
SA461	BECKER LANE	K/LSW	GRAVITY	Urban	40	200	RC	1997	50	2047	580	23,200	28	1,090	829	-
SA322	BEECH ST	K/LSW	GRAVITY	Urban	263	200	PVC	1980	100	2080	580	152,540	61	4,351	2,501	-
SA352	BETWEEN HILL & VICTORIA ST	Cottam	GRAVITY	Urban	55	200	AC	1976	100	2076	580	31,900	57	943	560	-
SA353	BETWEEN HILL & VICTORIA ST	Cottam	GRAVITY	Urban	52	200	AC	1976	100	2076	580	30,160	57	892	529	-
SA47	BIRCH AV	K/LSW	GRAVITY	Urban	227	200	PVC	1997	100	2097	580	131,660	78	3,348	1,688	-
SA5993	BRANCO DR	K/LSW	GRAVITY	Urban	113	200	PVC	2012	100	2112	580	65,540	93	1,558	705	-
SA5993	BRANCO DR	K/LSW	GRAVITY	Urban	44	200	PVC	2012	100	2112	580	25,520	93	607	274	-
SA188	BROOKSIDE CT	K/LSW	GRAVITY	Urban	52	200	PVC	2001	100	2101	580	30,160	82	751	368	-
SA88	CAMERON DR	K/LSW	GRAVITY	Urban	125	200	AC	1974	100	2074	580	72,500	55	2,185	1,318	-
SA582	CAMERON DR	K/LSW	GRAVITY	Urban	116	200	AC	1974	100	2074	580	67,280	55	2,028	1,223	-
SA401	CANAL ST	K/LSW	GRAVITY	Urban	140	200	PVC	1998	100	2098	580	81,200	79	2,054	1,028	-
SA550	CANAL ST	K/LSW	GRAVITY	Urban	28	300	PVC	1998	100	2098	720	20,160	79	510	255	-
SA551	CANAL ST	K/LSW	GRAVITY	Urban	29	200	PVC	1998	100	2098	580	16,820	79	425	213	-
SA443	CATALINA CT	K/LSW	GRAVITY	Urban	88	200	PVC	2002	100	2102	580	51,040	83	1,265	615	-
SA262	CEDAR DR	K/LSW	GRAVITY	Urban	441	375	PVC	1997	100	2097	840	370,440	78	9,419	4,749	-



Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA452	CEDAR DR	K/LSW	GRAVITY	Urban	5	200	PVC	1997	100	2097	580	2,900	78	74	37	-
SA49	CEDAR ISLAND DR	K/LSW	GRAVITY	Urban	174	250	PVC	1998	100	2098	650	113,100	79	2,860	1,432	-
SA52	CEDAR ISLAND DR	K/LSW	GRAVITY	Urban	153	200	PVC	1998	100	2098	580	88,740	79	2,244	1,123	-
SA54	CEDAR ISLAND DR	K/LSW	FORCEMAIN	Urban	278	100	PVC	1998	100	2098	430	119,540	79	3,023	1,513	-
SA252	CEDAR ISLAND DR	K/LSW	GRAVITY	Urban	100	250	PVC	1998	100	2098	650	65,000	79	1,644	823	-
SA256	CEDAR ISLAND DR	K/LSW	GRAVITY	Urban	81	200	PVC	1998	100	2098	580	46,980	79	1,188	595	-
SA540	CEDAR ISLAND DR	K/LSW	GRAVITY	Urban	88	200	PVC	1998	100	2098	580	51,040	79	1,291	646	-
SA549	CEDAR ISLAND DR	K/LSW	GRAVITY	Urban	25	200	PVC	1998	100	2098	580	14,500	79	367	184	-
SA56	CEDAR ISLAND LANE	K/LSW	GRAVITY	Urban	30	200	PVC	1998	100	2098	580	17,400	79	440	220	-
SA254	CEDAR ISLAND LANE	K/LSW	GRAVITY	Urban	44	200	PVC	1998	100	2098	580	25,520	79	645	323	-
SA257	CEDAR ISLAND LANE	K/LSW	GRAVITY	Urban	25	200	PVC	1998	100	2098	580	14,500	79	367	184	-
SA518	CEDAR ISLAND LANE	K/LSW	GRAVITY	Urban	41	200	PVC	1998	100	2098	580	23,780	79	601	301	-
SA542	CEDAR ISLAND LANE	K/LSW	GRAVITY	Urban	51	200	PVC	1998	100	2098	580	29,580	79	748	374	-
SA543	CEDAR ISLAND LANE	K/LSW	GRAVITY	Urban	34	200	PVC	1998	100	2098	580	19,720	79	499	250	-
SA548	CEDAR ISLAND LANE	K/LSW	GRAVITY	Urban	40	200	PVC	1998	100	2098	580	23,200	79	587	294	-
SA79	CEDAR ISLAND RD	K/LSW	FORCEMAIN	Urban	70	100	PVC	1998	100	2098	430	30,100	79	761	381	-
SA435	CEDAR ISLAND RD	K/LSW	GRAVITY	Urban	250	200	PVC	1998	100	2098	580	145,000	79	3,667	1,835	-
SA609	CEDAR ISLAND RD	K/LSW	GRAVITY	Urban	22	250	PVC	1997	100	2097	650	14,300	78	364	183	-
SA411	CHELSEA CR	K/LSW	GRAVITY	Urban	309	200	PVC	1997	100	2097	580	179,220	78	4,557	2,298	-
SA644	CHELSEA CR	K/LSW	GRAVITY	Urban	47	200	PVC	1997	100	2097	580	27,260	78	693	349	-
SA437	CHERRY AV	K/LSW	GRAVITY	Urban	212	200	PVC	1997	100	2097	580	122,960	78	3,126	1,576	-
SA5	CHERRYWOOD DR	K/LSW	GRAVITY	Urban	31	300	PVC	1978	100	2078	720	22,320	59	648	378	-
SA6	CHERRYWOOD DR	K/LSW	GRAVITY	Urban	92	300	PVC	1978	100	2078	720	66,240	59	1,922	1,123	-
SA7	CHERRYWOOD DR	K/LSW	GRAVITY	Urban	81	300	PVC	1978	100	2078	720	58,320	59	1,693	988	-
SA8	CHERRYWOOD DR	K/LSW	GRAVITY	Urban	56	300	PVC	1978	100	2078	720	40,320	59	1,170	683	-
SA6	CHERRYWOOD DR	K/LSW	GRAVITY	Urban	72	300	PVC	1978	100	2078	720	51,840	59	1,505	879	-
SA5	CHERRYWOOD DR	K/LSW	GRAVITY	Urban	17	300	PVC	1978	100	2078	720	12,240	59	355	207	-
SA5	CHERRYWOOD DR	K/LSW	GRAVITY	Urban	26	300	PVC	1978	100	2078	720	18,720	59	543	317	-
SA6	CHERRYWOOD DR	K/LSW	GRAVITY	Urban	91	300	PVC	1978	100	2078	720	65,520	59	1,902	1,111	-
SA676	CHESTNUT ST	K/LSW	GRAVITY	Urban	59	200	PVC	2010	100	2110	580	34,220	91	820	376	-
SA1735	CHESTNUT ST	K/LSW	GRAVITY	Urban	62	200	PVC	2009	100	2109	580	35,960	90	865	400	-
SA529	CHRYSLER CANADA GREENWAY	K/LSW	FORCEMAIN	Rural	4,572	250	PVC	2008	100	2108	540	2,468,880	89	59,608	27,740	-
SA592	CHRYSLER CANADA GREENWAY	K/LSW	FORCEMAIN	Rural	281	250	PVC	2008	100	2108	540	151,740	89	3,664	1,705	-
SA593	CHRYSLER CANADA GREENWAY	K/LSW	FORCEMAIN	Rural	1,455	150	PVC	2008	100	2108	480	698,400	89	16,862	7,847	-
SA595	CHRYSLER CANADA GREENWAY	K/LSW	FORCEMAIN	Rural	284	150	PVC	2008	100	2108	480	136,320	89	3,291	1,532	-
SA595	CHRYSLER CANADA GREENWAY	K/LSW	FORCEMAIN	Rural	11	150	PVC	2008	100	2108	480	5,280	89	127	59	-
SA334	CLARK ST	Cottam	GRAVITY	Urban	260	200	PVC	1995	100	2095	580	150,800	76	3,877	1,984	-
SA130	COGHILL DR	K/LSW	GRAVITY	Urban	336	200	AC	1969	100	2069	580	194,880	50	6,202	3,898	-
SA133	COGHILL DR	K/LSW	GRAVITY	Urban	99	200	AC	1969	100	2069	580	57,420	50	1,827	1,148	-
SA139	COMMISSIONER DR	K/LSW	GRAVITY	Urban	222	200	AC	1969	100	2069	580	128,760	50	4,098	2,575	-
SA24	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	52	200	PVC	2005	100	2105	580	30,160	86	738	351	-
SA25	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	8	200	PVC	2005	100	2105	580	4,640	86	113	54	-



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SA392	CONSERVATION BLVD	K/LSW	FORCEMAIN	Urban	2,118	200	PVC	2002	100	2102	580	1,228,440	83	30,455	14,800	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	138	300	PVC	1998	100	2098	720	99,360	79	2,513	1,258	-
SA423	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	25	200	PVC	2005	100	2105	580	14,500	86	355	169	-
SA631	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	79	300	PVC	1998	100	2098	720	56,880	79	1,439	720	-
SA632	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	88	300	PVC	2002	100	2102	720	63,360	83	1,571	763	-
SA633	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	86	200	PVC	2002	100	2102	580	49,880	83	1,237	601	-
SA634	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	118	450	CONCRETE	1998	50	2048	840	99,120	29	4,538	3,418	-
SA633	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	88	200	PVC	2002	100	2102	580	51,040	83	1,265	615	-
SA632	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	70	200	PVC	2002	100	2102	580	40,600	83	1,007	489	-
SA633	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	88	300	PVC	2002	100	2102	720	63,360	83	1,571	763	-
SA632	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	68	200	PVC	2002	100	2102	580	39,440	83	978	475	-
SA634	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	86	450	CONCRETE	1998	50	2048	840	72,240	29	3,307	2,491	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	91	300	PVC	1998	100	2098	720	65,520	79	1,657	829	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	92	300	PVC	1998	100	2098	720	66,240	79	1,675	838	-
SA634	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	57	450	CONCRETE	1998	50	2048	840	47,880	29	2,192	1,651	-
SA633	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	88	300	PVC	2002	100	2102	720	63,360	83	1,571	763	-
SA634	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	38	450	CONCRETE	1998	50	2048	840	31,920	29	1,461	1,101	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	97	300	PVC	1998	100	2098	720	69,840	79	1,766	884	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	46	300	PVC	1998	100	2098	720	33,120	79	838	419	-
SA633	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	67	200	PVC	2002	100	2102	580	38,860	83	963	468	-
SA633	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	67	300	PVC	2002	100	2102	720	48,240	83	1,196	581	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	90	300	PVC	1998	100	2098	720	64,800	79	1,639	820	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	30	300	PVC	1998	100	2098	720	21,600	79	546	273	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	136	300	PVC	1998	100	2098	720	97,920	79	2,477	1,239	-
SA634	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	74	450	CONCRETE	1998	50	2048	840	62,160	29	2,846	2,143	-
SA2055	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	67	200	PVC	2015	100	2115	580	38,860	96	914	405	-
SA2057	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	85	200	PVC	2015	100	2115	580	49,300	96	1,159	514	-
SA526	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	4	300	PVC	2015	100	2115	720	2,880	96	68	30	-
SA2059	CONSERVATION BLVD	K/LSW	GRAVITY	Urban	84	200	PVC	2015	100	2115	580	48,720	96	1,146	508	-
SA239	COTTAGE GROVE AV	K/LSW	GRAVITY	Urban	551	200	PVC	1999	100	2099	580	319,580	80	8,041	3,995	-
SA333	COUNTY RD 27	Cottam	GRAVITY	Urban	63	250	AC	1974	100	2074	650	40,950	55	1,234	745	-
SA343	COUNTY RD 27	Cottam	GRAVITY	Urban	181	375	AC	1974	100	2074	840	152,040	55	4,583	2,764	-
SA456	COUNTY RD 27	Cottam	GRAVITY	Urban	78	200	AC	1974	100	2074	580	45,240	55	1,364	823	-
SA456	COUNTY RD 27	Cottam	GRAVITY	Urban	90	200	AC	1974	100	2074	580	52,200	55	1,573	949	-
SA456	COUNTY RD 27	Cottam	GRAVITY	Urban	93	200	AC	1974	100	2074	580	53,940	55	1,626	981	-
SA343	COUNTY RD 27	Cottam	GRAVITY	Urban	14	375	AC	1974	100	2074	840	11,760	55	354	214	-
SA333	COUNTY RD 27	Cottam	GRAVITY	Urban	35	250	AC	1974	100	2074	650	22,750	55	686	414	-
SA456	COUNTY RD 27	Cottam	GRAVITY	Urban	107	200	AC	1974	100	2074	580	62,060	55	1,871	1,128	-
SA333	COUNTY RD 27	Cottam	GRAVITY	Urban	21	250	AC	1974	100	2074	650	13,650	55	411	248	-
SA343	COUNTY RD 27	Cottam	GRAVITY	Urban	101	375	AC	1974	100	2074	840	84,840	55	2,557	1,543	-
SA343	COUNTY RD 27	Cottam	GRAVITY	Urban	63	375	AC	1974	100	2074	840	52,920	55	1,595	962	-
SA343	COUNTY RD 27	Cottam	GRAVITY	Urban	108	375	AC	1974	100	2074	840	90,720	55	2,735	1,649	-



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SA333	COUNTY RD 27	Cottam	GRAVITY	Urban	71	250	AC	1974	100	2074	650	46,150	55	1,391	839	-
SA333	COUNTY RD 27	Cottam	GRAVITY	Urban	52	250	AC	1974	100	2074	650	33,800	55	1,019	615	-
SA456	COUNTY RD 27	Cottam	GRAVITY	Urban	137	200	AC	1974	100	2074	580	79,460	55	2,395	1,445	-
SA323	COUNTY RD 27 W	Cottam	GRAVITY	Urban	341	200	PVC	1996	100	2096	580	197,780	77	5,056	2,569	-
SA329	COUNTY RD 27 WEST	Cottam	GRAVITY	Urban	105	200	AC	1974	100	2074	580	60,900	55	1,836	1,107	-
SA329	COUNTY RD 27 WEST	Cottam	GRAVITY	Urban	92	200	AC	1974	100	2074	580	53,360	55	1,608	970	-
SA329	COUNTY RD 27 WEST	Cottam	GRAVITY	Urban	92	200	AC	1974	100	2074	580	53,360	55	1,608	970	-
SA330	COUNTY RD 34	Cottam	GRAVITY	Urban	120	200	AC	1974	100	2074	580	69,600	55	2,098	1,265	-
SA330	COUNTY RD 34 E	Cottam	GRAVITY	Urban	126	200	AC	1974	100	2074	580	73,080	55	2,203	1,329	-
SA213	COUNTY RD 50	K/LSW	GRAVITY	Urban	535	600	RC	1997	50	2047	1,500	802,500	28	37,709	28,661	-
SA223	COUNTY RD 50	K/LSW	GRAVITY	Urban	277	600	RC	1997	50	2047	1,500	415,500	28	19,524	14,839	-
SA224	COUNTY RD 50	K/LSW	GRAVITY	Urban	284	600	RC	1997	50	2047	1,500	426,000	28	20,018	15,214	-
SA225	COUNTY RD 50	K/LSW	GRAVITY	Urban	124	600	RC	1997	50	2047	1,500	186,000	28	8,740	6,643	-
SA248	COUNTY RD 50	K/LSW	GRAVITY	Urban	295	750	RC	1997	50	2047	1,500	442,500	28	20,793	15,804	-
SA250	COUNTY RD 50	K/LSW	GRAVITY	Urban	322	750	RC	1997	50	2047	1,500	483,000	28	22,696	17,250	-
SA398	COUNTY RD 50	K/LSW	GRAVITY	Urban	103	200	PVC	1997	100	2097	580	59,740	78	1,519	766	-
SA399	COUNTY RD 50	K/LSW	GRAVITY	Urban	311	375	PVC	1997	100	2097	840	261,240	78	6,642	3,349	-
SA400	COUNTY RD 50	K/LSW	GRAVITY	Urban	366	375	PVC	1997	100	2097	840	307,440	78	7,817	3,942	-
SA405	COUNTY RD 50	K/LSW	GRAVITY	Urban	732	375	PVC	1997	100	2097	840	614,880	78	15,634	7,883	-
SA408	COUNTY RD 50	K/LSW	GRAVITY	Urban	595	300	PVC	1997	100	2097	720	428,400	78	10,892	5,492	-
SA417	COUNTY RD 50	K/LSW	GRAVITY	Urban	935	250	PVC	1997	100	2097	650	607,750	78	15,453	7,792	-
SA421	COUNTY RD 50	K/LSW	GRAVITY	Urban	78	400	PVC	1997	100	2097	840	65,520	78	1,666	840	-
SA431	COUNTY RD 50	K/LSW	GRAVITY	Urban	244	750	RC	1997	50	2047	1,500	366,000	28	17,198	13,071	-
SA434	COUNTY RD 50	K/LSW	GRAVITY	Urban	202	675	RC	1997	50	2047	1,500	303,000	28	14,238	10,821	-
SA440	COUNTY RD 50	K/LSW	GRAVITY	Urban	673	675	PVC	1997	100	2097	1,500	1,009,500	78	25,667	12,942	-
SA448	COUNTY RD 50	K/LSW	GRAVITY	Urban	199	200	PVC	1997	100	2097	580	115,420	78	2,935	1,480	-
SA450	COUNTY RD 50	K/LSW	GRAVITY	Urban	44	300	PVC	1997	100	2097	720	31,680	78	805	406	-
SA459	COUNTY RD 50	K/LSW	GRAVITY	Urban	168	675	RC	1997	50	2047	1,500	252,000	28	11,841	9,000	-
SA462	COUNTY RD 50	K/LSW	GRAVITY	Urban	85	600	RC	1997	50	2047	1,500	127,500	28	5,991	4,554	-
SA464	COUNTY RD 50	K/LSW	GRAVITY	Urban	245	600	RC	1997	50	2047	1,500	367,500	28	17,269	13,125	-
SA564	COUNTY RD 50	K/LSW	GRAVITY	Urban	253	675	RC	1997	50	2047	1,500	379,500	28	17,833	13,554	-
SA568	COUNTY RD 50	K/LSW	GRAVITY	Urban	62	200	PVC	1997	100	2097	580	35,960	78	914	461	-
SA607	COUNTY RD 50	K/LSW	GRAVITY	Urban	28	375	PVC	1997	100	2097	840	23,520	78	598	302	-
SA608	COUNTY RD 50	K/LSW	GRAVITY	Urban	88	375	PVC	1997	100	2097	840	73,920	78	1,879	948	-
SA658	COUNTY RD 50	K/LSW	GRAVITY	Urban	270	200	PVC	1997	100	2097	580	156,600	78	3,982	2,008	-
SA659	COUNTY RD 50	K/LSW	GRAVITY	Urban	52	200	PVC	1997	100	2097	580	30,160	78	767	387	-
SA660	COUNTY RD 50	K/LSW	GRAVITY	Urban	587	300	PVC	1997	100	2097	720	422,640	78	10,746	5,418	-
	COUNTY RD 50	K/LSW	GRAVITY	Urban	19	200	PVC	2011	100	2111	580	11,020	92	263	120	-
	COUNTY RD 50	K/LSW	GRAVITY	Urban	60	200	PVC	2011	100	2111	580	34,800	92	830	378	-
	COUNTY RD 50	K/LSW	GRAVITY	Urban	32	200	PVC	2011	100	2111	580	18,560	92	443	202	-
SA390	CREEKVIEW BLVD	K/LSW	GRAVITY	Urban	120	200	PVC	2002	100	2102	580	69,600	83	1,726	839	-
SA574	CREEKVIEW BLVD	K/LSW	GRAVITY	Urban	93	200	PVC	2004	100	2104	580	53,940	85	1,325	635	-



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SA604	CREEKVIEW BLVD	K/LSW	GRAVITY	Urban	92	200	PVC	2002	100	2102	580	53,360	83	1,323	643	-
SA605	CREEKVIEW BLVD	K/LSW	GRAVITY	Urban	41	200	PVC	2002	100	2102	580	23,780	83	590	287	-
SA604	CREEKVIEW BLVD	K/LSW	GRAVITY	Urban	5	200	PVC	2002	100	2102	580	2,900	83	72	35	-
SA390	CREEKVIEW BLVD	K/LSW	GRAVITY	Urban	91	200	PVC	2002	100	2102	580	52,780	83	1,309	636	-
SA604	CREEKVIEW BLVD	K/LSW	GRAVITY	Urban	37	200	PVC	2002	100	2102	580	21,460	83	532	259	-
SA570	CROSSWINDS BLVD	K/LSW	GRAVITY	Urban	62	250	PVC	1998	100	2098	650	40,300	79	1,019	510	-
SA571	CROSSWINDS BLVD	K/LSW	GRAVITY	Urban	62	250	PVC	1997	100	2097	650	40,300	78	1,025	517	-
SA655	CROSSWINDS BLVD	K/LSW	GRAVITY	Urban	78	250	PVC	1997	100	2097	650	50,700	78	1,289	650	-
SA570	CROSSWINDS BLVD	K/LSW	GRAVITY	Urban	34	250	PVC	1998	100	2098	650	22,100	79	559	280	-
SA655	CROSSWINDS BLVD	K/LSW	GRAVITY	Urban	66	250	PVC	1997	100	2097	650	42,900	78	1,091	550	-
SA570	CROSSWINDS BLVD	K/LSW	GRAVITY	Urban	66	250	PVC	1998	100	2098	650	42,900	79	1,085	543	-
SA121	CULL DR	K/LSW	GRAVITY	Urban	185	300	AC	1969	100	2069	720	133,200	50	4,239	2,664	-
SA128	CULL DR	K/LSW	GRAVITY	Urban	204	200	AC	1969	100	2069	580	118,320	50	3,765	2,366	-
SA612	CULL DR	K/LSW	GRAVITY	Urban	68	200	AC	1969	100	2069	580	39,440	50	1,255	789	-
SA670	CULL DR	K/LSW	GRAVITY	Urban	88	200	AC	1969	100	2069	580	51,040	50	1,624	1,021	-
SA671	CULL DR	K/LSW	GRAVITY	Urban	25	300	AC	1969	100	2069	720	18,000	50	573	360	-
SA121	CULL DR	K/LSW	GRAVITY	Urban	57	300	AC	1969	100	2069	720	41,040	50	1,306	821	-
SA128	CULL DR	K/LSW	GRAVITY	Urban	45	200	AC	1969	100	2069	580	26,100	50	831	522	-
SA128	CULL DR	K/LSW	GRAVITY	Urban	41	200	AC	1969	100	2069	580	23,780	50	757	476	-
SA128	CULL DR	K/LSW	GRAVITY	Urban	34	200	AC	1969	100	2069	580	19,720	50	628	394	-
SA366	DELMER CRES N	Cottam	GRAVITY	Urban	69	200	PVC	1991	100	2091	580	40,020	72	1,054	556	-
SA367	DELMER CRES N	Cottam	GRAVITY	Urban	79	200	PVC	1976	100	2076	580	45,820	57	1,354	804	-
SA366	DELMER CRES N	Cottam	GRAVITY	Urban	53	200	PVC	1991	100	2091	580	30,740	72	809	427	-
SA367	DELMER CRES N	Cottam	GRAVITY	Urban	59	200	PVC	1976	100	2076	580	34,220	57	1,012	600	-
SA362	DELMER CRES S	Cottam	GRAVITY	Urban	85	200	PVC	1991	100	2091	580	49,300	72	1,298	685	-
SA363	DELMER CRES S	Cottam	GRAVITY	Urban	74	200	PVC	1976	100	2076	580	42,920	57	1,269	753	-
SA587	DELMER CRES S	Cottam	GRAVITY	Urban	68	200	PVC	1991	100	2091	580	39,440	72	1,038	548	-
SA363	DELMER CRES S	Cottam	GRAVITY	Urban	58	200	PVC	1991	100	2091	580	33,640	72	886	467	-
SA324	DIANE D ST	Cottam	GRAVITY	Urban	77	250	PVC	1998	100	2098	650	50,050	79	1,266	634	-
SA326	DIANE D ST	Cottam	GRAVITY	Urban	77	250	PVC	1998	100	2098	650	50,050	79	1,266	634	-
SA39	DIEPPE CR	K/LSW	GRAVITY	Urban	115	200	PVC	2002	100	2102	580	66,700	83	1,654	804	-
SA147	DIEPPE CR	K/LSW	GRAVITY	Urban	120	200	PVC	2002	100	2102	580	69,600	83	1,726	839	-
SA610	DIEPPE CR	K/LSW	GRAVITY	Urban	91	200	PVC	2002	100	2102	580	52,780	83	1,309	636	-
SA39	DIEPPE CR	K/LSW	GRAVITY	Urban	71	200	PVC	2002	100	2102	580	41,180	83	1,021	496	-
SA147	DIEPPE CR	K/LSW	GRAVITY	Urban	92	200	PVC	2002	100	2102	580	53,360	83	1,323	643	-
SA197	DIVISION ST N	K/LSW	GRAVITY	Urban	276	300	AC	1973	100	2073	720	198,720	54	6,051	3,680	-
SA220	DIVISION ST N	K/LSW	GRAVITY	Urban	245	300	AC	1973	100	2073	720	176,400	54	5,372	3,267	-
SA438	DIVISION ST N	K/LSW	GRAVITY	Urban	258	200	AC	1979	100	2079	580	149,640	60	4,305	2,494	-
SA447	DIVISION ST N	K/LSW	GRAVITY	Urban	85	200	AC	1976	100	2076	580	49,300	57	1,457	865	-
SA59	DIVISION ST S	K/LSW	GRAVITY	Urban	100	250	PVC	1988	100	2088	650	65,000	69	1,745	942	-
SA100	DIVISION ST S	K/LSW	GRAVITY	Urban	81	200	PVC	1988	100	2088	580	46,980	69	1,261	681	-
SA101	DIVISION ST S	K/LSW	GRAVITY	Urban	140	200	PVC	1988	100	2088	580	81,200	69	2,180	1,177	-



Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA107	DIVISION ST S	K/LSW	GRAVITY	Urban	193	250	PVC	1988	100	2088	650	125,450	69	3,368	1,818	-
SA108	DIVISION ST S	K/LSW	GRAVITY	Urban	118	250	PVC	1988	100	2088	650	76,700	69	2,059	1,112	-
SA113	DIVISION ST S	K/LSW	GRAVITY	Urban	161	250	PVC	1988	100	2088	650	104,650	69	2,810	1,517	-
SA115	DIVISION ST S	K/LSW	GRAVITY	Urban	220	250	PVC	1988	100	2088	650	143,000	69	3,839	2,072	-
SA640	DIVISION ST S	K/LSW	GRAVITY	Urban	96	250	PVC	1988	100	2088	650	62,400	69	1,675	904	-
SA249	DIX ALLEY	K/LSW	GRAVITY	Urban	46	200	PVC	1997	100	2097	580	26,680	78	678	342	-
SA45	EASEMENT	K/LSW	GRAVITY	Rural	63	200	PVC	1978	100	2078	480	30,240	59	878	513	-
SA73	EASEMENT	K/LSW	GRAVITY	Rural	55	250	PVC	2000	100	2100	540	29,700	81	744	367	-
SA96	EASEMENT	K/LSW	GRAVITY	Rural	171	375	CONCRETE	1969	50	2019	700	119,700	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	119,700
SA109	EASEMENT	K/LSW	GRAVITY	Rural	556	450	CONCRETE	1969	50	2019	700	389,200	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	389,200
SA110	EASEMENT	K/LSW	GRAVITY	Rural	199	450	CONCRETE	1969	50	2019	700	139,300	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	139,300
SA117	EASEMENT	K/LSW	GRAVITY	Rural	216	525	CONCRTE	1969	50	2019	700	151,200	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	151,200
SA142	EASEMENT	K/LSW	GRAVITY	Rural	82	200	AC	1974	100	2074	480	39,360	55	1,186	716	-
SA149	EASEMENT	K/LSW	GRAVITY	Rural	92	200	AC	1974	100	2074	480	44,160	55	1,331	803	-
SA165	EASEMENT	K/LSW	GRAVITY	Rural	118	375	AC	1975	100	2075	700	82,600	56	2,465	1,475	-
SA166	EASEMENT	K/LSW	GRAVITY	Rural	114	375	AC	1969	100	2069	700	79,800	50	2,539	1,596	-
SA169	EASEMENT	K/LSW	GRAVITY	Rural	206	375	AC	1975	100	2075	700	144,200	56	4,304	2,575	-
SA173	EASEMENT	K/LSW	GRAVITY	Rural	50	375	AC	1969	100	2069	700	35,000	50	1,114	700	-
SA189	EASEMENT	K/LSW	GRAVITY	Rural	140	375	CONCRETE	1969	50	2019	700	98,000	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	98,000
SA190	EASEMENT	K/LSW	GRAVITY	Rural	60	200	PVC	2001	100	2101	480	28,800	82	717	351	-
SA191	EASEMENT	K/LSW	GRAVITY	Rural	94	300	AC	1975	100	2075	600	56,400	56	1,683	1,007	-
SA194	EASEMENT	K/LSW	FORCEMAIN	Rural	813	350	AC	1969	100	2069	700	569,100	50	18,111	11,382	-
SA195	EASEMENT	K/LSW	GRAVITY	Rural	175	450	CONCRETE	1969	50	2019	700	122,500	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	122,500
SA208	EASEMENT	K/LSW	GRAVITY	Rural	66	200	PVC	2001	100	2101	480	31,680	82	789	386	-
SA221	EASEMENT	K/LSW	GRAVITY	Rural	49	200	PVC	2001	100	2101	480	23,520	82	586	287	-
SA222	EASEMENT	K/LSW	GRAVITY	Rural	93	200	PVC	2001	100	2101	480	44,640	82	1,112	544	-
SA228	EASEMENT	K/LSW	GRAVITY	Rural	48	250	RC	1997	50	2047	540	25,920	28	1,218	926	-
SA251	EASEMENT	K/LSW	FORCEMAIN	Rural	310	200	PVC	1998	100	2098	480	148,800	79	3,763	1,884	-
SA260	EASEMENT	K/LSW	GRAVITY	Rural	206	200	PVC	1998	100	2098	480	98,880	79	2,501	1,252	-
SA316	EASEMENT	K/LSW	GRAVITY	Rural	86	200	PVC	1979	100	2079	480	41,280	60	1,188	688	-
SA331	EASEMENT	K/LSW	GRAVITY	Rural	93	200	AC	1974	100	2074	480	44,640	55	1,346	812	-



Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA332	EASEMENT	K/LSW	GRAVITY	Rural	85	200	AC	1974	100	2074	480	40,800	55	1,230	742	-
SA340	EASEMENT	K/LSW	GRAVITY	Rural	97	200	AC	1976	100	2076	480	46,560	57	1,376	817	-
SA342	EASEMENT	K/LSW	GRAVITY	Rural	41	200	AC	1976	100	2076	480	19,680	57	582	345	-
SA354	EASEMENT	K/LSW	GRAVITY	Rural	86	200	AC	1976	100	2076	480	41,280	57	1,220	724	-
SA368	EASEMENT	K/LSW	GRAVITY	Rural	101	200	AC	1974	100	2074	480	48,480	55	1,461	881	-
SA389	EASEMENT	K/LSW	GRAVITY	Rural	144	300	PVC	2005	100	2105	600	86,400	86	2,113	1,005	-
SA422	EASEMENT	K/LSW	GRAVITY	Rural	75	200	AC	1976	100	2076	480	36,000	57	1,064	632	-
SA423	EASEMENT	K/LSW	GRAVITY	Rural	95	250	AC	1976	100	2076	540	51,300	57	1,516	900	-
SA427	EASEMENT	K/LSW	GRAVITY	Rural	20	200	AC	1976	100	2076	480	9,600	57	284	168	-
SA428	EASEMENT	K/LSW	GRAVITY	Rural	94	200	AC	1976	100	2076	480	45,120	57	1,334	792	-
SA429	EASEMENT	K/LSW	GRAVITY	Rural	92	200	AC	1976	100	2076	480	44,160	57	1,305	775	-
SA430	EASEMENT	K/LSW	GRAVITY	Rural	97	200	AC	1976	100	2076	480	46,560	57	1,376	817	-
SA455	EASEMENT	K/LSW	FORCEMAIN	Rural	695	150	PVC	1974	100	2074	480	333,600	55	10,056	6,065	-
SA458	EASEMENT	K/LSW	GRAVITY	Rural	123	200	RC	1997	50	2047	480	59,040	28	2,774	2,109	-
SA463	EASEMENT	K/LSW	GRAVITY	Rural	48	200	RC	1997	50	2047	480	23,040	28	1,083	823	-
SA465	EASEMENT	K/LSW	GRAVITY	Rural	51	200	AC	1976	100	2076	480	24,480	57	724	429	-
SA466	EASEMENT	K/LSW	GRAVITY	Rural	100	200	AC	1976	100	2076	480	48,000	57	1,419	842	-
SA485	EASEMENT	K/LSW	GRAVITY	Rural	265	250	AC	1996	100	2096	540	143,100	77	3,658	1,858	-
SA490	EASEMENT	K/LSW	GRAVITY	Rural	54	300	PVC	1997	100	2097	600	32,400	78	824	415	-
SA491	EASEMENT	K/LSW	GRAVITY	Rural	33	200	PVC	2002	100	2102	480	15,840	83	393	191	-
SA492	EASEMENT	K/LSW	GRAVITY	Rural	876	800	POLYETHYLENE	1998	50	2048	1,250	1,095,000	29	50,127	37,759	-
SA496	EASEMENT	K/LSW	GRAVITY	Rural	270	450	CONCRETE	1940	50	2019	700	189,000	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	189,000
SA521	EASEMENT	K/LSW	GRAVITY	Rural	337	525	CONCRETE	1969	50	2019	700	235,900	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	235,900
SA527	EASEMENT	K/LSW	GRAVITY	Rural	183	525	CONCRETE	1969	50	2019	700	128,100	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	128,100
SA530	EASEMENT	K/LSW	FORCEMAIN	Rural	181	200	PVC	1997	100	2097	480	86,880	78	2,209	1,114	-
SA531	EASEMENT	K/LSW	GRAVITY	Rural	10	200	PVC	1997	100	2097	480	4,800	78	122	62	-
SA532	EASEMENT	K/LSW	GRAVITY	Rural	152	200	PVC	1997	100	2097	480	72,960	78	1,855	935	-
SA534	EASEMENT	K/LSW	GRAVITY	Rural	39	150	PVC	1974	100	2074	480	18,720	55	564	340	-
SA535	EASEMENT	K/LSW	GRAVITY	Rural	68	200	AC	1976	100	2076	480	32,640	57	965	573	-
SA536	EASEMENT	K/LSW	GRAVITY	Rural	79	200	AC	1976	100	2076	480	37,920	57	1,121	665	-
SA537	EASEMENT	K/LSW	GRAVITY	Rural	23	200	AC	1976	100	2076	480	11,040	57	326	194	-
SA569	EASEMENT	K/LSW	GRAVITY	Rural	61	250	PVC	1997	100	2097	540	32,940	78	838	422	-
SA584	EASEMENT	K/LSW	GRAVITY	Rural	85	250	AC	1970	100	2070	540	45,900	51	1,444	900	-
SA598	EASEMENT	K/LSW	GRAVITY	Rural	39	200	AC	1976	100	2076	480	18,720	57	553	328	-
SA614	EASEMENT	K/LSW	GRAVITY	Rural	89	250	AC	1969	100	2069	540	48,060	50	1,529	961	-
SA617	EASEMENT	K/LSW	GRAVITY	Rural	110	200	AC	1974	100	2074	480	52,800	55	1,592	960	-



Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA661	EASEMENT	K/LSW	GRAVITY	Rural	359	750	RC	1998	50	2048	1,250	448,750	29	20,543	15,474	-
SA668	EASEMENT	K/LSW	GRAVITY	Rural	72	450	CONCRETE	1969	50	2019	700	50,400	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	50,400
SA680	EASEMENT	K/LSW	GRAVITY	Rural	110	300	CONCRETE	1940	50	2019	600	66,000	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	66,000
SA681	EASEMENT	K/LSW	GRAVITY	Rural	101	375	CONCRETE	1940	50	2019	700	70,700	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	70,700
SA682	EASEMENT	K/LSW	GRAVITY	Rural	16	200	PVC	1975	100	2075	480	7,680	56	229	137	-
SA532	EASEMENT	K/LSW	GRAVITY	Rural	4	150	PVC	1997	100	2097	480	1,920	78	49	25	-
SA693	EASEMENT	K/LSW	GRAVITY	Rural	10	200	PVC	1997	100	2097	480	4,800	78	122	62	-
SA389	EASEMENT	K/LSW	GRAVITY	Rural	61	375	PVC	2005	100	2105	700	42,700	86	1,044	497	-
SA389	EASEMENT	K/LSW	FORCEMAIN	Rural	13	375	PVC	2005	100	2105	700	9,100	86	223	106	-
SA368	EASEMENT	K/LSW	GRAVITY	Rural	48	200	AC	1974	100	2074	480	23,040	55	695	419	-
SA354	EASEMENT	K/LSW	GRAVITY	Rural	82	200	AC	1976	100	2076	480	39,360	57	1,164	691	-
SA422	EASEMENT	K/LSW	GRAVITY	Rural	24	200	AC	1976	100	2076	480	11,520	57	341	202	-
SA332	EASEMENT	K/LSW	GRAVITY	Rural	66	200	AC	1974	100	2074	480	31,680	55	955	576	-
SA423	EASEMENT	K/LSW	GRAVITY	Rural	84	250	AC	1976	100	2076	540	45,360	57	1,341	796	-
SA342	EASEMENT	K/LSW	GRAVITY	Rural	34	200	AC	1976	100	2076	480	16,320	57	482	286	-
SA430	EASEMENT	K/LSW	GRAVITY	Rural	47	200	AC	1976	100	2076	480	22,560	57	667	396	-
SA428	EASEMENT	K/LSW	GRAVITY	Rural	99	200	AC	1976	100	2076	480	47,520	57	1,405	834	-
SA535	EASEMENT	K/LSW	GRAVITY	Rural	46	200	AC	1976	100	2076	480	22,080	57	653	387	-
SA537	EASEMENT	K/LSW	GRAVITY	Rural	18	200	AC	1976	100	2076	480	8,640	57	255	152	-
SA428	EASEMENT	K/LSW	GRAVITY	Rural	72	200	AC	1976	100	2076	480	34,560	57	1,022	606	-
SA537	EASEMENT	K/LSW	GRAVITY	Rural	31	200	AC	1976	100	2076	480	14,880	57	440	261	-
SA430	EASEMENT	K/LSW	GRAVITY	Rural	26	200	AC	1976	100	2076	480	12,480	57	369	219	-
SA427	EASEMENT	K/LSW	GRAVITY	Rural	13	200	AC	1976	100	2076	480	6,240	57	184	109	-
SA491	EASEMENT	K/LSW	GRAVITY	Rural	30	200	PVC	2002	100	2102	480	14,400	83	357	173	-
SA535	EASEMENT	K/LSW	GRAVITY	Rural	24	200	AC	1976	100	2076	480	11,520	57	341	202	-
SA466	EASEMENT	K/LSW	GRAVITY	Rural	44	200	AC	1976	100	2076	480	21,120	57	624	371	-
SA455	EASEMENT	K/LSW	GRAVITY	Rural	15	150	PVC	1974	100	2074	480	7,200	55	217	131	-
SA45	EASEMENT	K/LSW	GRAVITY	Rural	19	200	PVC	1978	100	2078	480	9,120	59	265	155	-
SA45	EASEMENT	K/LSW	GRAVITY	Rural	69	200	PVC	1978	100	2078	480	33,120	59	961	561	-
SA668	EASEMENT	K/LSW	GRAVITY	Rural	21	450	CONCRETE	1969	50	2019	700	14,700	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	14,700
SA463	EASEMENT	K/LSW	GRAVITY	Rural	11	200	PVC	2012	100	2112	480	5,280	93	125	57	-
SA831	EASEMENT	K/LSW	GRAVITY	Rural	122	200	PVC	2012	100	2112	480	58,560	93	1,392	630	-
SA832	EASEMENT	K/LSW	GRAVITY	Rural	93	200	PVC	2012	100	2112	480	44,640	93	1,061	480	-
SA1648	EASEMENT	K/LSW	FORCEMAIN	Urban	543	250	PVC	2009	100	2109	650	352,950	90	8,487	3,922	-



Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA558	ELGIN ST	K/LSW	GRAVITY	Urban	119	250	PVC	2007	100	2107	650	77,350	88	1,875	879	-
SA558	ELGIN ST	K/LSW	GRAVITY	Urban	109	250	PVC	2007	100	2107	650	70,850	88	1,718	805	-
SA558	ELGIN ST	K/LSW	GRAVITY	Urban	29	250	PVC	2007	100	2107	650	18,850	88	457	214	-
SA558	ELGIN ST	K/LSW	GRAVITY	Urban	113	250	PVC	2007	100	2107	650	73,450	88	1,781	835	-
SA65	ELM ST	K/LSW	GRAVITY	Urban	203	250	AC	1976	100	2076	650	131,950	57	3,901	2,315	-
SA300	ELM ST	K/LSW	GRAVITY	Urban	173	200	PVC	1988	100	2088	580	100,340	69	2,694	1,454	-
SA301	ELM ST	K/LSW	GRAVITY	Urban	102	300	PVC	1988	100	2088	720	73,440	69	1,972	1,064	-
SA350	ELWOOD CR	Cottam	GRAVITY	Urban	85	200	PVC	2002	100	2102	580	49,300	83	1,222	594	-
SA3957	EMILY AVE	K/LSW	GRAVITY	Urban	93	200	PVC	2013	100	2113	580	53,940	94	1,277	574	-
SA3958	EMILY AVE	K/LSW	GRAVITY	Urban	9	200	PVC	2013	100	2113	580	5,220	94	124	56	-
SA3963	EMILY AVE	K/LSW	GRAVITY	Urban	74	200	PVC	2013	100	2113	580	42,920	94	1,016	457	-
SA3958	EMILY AVE	K/LSW	GRAVITY	Urban	59	200	PVC	2013	100	2113	580	34,220	94	810	364	-
SA3958	EMILY AVE	K/LSW	GRAVITY	Urban	86	200	PVC	2013	100	2113	580	49,880	94	1,181	531	-
SA3957	EMILY AVE	K/LSW	GRAVITY	Urban	86	250	PVC	2013	100	2113	650	55,900	94	1,324	595	-
SA5562	EMILY AVE	K/LSW	FORCEMAIN	Urban	202	150	PVC	2013	100	2113	580	117,160	94	2,774	1,246	-
SA235	ERIE AV	K/LSW	GRAVITY	Urban	659	200	PVC	1997	100	2097	580	382,220	78	9,718	4,900	-
SA235	ERIE AV	K/LSW	GRAVITY	Urban	659	200	PVC	1997	100	2097	580	382,220	78	9,718	4,900	-
SA80	ERIE ST	K/LSW	GRAVITY	Urban	98	200	PVC	2010	100	2110	580	56,840	91	1,361	625	-
SA81	ERIE ST	K/LSW	GRAVITY	Urban	80	200	PVC	2011	100	2111	580	46,400	92	1,107	504	-
SA81	ERIE ST	K/LSW	GRAVITY	Urban	71	200	PVC	2011	100	2111	580	41,180	92	982	448	-
SA80	ERIE ST	K/LSW	GRAVITY	Urban	86	200	PVC	2011	100	2111	580	49,880	92	1,190	542	-
SA81	ERIE ST	K/LSW	GRAVITY	Urban	80	200	PVC	2011	100	2111	580	46,400	92	1,107	504	-
SA299	ERIEVIEW ST	K/LSW	GRAVITY	Urban	109	375	PVC	2001	100	2101	840	91,560	82	2,281	1,117	-
SA495	ERIEVIEW ST	K/LSW	GRAVITY	Urban	94	200	PVC	2001	100	2101	580	54,520	82	1,358	665	-
SA495	ERIEVIEW ST	K/LSW	GRAVITY	Urban	73	200	PVC	2002	100	2102	580	42,340	83	1,050	510	-
SA238	ESSEX ST	K/LSW	GRAVITY	Urban	142	200	PVC	1999	100	2099	580	82,360	80	2,072	1,030	-
SA575	ESSEX ST	K/LSW	GRAVITY	Urban	51	200	PVC	1999	100	2099	580	29,580	80	744	370	-
SA379	FAIRLEA CR	K/LSW	GRAVITY	Urban	127	200	PVC	2007	100	2107	580	73,660	88	1,786	837	-
SA379	FAIRLEA CR	K/LSW	GRAVITY	Urban	90	200	PVC	2007	100	2107	580	52,200	88	1,266	593	-
SA86	FERN AV	K/LSW	GRAVITY	Urban	75	200	PVC	1997	100	2097	580	43,500	78	1,106	558	-
SA406	FORD RD	K/LSW	GRAVITY	Urban	223	200	PVC	1997	100	2097	580	129,340	78	3,289	1,658	-
SA227	FORMAN RD	K/LSW	GRAVITY	Urban	137	200	RC	1997	50	2047	580	79,460	28	3,734	2,838	-
SA38	FOX RUN BLVD	K/LSW	GRAVITY	Urban	98	200	PVC	2002	100	2102	580	56,840	83	1,409	685	-
SA38	FOX RUN BLVD	K/LSW	GRAVITY	Urban	5	200	PVC	2002	100	2102	580	2,900	83	72	35	-
SA347	FOX ST	Cottam	GRAVITY	Urban	108	250	PVC	1989	100	2089	650	70,200	70	1,872	1,003	-
SA349	FOX ST	Cottam	GRAVITY	Urban	123	250	PVC	1989	100	2089	650	79,950	70	2,132	1,142	-
SA424	FOX ST	Cottam	GRAVITY	Urban	107	250	AC	1976	100	2076	650	69,550	57	2,056	1,220	-
SA349	FOX ST	Cottam	GRAVITY	Urban	57	250	PVC	1989	100	2089	650	37,050	70	988	529	-
SA347	FOX ST	Cottam	GRAVITY	Urban	66	250	PVC	1989	100	2089	650	42,900	70	1,144	613	-
SA349	FOX ST	Cottam	GRAVITY	Urban	78	250	PVC	1989	100	2089	650	50,700	70	1,352	724	-
SA349	FOX ST	Cottam	GRAVITY	Urban	44	250	PVC	1989	100	2089	650	28,600	70	763	409	-
SA337	FRANCIS ST	Cottam	GRAVITY	Urban	164	200	PVC	1997	100	2097	580	95,120	78	2,418	1,219	-



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SA580	FRANCIS ST	Cottam	GRAVITY	Urban	117	200	PVC	1999	100	2099	580	67,860	80	1,707	848	-
SA596	FRANCIS ST	Cottam	GRAVITY	Urban	99	200	PVC	1999	100	2099	580	57,420	80	1,445	718	-
SA284	GLADSTONE AV	K/LSW	GRAVITY	Urban	97	250	AC	1996	100	2096	650	63,050	77	1,612	819	-
SA567	GLADSTONE AV	K/LSW	GRAVITY	Urban	98	250	AC	1976	100	2076	650	63,700	57	1,883	1,118	-
SA567	GLADSTONE AV	K/LSW	GRAVITY	Urban	73	300	AC	1976	100	2076	720	52,560	57	1,554	922	-
SA268	GLASS AV	K/LSW	GRAVITY	Urban	93	200	PVC	2002	100	2102	580	53,940	83	1,337	650	-
SA268	GLASS AV	K/LSW	GRAVITY	Urban	77	200	PVC	2001	100	2101	580	44,660	82	1,113	545	-
SA33	GOLFVIEW DR	K/LSW	GRAVITY	Urban	104	200	PVC	2004	100	2104	580	60,320	85	1,482	710	-
SA36	GOLFVIEW DR	K/LSW	GRAVITY	Urban	56	200	PVC	2004	100	2104	580	32,480	85	798	382	-
SA395	GOLFVIEW DR	K/LSW	GRAVITY	Urban	87	200	PVC	2006	100	2106	580	50,460	87	1,229	580	-
SA36	GOLFVIEW DR	K/LSW	GRAVITY	Urban	47	200	PVC	2004	100	2104	580	27,260	85	670	321	-
SA4652	GOLFVIEW DR	K/LSW	GRAVITY	Urban	95	200	PVC	2006	100	2106	580	55,100	87	1,342	633	-
SA395	GOLFVIEW DR	K/LSW	GRAVITY	Urban	91	200	PVC	2006	100	2106	580	52,780	87	1,285	607	-
SA395	GOLFVIEW DR	K/LSW	GRAVITY	Urban	40	200	PVC	2006	100	2106	580	23,200	87	565	267	-
SA33	GOLFVIEW DR	K/LSW	GRAVITY	Urban	63	200	PVC	2004	100	2104	580	36,540	85	898	430	-
SA4654	GOLFVIEW DR	K/LSW	GRAVITY	Urban	77	200	PVC	2006	100	2106	580	44,660	87	1,087	513	-
SA33	GOLFVIEW DR	K/LSW	GRAVITY	Urban	103	200	PVC	2004	100	2104	580	59,740	85	1,467	703	-
SA395	GOLFVIEW DR	K/LSW	GRAVITY	Urban	65	200	PVC	2006	100	2106	580	37,700	87	918	433	-
SA395	GOLFVIEW DR	K/LSW	GRAVITY	Urban	94	200	PVC	2006	100	2106	580	54,520	87	1,327	627	-
SA33	GOLFVIEW DR	K/LSW	GRAVITY	Urban	60	200	PVC	2004	100	2104	580	34,800	85	855	409	-
SA4653	GOLFVIEW DR	K/LSW	GRAVITY	Urban	98	200	PVC	2006	100	2106	580	56,840	87	1,384	653	-
SA2048	GOLFVIEW DR	K/LSW	GRAVITY	Urban	84	200	PVC	2015	100	2115	580	48,720	96	1,146	508	-
SA2049	GOLFVIEW DR	K/LSW	GRAVITY	Urban	81	200	PVC	2015	100	2115	580	46,980	96	1,105	489	-
SA2050	GOLFVIEW DR	K/LSW	GRAVITY	Urban	84	200	PVC	2015	100	2115	580	48,720	96	1,146	508	-
SA395	GOLFVIEW DR	K/LSW	GRAVITY	Urban	49	200	PVC	2006	100	2106	580	28,420	87	692	327	-
SA2052	GOLFVIEW DR	K/LSW	GRAVITY	Urban	57	200	PVC	2015	100	2115	580	33,060	96	777	344	-
SA2053	GOLFVIEW DR	K/LSW	GRAVITY	Urban	77	200	PVC	2015	100	2115	580	44,660	96	1,050	465	-
SA291	GRACE ST	K/LSW	GRAVITY	Urban	76	200	PVC	2010	100	2110	580	44,080	91	1,056	484	-
SA291	GRACE ST	K/LSW	GRAVITY	Urban	72	200	PVC	2010	100	2110	580	41,760	91	1,000	459	-
SA383	GRANDVIEW AV	K/LSW	GRAVITY	Urban	82	300	PVC	2013	100	2113	720	59,040	94	1,398	628	-
SA523	GRANDVIEW AV	K/LSW	GRAVITY	Urban	54	250	PVC	1999	100	2099	650	35,100	80	883	439	-
SA5158	GRANDVIEW AV	K/LSW	GRAVITY	Urban	18	300	PVC	2013	100	2113	720	12,960	94	307	138	-
SA3558	GRANDVIEW DR	K/LSW	GRAVITY	Urban	66	200	PVC	2013	100	2113	580	38,280	94	907	407	-
SA523	GRANDVIEW DR	K/LSW	GRAVITY	Urban	84	200	PVC	2013	100	2113	580	48,720	94	1,154	518	-
SA578	GREENHILL LANE	K/LSW	GRAVITY	Urban	97	200	PVC	2012	100	2112	580	56,260	93	1,337	605	-
SA1157	GREENHILL LANE	K/LSW	GRAVITY	Urban	10	200	PVC	2012	100	2112	580	5,800	93	138	62	-
SA828	GREENHILL LANE	K/LSW	GRAVITY	Urban	31	200	PDC	2012	50	2062	580	17,980	43	627	418	-
SA829	GREENHILL LANE	K/LSW	GRAVITY	Urban	27	200	PDC	2014	50	2064	580	15,660	45	531	348	-
SA588	GREENWOOD AV	Cottam	GRAVITY	Urban	86	200	PVC	1979	100	2079	580	49,880	60	1,435	831	-
SA683	HAZEL CRES	K/LSW	GRAVITY	Urban	76	250	PVC	2007	100	2107	650	49,400	88	1,198	561	-
SA684	HAZEL CRES	K/LSW	GRAVITY	Urban	83	250	PVC	2007	100	2107	650	53,950	88	1,308	613	-
SA700	HAZEL CRES	K/LSW	GRAVITY	Urban	46	250	PVC	2007	100	2107	650	29,900	88	725	340	-



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SA686	HAZEL CRES	K/LSW	GRAVITY	Urban	120	250	PVC	2007	100	2107	650	78,000	88	1,891	886	-
SA686	HAZEL CRES	K/LSW	GRAVITY	Urban	93	250	PVC	2007	100	2107	650	60,450	88	1,466	687	-
SA684	HAZEL CRES	K/LSW	GRAVITY	Urban	66	250	PVC	2007	100	2107	650	42,900	88	1,040	488	-
SA436	HEMLOCK AV	K/LSW	GRAVITY	Urban	215	200	PVC	1997	100	2097	580	124,700	78	3,171	1,599	-
SA211	HERITAGE RD	K/LSW	GRAVITY	Rural	327	300	PVC	1997	100	2097	600	196,200	78	4,989	2,515	-
SA212	HERITAGE RD	K/LSW	GRAVITY	Urban	137	200	PVC	1997	100	2097	580	79,460	78	2,020	1,019	-
SA237	HERITAGE RD	K/LSW	FORCEMAIN	Urban	202	250	PVC	1997	100	2097	650	131,300	78	3,338	1,683	-
SA589	HERITAGE RD	K/LSW	FORCEMAIN	Urban	1,515	350	PVC	1998	100	2098	840	1,272,600	79	32,186	16,109	-
SA706	HERITAGE RD	K/LSW	GRAVITY	Urban	74	375	PVC	2008	100	2108	840	62,160	89	1,501	698	-
SA706	HERITAGE RD	K/LSW	GRAVITY	Urban	41	375	PVC	2008	100	2108	840	34,440	89	832	387	-
SA706	HERITAGE RD	K/LSW	GRAVITY	Urban	14	375	PVC	2008	100	2108	840	11,760	89	284	132	-
SA706	HERITAGE RD	K/LSW	GRAVITY	Urban	20	375	PVC	2008	100	2108	840	16,800	89	406	189	-
SA706	HERITAGE RD	K/LSW	GRAVITY	Urban	63	375	PVC	2008	100	2108	840	52,920	89	1,278	595	-
SA505	HERRINGTON ST	K/LSW	GRAVITY	Urban	203	200	AC	1975	100	2075	580	117,740	56	3,514	2,103	-
SA341	HILL ST	Cottam	GRAVITY	Urban	87	200	AC	1976	100	2076	580	50,460	57	1,492	885	-
SA346	HILL ST	Cottam	GRAVITY	Urban	41	250	PVC	1976	100	2076	650	26,650	57	788	468	-
SA355	HILL ST	Cottam	GRAVITY	Urban	101	200	AC	1976	100	2076	580	58,580	57	1,732	1,028	-
SA356	HILL ST	Cottam	GRAVITY	Urban	53	200	PVC	1991	100	2091	580	30,740	72	809	427	-
SA359	HILL ST	Cottam	GRAVITY	Urban	47	250	PVC	1991	100	2091	650	30,550	72	804	424	-
SA364	HILL ST	Cottam	GRAVITY	Urban	81	250	PVC	1976	100	2076	650	52,650	57	1,556	924	-
SA454	HILL ST	Cottam	GRAVITY	Urban	55	250	AC	1976	100	2076	650	35,750	57	1,057	627	-
SA355	HILL ST	Cottam	GRAVITY	Urban	50	200	AC	1976	100	2076	580	29,000	57	857	509	-
SA341	HILL ST	Cottam	GRAVITY	Urban	25	200	AC	1976	100	2076	580	14,500	57	429	254	-
SA346	HILL ST	Cottam	GRAVITY	Urban	37	200	PVC	1976	100	2076	580	21,460	57	634	376	-
SA364	HILL ST	Cottam	GRAVITY	Urban	51	250	PVC	1976	100	2076	650	33,150	57	980	582	-
SA356	HILL ST	Cottam	GRAVITY	Urban	53	200	AC	1991	100	2091	580	30,740	72	809	427	-
SA359	HILL ST	Cottam	GRAVITY	Urban	46	250	PVC	1991	100	2091	650	29,900	72	787	415	-
SA359	HILL ST	Cottam	GRAVITY	Urban	46	250	PVC	1991	100	2091	650	29,900	72	787	415	-
SA92	HILLVIEW CR	K/LSW	GRAVITY	Urban	243	200	AC	1967	100	2067	580	140,940	48	4,595	2,936	-
SA198	HORWATH AV	K/LSW	GRAVITY	Urban	295	250	PVC	1995	100	2095	650	191,750	76	4,929	2,523	-
SA3557	HOUSTON AVE	K/LSW	GRAVITY	Urban	88	200	PVC	2013	100	2113	580	51,040	94	1,209	543	-
SA5160	HOUSTON AVE	K/LSW	GRAVITY	Urban	64	200	PVC	2013	100	2113	580	37,120	94	879	395	-
SA5161	HOUSTON AVE	K/LSW	GRAVITY	Urban	61	200	PVC	2013	100	2113	580	35,380	94	838	376	-
SA5159	HOUSTON AVE	K/LSW	GRAVITY	Urban	68	250	PVC	2013	100	2113	650	44,200	94	1,047	470	-
SA5560	HOUSTON AVE	K/LSW	GRAVITY	Urban	63	200	PVC	2013	100	2113	580	36,540	94	865	389	-
SA5561	HOUSTON AVE	K/LSW	GRAVITY	Urban	65	200	PVC	2013	100	2113	580	37,700	94	893	401	-
SA5161	HOUSTON AVE	K/LSW	GRAVITY	Urban	45	200	PVC	2013	100	2113	580	26,100	94	618	278	-
SA5161	HOUSTON AVE	K/LSW	GRAVITY	Urban	16	200	PVC	2013	100	2113	580	9,280	94	220	99	-
SA263	INDUSTRY RD	K/LSW	GRAVITY	Urban	317	250	PVC	1982	100	2082	650	206,050	63	5,781	3,271	-
SA87	IVY LANE	K/LSW	GRAVITY	Urban	154	200	PVC	1997	100	2097	580	89,320	78	2,271	1,145	-
SA528	JAMES AV	K/LSW	FORCEMAIN	Urban	247	100	PVC	2002	100	2102	430	106,210	83	2,633	1,280	-
SA41	JAMES AVE	K/LSW	GRAVITY	Urban	121	200	PVC	2002	100	2102	580	70,180	83	1,740	846	-



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SA153	JAMES AVE	K/LSW	GRAVITY	Urban	142	200	AC	1974	100	2074	580	82,360	55	2,483	1,497	-
SA41	JAMES AVE	K/LSW	GRAVITY	Urban	54	200	PVC	2002	100	2102	580	31,320	83	776	377	-
SA111	JAN'S CR	K/LSW	GRAVITY	Urban	108	200	PVC	1999	100	2099	580	62,640	80	1,576	783	-
SA311	JASPERSON DR	K/LSW	GRAVITY	Urban	129	200	PVC	1981	100	2081	580	74,820	62	2,116	1,207	-
SA311	JASPERSON DR	K/LSW	GRAVITY	Urban	123	200	PVC	1981	100	2081	580	71,340	62	2,018	1,151	-
SA311	JASPERSON DR	K/LSW	GRAVITY	Urban	62	200	RC	2002	50	2052	580	35,960	33	1,499	1,090	-
SA311	JASPERSON DR	K/LSW	GRAVITY	Urban	115	200	PVC	1981	100	2081	580	66,700	62	1,887	1,076	-
SA311	JASPERSON DR	K/LSW	GRAVITY	Urban	19	200	PVC	1981	100	2081	580	11,020	62	312	178	-
SA271	KATIE CR	K/LSW	GRAVITY	Urban	126	200	PVC	2001	100	2101	580	73,080	82	1,821	891	-
SA150	KATRISHE CR	K/LSW	GRAVITY	Urban	85	200	AC	1974	100	2074	580	49,300	55	1,486	896	-
SA611	KATRISHE CR	K/LSW	GRAVITY	Urban	63	200	AC	1974	100	2074	580	36,540	55	1,101	664	-
SA426	KING AV	Cottam	GRAVITY	Urban	32	200	AC	1976	100	2076	580	18,560	57	549	326	-
SA467	KING AV	Cottam	GRAVITY	Urban	122	200	AC	1976	100	2076	580	70,760	57	2,092	1,241	-
SA468	KING AV	Cottam	GRAVITY	Urban	50	200	AC	1976	100	2076	580	29,000	57	857	509	-
SA426	KING AV	Cottam	GRAVITY	Urban	20	200	AC	1976	100	2076	580	11,600	57	343	204	-
SA500	KING ST	K/LSW	GRAVITY	Urban	78	200	PVC	2010	100	2110	580	45,240	91	1,084	497	-
SA1745	KING ST	K/LSW	GRAVITY	Urban	43	200	PVC	2010	100	2110	580	24,940	91	597	274	-
SA84	KINGSWOOD DR	K/LSW	GRAVITY	Urban	118	200	PVC	1981	100	2081	580	68,440	62	1,936	1,104	-
SA357	KLUNDERT CR	Cottam	GRAVITY	Urban	103	200	PVC	1991	100	2091	580	59,740	72	1,573	830	-
SA358	KLUNDERT CR	Cottam	GRAVITY	Urban	56	200	PVC	1991	100	2091	580	32,480	72	855	451	-
SA358	KLUNDERT CR	Cottam	GRAVITY	Urban	47	200	PVC	1991	100	2091	580	27,260	72	718	379	-
SA357	KLUNDERT CR	Cottam	GRAVITY	Urban	30	200	PVC	1991	100	2091	580	17,400	72	458	242	-
SA565	LAKE DR	K/LSW	GRAVITY	Urban	198	200	PVC	1997	100	2097	580	114,840	78	2,920	1,472	-
SA72	LAKESIDE CR	K/LSW	GRAVITY	Urban	32	250	PVC	2000	100	2100	650	20,800	81	521	257	-
SA74	LAKESIDE CR	K/LSW	GRAVITY	Urban	27	250	PVC	2000	100	2100	650	17,550	81	439	217	-
SA494	LAKEVIEW AV	K/LSW	GRAVITY	Urban	322	450	CONCRETE	1969	50	2019	840	270,480	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	270,480
SA522	LAKEVIEW AV	K/LSW	GRAVITY	Urban	288	300	CONCRETE	1975	50	2025	720	207,360	6	suggested for 10 year capital forecast	suggested for 10 year capital forecast	207,360
SA649	LAKEVIEW AV	K/LSW	GRAVITY	Urban	19	400	AC	1969	100	2069	840	15,960	50	508	319	-
SA652	LAKEVIEW AV	K/LSW	GRAVITY	Urban	196	375	CONCRETE	1969	50	2019	840	164,640	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	164,640
SA653	LAKEVIEW AV	K/LSW	GRAVITY	Urban	25	250	CONCRETE	1975	50	2025	650	16,250	6	suggested for 10 year capital forecast	suggested for 10 year capital forecast	16,250
SA522	LAKEVIEW AV	K/LSW	GRAVITY	Urban	80	300	CONCRETE	1975	50	2025	720	57,600	6	suggested for 10 year capital forecast	suggested for 10 year capital forecast	57,600



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SA522	LAKEVIEW AV	K/LSW	GRAVITY	Urban	88	300	CONCRETE	1975	50	2025	720	63,360	6	suggested for 10 year capital forecast	suggested for 10 year capital forecast	63,360
SA652	LAKEVIEW AV	K/LSW	GRAVITY	Urban	83	250	PVC	1969	100	2069	650	53,950	50	1,717	1,079	-
SA290	LANSDOWNE AV	K/LSW	GRAVITY	Urban	490	375	PVC	1991	100	2091	840	411,600	72	10,836	5,717	-
SA637	LANSDOWNE AV	K/LSW	GRAVITY	Urban	291	300	PVC	1991	100	2091	720	209,520	72	5,516	2,910	-
SA664	LANSDOWNE AV	K/LSW	GRAVITY	Urban	156	375	PVC	1991	100	2091	840	131,040	72	3,450	1,820	-
SA619	LAUREL ST	K/LSW	GRAVITY	Urban	155	250	AC	1976	100	2076	650	100,750	57	2,978	1,768	-
SA679	LAUREL ST	K/LSW	GRAVITY	Urban	125	200	AC	1976	100	2076	580	72,500	57	2,143	1,272	-
SA240	LAWNDALE AV	K/LSW	GRAVITY	Urban	564	200	PVC	1999	100	2099	580	327,120	80	8,231	4,089	-
SA372	LEE RD	K/LSW	GRAVITY	Urban	57	200	PVC	2007	100	2107	580	33,060	88	802	376	-
SA372	LEE RD	K/LSW	GRAVITY	Urban	49	200	PVC	2007	100	2107	580	28,420	88	689	323	-
SA25	LEONARD DR	K/LSW	GRAVITY	Urban	90	200	PVC	2005	100	2105	580	52,200	86	1,276	607	-
SA26	LEONARD DR	K/LSW	GRAVITY	Urban	85	200	RC	2002	50	2052	580	49,300	33	2,055	1,494	-
SA442	LEWIS AV	K/LSW	GRAVITY	Urban	63	200	PVC	1997	100	2097	580	36,540	78	929	468	-
SA137	LONG CT	K/LSW	GRAVITY	Urban	46	200	AC	1969	100	2069	580	26,680	50	849	534	-
SA648	LOOPS LANE	K/LSW	GRAVITY	Urban	688	450	CONCRETE	1969	50	2019	840	577,920	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	577,920
SA650	LOOPS LANE	K/LSW	GRAVITY	Urban	65	375	CONCRETE	1969	50	2019	840	54,600	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	54,600
SA441	LORNA ST	K/LSW	GRAVITY	Urban	68	200	PVC	1997	100	2097	580	39,440	78	1,003	506	-
SA335	LYLE ST	Cottam	GRAVITY	Urban	29	200	PVC	1995	100	2095	580	16,820	76	432	221	-
SA336	LYLE ST	Cottam	GRAVITY	Urban	217	200	PVC	1997	100	2097	580	125,860	78	3,200	1,614	-
SA192	MAIN ST E	K/LSW	GRAVITY	Urban	220	250	PVC	1994	100	2094	650	143,000	75	3,697	1,907	-
SA275	MAIN ST E	K/LSW	GRAVITY	Urban	135	200	PVC	1979	100	2079	580	78,300	60	2,253	1,305	-
SA313	MAIN ST E	K/LSW	GRAVITY	Urban	234	200	PVC	1978	100	2078	580	135,720	59	3,939	2,300	-
SA314	MAIN ST E	K/LSW	GRAVITY	Urban	215	200	PVC	1978	100	2078	580	124,700	59	3,619	2,114	-
SA320	MAIN ST E	K/LSW	GRAVITY	Urban	325	250	PVC	1994	100	2094	650	211,250	75	5,462	2,817	-
SA481	MAIN ST E	K/LSW	GRAVITY	Urban	45	250	PVC	1979	100	2079	650	29,250	60	841	488	-
SA638	MAIN ST E	K/LSW	GRAVITY	Urban	578	250	AC	1978	100	2078	650	375,700	59	10,904	6,368	-
SA639	MAIN ST E	K/LSW	GRAVITY	Urban	165	250	PVC	1994	100	2094	650	107,250	75	2,773	1,430	-
SA654	MAIN ST E	K/LSW	GRAVITY	Urban	83	250	PVC	1994	100	2094	650	53,950	75	1,395	719	-
SA488	MAIN ST W	K/LSW	GRAVITY	Urban	148	300	PVC	1998	100	2098	720	106,560	79	2,695	1,349	-
SA489	MAIN ST W	K/LSW	GRAVITY	Urban	225	300	PVC	1998	100	2098	720	162,000	79	4,097	2,051	-
SA243	MALO ST	K/LSW	GRAVITY	Urban	199	200	PVC	1997	100	2097	580	115,420	78	2,935	1,480	-
SA232	MALOTT AV	K/LSW	GRAVITY	Urban	240	200	PVC	1997	100	2097	580	139,200	78	3,539	1,785	-
SA418	MAPLE AV	K/LSW	GRAVITY	Urban	211	200	PVC	1997	100	2097	580	122,380	78	3,112	1,569	-
SA296	MAPLE ST	K/LSW	GRAVITY	Urban	224	100	PVC	2004	100	2104	430	96,320	85	2,366	1,133	-
SA297	MAPLE ST	K/LSW	GRAVITY	Urban	68	200	PVC	2006	100	2106	580	39,440	87	960	453	-
SA393	MARSHWOODS BLVD	K/LSW	GRAVITY	Urban	94	200	PVC	2006	100	2106	580	54,520	87	1,327	627	-



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SA393	MARSHWOODS BLVD	K/LSW	GRAVITY	Urban	93	200	PVC	2006	100	2106	580	53,940	87	1,313	620	-
SA393	MARSHWOODS BLVD	K/LSW	GRAVITY	Urban	61	200	PVC	2006	100	2106	580	35,380	87	861	407	-
SA393	MARSHWOODS BLVD	K/LSW	GRAVITY	Urban	108	200	PVC	2006	100	2106	580	62,640	87	1,525	720	-
SA380	MAYFAIR ST	K/LSW	GRAVITY	Urban	109	200	PVC	2007	100	2107	580	63,220	88	1,533	718	-
SA380	MAYFAIR ST	K/LSW	GRAVITY	Urban	90	200	PVC	2007	100	2107	580	52,200	88	1,266	593	-
SA433	MCCAIN SDRD	K/LSW	GRAVITY	Urban	161	450	PVC	1997	100	2097	840	135,240	78	3,439	1,734	-
SA42	MCCALLUM DR	K/LSW	GRAVITY	Urban	263	200	AC	1970	100	2070	580	152,540	51	4,799	2,991	-
SA43	MCCALLUM DR	K/LSW	GRAVITY	Urban	129	200	AC	1975	100	2075	580	74,820	56	2,233	1,336	-
SA618	MCCALLUM DR	K/LSW	GRAVITY	Urban	101	250	AC	1970	100	2070	650	65,650	51	2,065	1,287	-
SA698	MCCALLUM DR	K/LSW	FORCEMAIN	Urban	15	375	PVC	2005	100	2105	840	12,600	86	308	147	-
SA214	MCCALLUM ST	K/LSW	GRAVITY	Urban	168	250	PVC	1999	100	2099	650	109,200	80	2,748	1,365	-
SA216	MCCALLUM ST	K/LSW	GRAVITY	Urban	191	250	PVC	1999	100	2099	650	124,150	80	3,124	1,552	-
SA751	MCDONALD ST	K/LSW	GRAVITY	Urban	100	200	PVC	2012	100	2112	580	58,000	93	1,379	624	-
SA1155	MCDONALD ST	K/LSW	GRAVITY	Urban	104	200	PVC	2012	100	2112	580	60,320	93	1,434	649	-
SA1156	MCDONALD ST	K/LSW	GRAVITY	Urban	98	200	PVC	2012	100	2112	580	56,840	93	1,351	611	-
SA628	MCLEAN ST	K/LSW	GRAVITY	Urban	191	300	PVC	2006	100	2106	720	137,520	87	3,348	1,581	-
SA2054	MEGHAN AGOSTA DR	K/LSW	GRAVITY	Urban	42	200	PVC	2015	100	2115	580	24,360	96	573	254	-
SA2056	MEGHAN AGOSTA DR	K/LSW	GRAVITY	Urban	47	200	PVC	2015	100	2115	580	27,260	96	641	284	-
SA105	MELBOURNE ST	K/LSW	GRAVITY	Urban	71	300	PVC	1988	100	2088	720	51,120	69	1,372	741	-
SA106	MELBOURNE ST	K/LSW	GRAVITY	Urban	161	350	AC	1975	100	2075	840	135,240	56	4,036	2,415	-
SA674	MELBOURNE ST	K/LSW		Urban	683	525	RC	1927	50	2019	840	573,720	0	suggested for 10 year capital forecast	suggested for 10 year capital forecast	573,720
SA77	METTAWAS LANE	K/LSW	GRAVITY	Urban	81	250	PVC	2004	100	2104	650	52,650	85	1,293	619	-
SA672	METTAWAS LANE	K/LSW	GRAVITY	Urban	38	250	PVC	2004	100	2104	650	24,700	85	607	291	-
SA158	MILL CREEK CR	K/LSW	GRAVITY	Urban	77	200	AC	1975	100	2075	580	44,660	56	1,333	798	-
SA61	MILL ST E	K/LSW	GRAVITY	Urban	105	200	PVC	2011	100	2111	580	60,900	92	1,453	662	-
SA114	MILL ST E	K/LSW	GRAVITY	Urban	85	200	PVC	2010	100	2110	580	49,300	91	1,181	542	-
SA586	MILL ST E	K/LSW	GRAVITY	Urban	49	250	PVC	1994	100	2094	650	31,850	75	823	425	-
SA114	MILL ST E	K/LSW	GRAVITY	Urban	87	200	PVC	2011	100	2111	580	50,460	92	1,204	548	-
SA61	MILL ST E	K/LSW	GRAVITY	Urban	20	250	PVC	1994	100	2094	650	13,000	75	336	173	-
SA114	MILL ST E	K/LSW	GRAVITY	Urban	68	200	PVC	2011	100	2111	580	39,440	92	941	429	-
SA114	MILL ST E	K/LSW	GRAVITY	Urban	15	200	PVC	2011	100	2111	580	8,700	92	208	95	-
SA63	MILL ST W	K/LSW	GRAVITY	Urban	220	200	PVC	2004	100	2104	580	127,600	85	3,134	1,501	-
SA67	MILL ST W	K/LSW	GRAVITY	Urban	106	200	PVC	2012	100	2112	580	61,480	93	1,461	661	-
SA621	MILL ST W	K/LSW	GRAVITY	Urban	85	200	PVC	2012	100	2112	580	49,300	93	1,172	530	-
SA465	MILL ST W	K/LSW	GRAVITY	Urban	30	300	PVC	2012	100	2112	720	21,600	93	513	232	-
SA757	MILL ST W	K/LSW	GRAVITY	Urban	113	200	PVC	2012	100	2112	580	65,540	93	1,558	705	-
SA205	MILLBROOK CT	K/LSW	GRAVITY	Urban	40	200	PVC	1997	100	2097	580	23,200	78	590	297	-
SA176	MILLBROOK DR	K/LSW	GRAVITY	Urban	134	250	PVC	2001	100	2101	650	87,100	82	2,170	1,062	-
SA184	MILLBROOK DR	K/LSW	GRAVITY	Urban	152	250	PVC	2001	100	2101	650	98,800	82	2,461	1,205	-
SA185	MILLBROOK DR	K/LSW	GRAVITY	Urban	77	250	PVC	2001	100	2101	650	50,050	82	1,247	610	-



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SA186	MILLBROOK DR	K/LSW	GRAVITY	Urban	64	250	PVC	2001	100	2101	650	41,600	82	1,036	507	-
SA202	MILLBROOK DR	K/LSW	GRAVITY	Urban	91	250	PVC	2001	100	2101	650	59,150	82	1,473	721	-
SA204	MILLBROOK DR	K/LSW	GRAVITY	Urban	160	250	PVC	1997	100	2097	650	104,000	78	2,644	1,333	-
SA202	MILLBROOK DR	K/LSW	GRAVITY	Urban	54	250	PVC	2007	100	2107	650	35,100	88	851	399	-
SA444	MONTEGO BAY CR	K/LSW	GRAVITY	Urban	292	450	PVC	1997	100	2097	840	245,280	78	6,236	3,145	-
SA636	MONTEGO BAY CR	K/LSW	GRAVITY	Urban	34	200	PVC	2002	100	2102	580	19,720	83	489	238	-
SA533	MULBERRY CRES	K/LSW	GRAVITY	Urban	79	200	PVC	2013	100	2113	580	45,820	94	1,085	487	-
SA2176	MULBERRY CRES	K/LSW	GRAVITY	Urban	48	200	PVC	2006	100	2106	580	27,840	87	678	320	-
SA2357	MULBERRY CRES	K/LSW	GRAVITY	Urban	78	200	PVC	2013	100	2113	580	45,240	94	1,071	481	-
SA2757	MULBERRY CRES	K/LSW	GRAVITY	Urban	72	200	PVC	2013	100	2113	580	41,760	94	989	444	-
SA2758	MULBERRY CRES	K/LSW	GRAVITY	Urban	75	200	PVC	2013	100	2113	580	43,500	94	1,030	463	-
SA273	MURRAY ST	K/LSW	GRAVITY	Urban	155	250	PVC	1979	100	2079	650	100,750	60	2,898	1,679	-
SA625	MURRAY ST	K/LSW	GRAVITY	Urban	48	200	PVC	1979	100	2079	580	27,840	60	801	464	-
SA501	MYRTLE ST	K/LSW	GRAVITY	Urban	217	200	PVC	1999	100	2099	580	125,860	80	3,167	1,573	-
SA456	NEWMAN RD	Cottam	GRAVITY	Urban	129	200	AC	1974	100	2074	580	74,820	55	2,255	1,360	-
SA5995	NOAH CRES	K/LSW	GRAVITY	Urban	86	200	PVC	2012	100	2112	580	49,880	93	1,186	536	-
SA5994	NOAH CRES	K/LSW	GRAVITY	Urban	42	200	PVC	2012	100	2112	580	24,360	93	579	262	-
SA5996	NOAH CRES	K/LSW	GRAVITY	Urban	78	200	PVC	2012	100	2112	580	45,240	93	1,075	486	-
SA40	NORMANDY AV	K/LSW	GRAVITY	Urban	85	200	PVC	2002	100	2102	580	49,300	83	1,222	594	-
SA577	NORMANDY AV	K/LSW	FORCEMAIN	Urban	218	100	PVC	2002	100	2102	430	93,740	83	2,324	1,129	-
SA40	NORMANDY AV	K/LSW	GRAVITY	Urban	84	200	PVC	2002	100	2102	580	48,720	83	1,208	587	-
SA40	NORMANDY AV	K/LSW	GRAVITY	Urban	49	200	PVC	2002	100	2102	580	28,420	83	705	342	-
SA40	NORMANDY AV	K/LSW	GRAVITY	Urban	74	200	PVC	2002	100	2102	580	42,920	83	1,064	517	-
SA261	OAK AV	K/LSW	GRAVITY	Urban	205	200	PVC	1997	100	2097	580	118,900	78	3,023	1,524	-
SA200	OAK PARK CR	K/LSW	GRAVITY	Urban	164	200	PVC	2004	100	2104	580	95,120	85	2,336	1,119	-
SA701	O'HALLORAN ST	K/LSW	GRAVITY	Urban	165	200	PVC	2007	100	2107	580	95,700	88	2,320	1,088	-
SA120	ORIOLE CT	K/LSW	GRAVITY	Urban	55	200	PVC	1994	100	2094	580	31,900	75	825	425	-
SA143	OWENWOOD DR	K/LSW	GRAVITY	Urban	92	200	AC	1974	100	2074	580	53,360	55	1,608	970	-
SA144	OWENWOOD DR	K/LSW	GRAVITY	Urban	77	200	AC	1974	100	2074	580	44,660	55	1,346	812	-
SA145	OWENWOOD DR	K/LSW	GRAVITY	Urban	113	200	AC	1974	100	2074	580	65,540	55	1,976	1,192	-
SA89	PALMER DR	K/LSW	GRAVITY	Urban	131	200	AC	1974	100	2074	580	75,980	55	2,290	1,381	-
SA581	PALMER DR	K/LSW	GRAVITY	Urban	82	200	AC	1974	100	2074	580	47,560	55	1,434	865	-
SA616	PALMER DR	K/LSW	GRAVITY	Urban	84	200	AC	1974	100	2074	580	48,720	55	1,469	886	-
SA234	PARK AV	K/LSW	GRAVITY	Urban	323	200	PVC	1997	100	2097	580	187,340	78	4,763	2,402	-
SA520	PARK LANE	K/LSW	GRAVITY	Urban	105	150	AC	1973	100	2073	580	60,900	54	1,855	1,128	-
SA75	PARK ST	K/LSW	GRAVITY	Urban	88	450	AC	1979	100	2079	840	73,920	60	2,127	1,232	-
SA76	PARK ST	K/LSW	GRAVITY	Urban	147	400	AC	1979	100	2079	840	123,480	60	3,552	2,058	-
SA507	PARK ST	K/LSW	GRAVITY	Urban	190	200	AC	1979	100	2079	580	110,200	60	3,170	1,837	-
SA645	PARK ST	K/LSW	GRAVITY	Urban	124	200	AC	1979	100	2079	580	71,920	60	2,069	1,199	-
SA646	PARK ST	K/LSW	GRAVITY	Urban	184	200	AC	1979	100	2079	580	106,720	60	3,070	1,779	-
SA127	PARKDALE CR	K/LSW	GRAVITY	Urban	71	200	AC	1969	100	2069	580	41,180	50	1,310	824	-
SA376	PEACH DR	K/LSW	GRAVITY	Urban	137	200	PVC	2007	100	2107	580	79,460	88	1,926	903	-



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SA561	PEACH DR	K/LSW	GRAVITY	Urban	50	200	PVC	2007	100	2107	580	29,000	88	703	330	-
SA307	PEACHWOOD DR	K/LSW	GRAVITY	Urban	100	250	RC	2002	50	2052	650	65,000	33	2,710	1,970	-
SA308	PEACHWOOD DR	K/LSW	GRAVITY	Urban	87	200	PVC	2002	100	2102	580	50,460	83	1,251	608	-
SA307	PEACHWOOD DR	K/LSW	GRAVITY	Urban	94	250	PVC	2002	100	2102	650	61,100	83	1,515	736	-
SA307	PEACHWOOD DR	K/LSW	GRAVITY	Urban	87	250	RC	2002	50	2052	650	56,550	33	2,357	1,714	-
SA308	PEACHWOOD DR	K/LSW	GRAVITY	Urban	82	200	PVC	2002	100	2102	580	47,560	83	1,179	573	-
SA223	PEARL ST E	K/LSW	GRAVITY	Urban	107	200	PVC	2009	100	2109	580	62,060	90	1,492	690	-
SA224	PEARL ST E	K/LSW	GRAVITY	Urban	79	200	PVC	2010	100	2110	580	45,820	91	1,097	504	-
SA302	PEARL ST E	K/LSW	GRAVITY	Urban	92	200	PVC	2009	100	2109	580	53,360	90	1,283	593	-
SA224	PEARL ST E	K/LSW	GRAVITY	Urban	44	200	PVC	2010	100	2110	580	25,520	91	611	280	-
SA224	PEARL ST E	K/LSW	GRAVITY	Urban	87	200	PVC	2010	100	2110	580	50,460	91	1,209	555	-
SA223	PEARL ST E	K/LSW	GRAVITY	Urban	105	200	PVC	2010	100	2110	580	60,900	91	1,459	669	-
SA55	PEARL ST W	K/LSW	GRAVITY	Urban	188	200	PVC	2006	100	2106	580	109,040	87	2,655	1,253	-
SA42	PEARL ST W	K/LSW	GRAVITY	Urban	76	200	PVC	2012	100	2112	580	44,080	93	1,048	474	-
SA749	PEARL ST W	K/LSW	GRAVITY	Urban	83	200	PVC	2012	100	2112	580	48,140	93	1,144	518	-
SA756	PEARL ST W	K/LSW	GRAVITY	Urban	76	200	PVC	2012	100	2112	580	44,080	93	1,048	474	-
SA755	PEARL ST W	K/LSW	GRAVITY	Urban	78	200	PVC	2012	100	2112	580	45,240	93	1,075	486	-
SA229	PEARSE RD	K/LSW	GRAVITY	Urban	44	200	RC	1997	50	2047	580	25,520	28	1,199	911	-
SA230	PEARSE RD	K/LSW	GRAVITY	Urban	52	200	RC	1997	50	2047	580	30,160	28	1,417	1,077	-
SA231	PEARSE RD	K/LSW	GRAVITY	Urban	43	200	RC	1997	50	2047	580	24,940	28	1,172	891	-
SA3	PECANWOOD DR	K/LSW	GRAVITY	Urban	95	250	PVC	2002	100	2102	650	61,750	83	1,531	744	-
SA3	PECANWOOD DR	K/LSW	GRAVITY	Urban	91	250	PVC	2002	100	2102	650	59,150	83	1,466	713	-
SA247	PETER ST	K/LSW	GRAVITY	Urban	184	200	PVC	1997	100	2097	580	106,720	78	2,713	1,368	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	98	250	PVC	2013	100	2113	540	52,920	94	1,253	563	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	99	250	PVC	2013	100	2113	540	53,460	94	1,266	569	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	101	250	PVC	2013	100	2113	540	54,540	94	1,292	580	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	100	250	PVC	2013	100	2113	540	54,000	94	1,279	574	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	99	250	PVC	2013	100	2113	540	53,460	94	1,266	569	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	108	250	PVC	2013	100	2113	540	58,320	94	1,381	620	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	97	250	PVC	2013	100	2113	540	52,380	94	1,240	557	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	99	250	PVC	2013	100	2113	540	53,460	94	1,266	569	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	100	250	PVC	2013	100	2113	540	54,000	94	1,279	574	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	101	250	PVC	2013	100	2113	540	54,540	94	1,292	580	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	99	250	PVC	2013	100	2113	540	53,460	94	1,266	569	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	98	250	PVC	2013	100	2113	540	52,920	94	1,253	563	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	101	250	PVC	2013	100	2113	540	54,540	94	1,292	580	-
	PETERSON LANE	K/LSW	GRAVITY	Rural	99	250	PVC	2013	100	2113	540	53,460	94	1,266	569	-
SA1	PINETREE CRES	K/LSW	GRAVITY	Urban	99	375	PVC	2005	100	2105	840	83,160	86	2,034	967	-
SA20	PINETREE CRES	K/LSW	GRAVITY	Urban	76	200	PVC	2005	100	2105	580	44,080	86	1,078	513	-
SA21	PINETREE CRES	K/LSW	GRAVITY	Urban	107	200	PVC	2005	100	2105	580	62,060	86	1,518	722	-
SA16	PRIMROSE DR	K/LSW	GRAVITY	Urban	55	200	PVC	2006	100	2106	580	31,900	87	777	367	-
SA16	PRIMROSE DR	K/LSW	GRAVITY	Urban	47	200	PVC	2006	100	2106	580	27,260	87	664	313	-



Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA16	PRIMROSE DR	K/LSW	GRAVITY	Urban	57	200	PVC	2006	100	2106	580	33,060	87	805	380	-
SA16	PRIMROSE DR	K/LSW	GRAVITY	Urban	70	200	PVC	2006	100	2106	580	40,600	87	989	467	-
SA99	PRINCE ALBERT ST N	K/LSW	GRAVITY	Urban	627	200	AC	1976	100	2076	580	363,660	57	10,750	6,380	-
SA499	PRINCE ALBERT ST N	K/LSW	GRAVITY	Urban	95	200	PVC	2009	100	2109	580	55,100	90	1,325	612	-
SA1238	PRINCE ALBERT ST N	K/LSW	GRAVITY	Urban	34	200	PVC	2013	100	2113	580	19,720	94	467	210	-
SA99	PRINCE ALBERT ST N	K/LSW	GRAVITY	Urban	118	200	AC	1976	100	2076	580	68,440	57	2,023	1,201	-
SA1240	PRINCE ALBERT ST N	K/LSW	GRAVITY	Urban	25	200	PVC	2013	100	2113	580	14,500	94	343	154	-
SA1241	PRINCE ALBERT ST N	K/LSW	GRAVITY	Urban	11	200	PVC	2013	100	2113	580	6,380	94	151	68	-
SA748	PRINCE ALBERT ST S	K/LSW	GRAVITY	Urban	62	200	PVC	2012	100	2112	580	35,960	93	855	387	-
SA750	PRINCE ALBERT ST S	K/LSW	GRAVITY	Urban	55	200	PVC	2012	100	2112	580	31,900	93	758	343	-
SA383	PRINCE ST	K/LSW	GRAVITY	Urban	67	200	PVC	2007	100	2107	580	38,860	88	942	442	-
SA82	PROSPECT ST	K/LSW	GRAVITY	Urban	91	200	PVC	2008	100	2108	580	52,780	89	1,274	593	-
SA83	PROSPECT ST	K/LSW	GRAVITY	Urban	109	200	PVC	2008	100	2108	580	63,220	89	1,526	710	-
SA82	PROSPECT ST	K/LSW	GRAVITY	Urban	88	200	PVC	2008	100	2108	580	51,040	89	1,232	573	-
SA83	PROSPECT ST	K/LSW	GRAVITY	Urban	107	200	PVC	2008	100	2108	580	62,060	89	1,498	697	-
SA162	PULFORD ST	K/LSW	GRAVITY	Urban	85	200	AC	1976	100	2076	580	49,300	57	1,457	865	-
SA162	PULFORD ST	K/LSW	GRAVITY	Urban	124	200	AC	1976	100	2076	580	71,920	57	2,126	1,262	-
SA162	PULFORD ST	K/LSW	GRAVITY	Urban	56	200	AC	1976	100	2076	580	32,480	57	960	570	-
SA472	PURPLE PLUM DR	K/LSW	GRAVITY	Urban	82	250	PVC	1978	100	2078	650	53,300	59	1,547	903	-
SA538	PURPLE PLUM DR	K/LSW	GRAVITY	Urban	29	200	PVC	1999	100	2099	580	16,820	80	423	210	-
SA472	PURPLE PLUM DR	K/LSW	GRAVITY	Urban	31	250	PVC	1978	100	2078	650	20,150	59	585	342	-
SA472	PURPLE PLUM DR	K/LSW	GRAVITY	Urban	23	250	PVC	1978	100	2078	650	14,950	59	434	253	-
SA373	QUEEN BLVD	K/LSW	GRAVITY	Urban	136	200	PVC	2007	100	2107	580	78,880	88	1,912	896	-
SA374	QUEEN BLVD	K/LSW	GRAVITY	Urban	117	200	PVC	2007	100	2107	580	67,860	88	1,645	771	-
SA373	QUEEN BLVD	K/LSW	GRAVITY	Urban	67	200	PVC	2007	100	2107	580	38,860	88	942	442	-
SA373	QUEEN BLVD	K/LSW	GRAVITY	Urban	80	200	PVC	2007	100	2107	580	46,400	88	1,125	527	-
SA478	QUEEN ST	K/LSW	GRAVITY	Urban	148	300	AC	1969	100	2069	720	106,560	50	3,391	2,131	-
SA497	QUEEN ST	K/LSW	GRAVITY	Urban	300	300	PVC	1986	100	2086	720	216,000	67	5,880	3,224	-
SA515	QUEEN ST	K/LSW	GRAVITY	Urban	112	350	AC	1975	100	2075	840	94,080	56	2,808	1,680	-
SA516	QUEEN ST	K/LSW	GRAVITY	Urban	91	300	AC	1969	100	2069	720	65,520	50	2,085	1,310	-
SA599	QUEEN ST	K/LSW	GRAVITY	Urban	292	450	CONCRETE	2005	50	2055	840	245,280	36	9,623	6,813	-
SA641	QUEEN ST	K/LSW	GRAVITY	Urban	96	450	PVC	1986	100	2086	840	80,640	67	2,195	1,204	-
SA642	QUEEN ST	K/LSW	GRAVITY	Urban	172	200	PVC	1986	100	2086	580	99,760	67	2,716	1,489	-
SA279	RAILWAY CT	K/LSW	GRAVITY	Urban	63	250	AC	1996	100	2096	650	40,950	77	1,047	532	-
SA370	REDWOOD AV	Cottam	GRAVITY	Urban	62	200	PVC	1979	100	2079	580	35,960	60	1,034	599	-
SA371	REDWOOD AV	Cottam	GRAVITY	Urban	99	200	PVC	1979	100	2079	580	57,420	60	1,652	957	-
SA371	REDWOOD AV	Cottam	GRAVITY	Urban	90	200	PVC	1979	100	2079	580	52,200	60	1,502	870	-
SA370	REDWOOD AV	Cottam	GRAVITY	Urban	51	200	PVC	1979	100	2079	580	29,580	60	851	493	-
SA382	REGENT ST	K/LSW	GRAVITY	Urban	125	200	PVC	2007	100	2107	580	72,500	88	1,758	824	-
SA555	REGENT ST	K/LSW	GRAVITY	Urban	50	200	PVC	2007	100	2107	580	29,000	88	703	330	-
SA560	REGENT ST	K/LSW	GRAVITY	Urban	70	200	PVC	2007	100	2107	580	40,600	88	984	461	-
SA317	REMARK DR	K/LSW	GRAVITY	Urban	84	300	PVC	1978	100	2078	720	60,480	59	1,755	1,025	-



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SA317	REMARK DR	K/LSW	GRAVITY	Urban	57	300	PVC	1978	100	2078	720	41,040	59	1,191	696	-
SA317	REMARK DR	K/LSW	GRAVITY	Urban	89	300	PVC	1978	100	2078	720	64,080	59	1,860	1,086	-
SA317	REMARK DR	K/LSW	GRAVITY	Urban	24	300	PVC	1978	100	2078	720	17,280	59	502	293	-
SA705	ROAD 2 E	K/LSW		Urban	13	300	PVC	2007	100	2107	720	9,360	88	227	106	-
SA704	ROAD 2 E	K/LSW		Urban	29	300	PVC	2007	100	2107	720	20,880	88	506	237	-
SA590	ROAD 2 RD 2	K/LSW	FORCEMAIN	Urban	1,135	200	PVC	2008	100	2108	580	658,300	89	15,894	7,397	-
SA378	ROAD 2 RD E	K/LSW	GRAVITY	Urban	141	525	RC	2007	50	2057	840	118,440	38	4,479	3,117	-
SA384	ROAD 2 RD E	K/LSW	GRAVITY	Urban	162	525	RC	2007	50	2057	840	136,080	38	5,147	3,581	-
SA385	ROAD 2 RD E	K/LSW	GRAVITY	Urban	119	525	RC	2007	50	2057	840	99,960	38	3,781	2,631	-
SA386	ROAD 2 RD E	K/LSW	GRAVITY	Urban	145	525	RC	2007	50	2057	840	121,800	38	4,607	3,205	-
SA378	ROAD 2 RD E	K/LSW	GRAVITY	Urban	82	525	RC	2007	50	2057	840	68,880	38	2,605	1,813	-
SA378	ROAD 2 RD E	K/LSW	GRAVITY	Urban	136	525	RC	2007	50	2057	840	114,240	38	4,321	3,006	-
SA385	ROAD 2 RD E	K/LSW	GRAVITY	Urban	112	525	RC	2007	50	2057	840	94,080	38	3,558	2,476	-
SA384	ROAD 2 RD E	K/LSW	GRAVITY	Urban	89	525	RC	2007	50	2057	840	74,760	38	2,827	1,967	-
SA386	ROAD 2 RD E	K/LSW	GRAVITY	Urban	115	525	RC	2007	50	2057	840	96,600	38	3,653	2,542	-
	ROAD 2 RD E	K/LSW	GRAVITY	Urban	28	300	PVC	2013	100	2113	720	20,160	94	477	214	-
	ROAD 2 RD E	K/LSW	GRAVITY	Urban	12	200	PVC	2013	100	2113	580	6,960	94	165	74	-
	ROAD 2 RD E	K/LSW	GRAVITY	Urban	95	300	PVC	2013	100	2113	720	68,400	94	1,620	728	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	116	250	PVC	2013	100	2113	650	75,400	94	1,786	802	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	101	250	PVC	2013	100	2113	650	65,650	94	1,555	698	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	101	200	PVC	2013	100	2113	580	58,580	94	1,387	623	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	101	200	PVC	2013	100	2113	580	58,580	94	1,387	623	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	98	200	PVC	2013	100	2113	580	56,840	94	1,346	605	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	78	250	PVC	2013	100	2113	650	50,700	94	1,201	539	-
SA809	ROAD 3 E	K/LSW	GRAVITY	Urban	43	200	PVC	2014	100	2114	580	24,940	95	588	263	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	106	250	PVC	2013	100	2113	650	68,900	94	1,632	733	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	80	250	PVC	2013	100	2113	650	52,000	94	1,231	553	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	100	200	PVC	2013	100	2113	580	58,000	94	1,374	617	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	100	200	PVC	2013	100	2113	580	58,000	94	1,374	617	-
	ROAD 3 E	K/LSW	GRAVITY	Urban	75	200	PVC	2013	100	2113	580	43,500	94	1,030	463	-
SA834	ROAD 3 E	K/LSW	GRAVITY	Urban	119	200	PVC	2014	100	2114	580	69,020	95	1,629	727	-
SA1234	ROAD 3 E	K/LSW	GRAVITY	Urban	115	200	PVC	2014	100	2114	580	66,700	95	1,574	702	-
SA181	ROCKPORT LANE	K/LSW	GRAVITY	Urban	169	250	PVC	1997	100	2097	650	109,850	78	2,793	1,408	-
SA181	ROCKPORT LANE	K/LSW	GRAVITY	Urban	96	250	PVC	1997	100	2097	650	62,400	78	1,587	800	-
SA203	SADDLE LANE	K/LSW	GRAVITY	Urban	175	250	PVC	1997	100	2097	650	113,750	78	2,892	1,458	-
SA203	SADDLE LANE	K/LSW	GRAVITY	Urban	62	250	PVC	1997	100	2097	650	40,300	78	1,025	517	-
SA469	SAND PEBBLE CR	K/LSW	GRAVITY	Urban	53	200	PVC	2001	100	2101	580	30,740	82	766	375	-
SA17	SANDYBROOK WAY	K/LSW	GRAVITY	Urban	40	200	PVC	2006	100	2106	580	23,200	87	565	267	-
SA19	SANDYBROOK WAY	K/LSW	GRAVITY	Urban	77	200	PVC	2006	100	2106	580	44,660	87	1,087	513	-
SA179	SANDYBROOK WAY	K/LSW	GRAVITY	Urban	42	200	PVC	2001	100	2101	580	24,360	82	607	297	-
SA187	SANDYBROOK WAY	K/LSW	GRAVITY	Urban	262	250	PVC	1997	100	2097	650	170,300	78	4,330	2,183	-
SA199	SANDYBROOK WAY	K/LSW	GRAVITY	Urban	37	250	PVC	2001	100	2101	650	24,050	82	599	293	-



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SA19	SANDYBROOK WAY	K/LSW	GRAVITY	Urban	74	200	PVC	2006	100	2106	580	42,920	87	1,045	493	-
SA19	SANDYBROOK WAY	K/LSW	GRAVITY	Urban	80	200	PVC	2006	100	2106	580	46,400	87	1,130	533	-
SA276	SANTOS DR	K/LSW	GRAVITY	Urban	188	200	AC	1996	100	2096	580	109,040	77	2,788	1,416	-
SA327	SARA ST	Cottam	GRAVITY	Urban	75	250	PVC	1998	100	2098	650	48,750	79	1,233	617	-
SA244	SCOTCH ALLEY	K/LSW	GRAVITY	Urban	100	200	PVC	1997	100	2097	580	58,000	78	1,475	744	-
SA242	SCRATCH LANE	K/LSW	GRAVITY	Urban	158	200	PVC	1997	100	2097	580	91,640	78	2,330	1,175	-
SA5962	SEACLIFF DR	K/LSW	NOT IN SERVICE	Urban	57	200	PVC	2012	100	2112	580	33,060	93	786	355	-
SA5963	SEACLIFF DR	K/LSW	NOT IN SERVICE	Urban	97	200	PVC	2012	100	2112	580	56,260	93	1,337	605	-
SA5959	SEACLIFF DR	K/LSW	NOT IN SERVICE	Urban	57	200	PVC	2012	100	2112	580	33,060	93	786	355	-
SA5961	SEACLIFF DR	K/LSW	NOT IN SERVICE	Urban	77	200	PVC	2012	100	2112	580	44,660	93	1,062	480	-
SA509	SHERMAN RD	K/LSW	GRAVITY	Urban	218	200	PVC	2006	100	2106	580	126,440	87	3,078	1,453	-
SA419	SPRUCE AV	K/LSW	GRAVITY	Urban	217	200	PVC	1997	100	2097	580	125,860	78	3,200	1,614	-
SA159	SPRUCE ST N	K/LSW	GRAVITY	Urban	156	250	AC	1975	100	2075	650	101,400	56	3,026	1,811	-
SA161	SPRUCE ST N	K/LSW	GRAVITY	Urban	60	250	AC	1975	100	2075	650	39,000	56	1,164	696	-
SA361	SPRUCE ST N	K/LSW	GRAVITY	Urban	106	250	AC	1975	100	2075	650	68,900	56	2,056	1,230	-
SA361	SPRUCE ST N	K/LSW	GRAVITY	Urban	67	250	AC	1975	100	2075	650	43,550	56	1,300	778	-
SA305	SPRUCE ST S	K/LSW	GRAVITY	Urban	97	250	PVC	1994	100	2094	650	63,050	75	1,630	841	-
SA306	SPRUCE ST S	K/LSW	GRAVITY	Urban	73	250	PVC	1994	100	2094	650	47,450	75	1,227	633	-
SA70	STANLEY ST	K/LSW	GRAVITY	Urban	92	200	PVC	2007	100	2107	580	53,360	88	1,294	606	-
SA104	STANLEY ST	K/LSW	GRAVITY	Urban	179	200	PVC	2011	100	2111	580	103,820	92	2,477	1,128	-
SA280	STATION CT	K/LSW	GRAVITY	Urban	63	250	AC	1996	100	2096	650	40,950	77	1,047	532	-
SA563	STEWART ST	K/LSW	GRAVITY	Urban	79	200	PVC	2007	100	2107	580	45,820	88	1,111	521	-
SA591	STEWART ST	K/LSW	FORCEMAIN	Urban	533	250	PVC	2008	100	2108	650	346,450	89	8,365	3,893	-
SA594	STEWART ST	K/LSW	FORCEMAIN	Urban	532	150	PVC	2008	100	2108	580	308,560	89	7,450	3,467	-
SA563	STEWART ST	K/LSW	GRAVITY	Urban	142	200	PVC	2008	100	2108	580	82,360	89	1,988	925	-
SA563	STEWART ST	K/LSW	GRAVITY	Urban	79	200	PVC	2007	100	2107	580	45,820	88	1,111	521	-
SA563	STEWART ST	K/LSW	GRAVITY	Urban	15	200	PVC	2007	100	2107	580	8,700	88	211	99	-
SA348	STOCKWELL CR	Cottam	GRAVITY	Urban	68	250	PVC	1989	100	2089	650	44,200	70	1,179	631	-
SA348	STOCKWELL CR	Cottam	GRAVITY	Urban	59	250	PVC	1989	100	2089	650	38,350	70	1,023	548	-
SA473	STONEHEDGE DR	K/LSW	GRAVITY	Urban	384	200	AC	1969	100	2069	580	222,720	50	7,088	4,454	-
SA170	SUMAC DR	K/LSW	GRAVITY	Urban	406	250	AC	1975	100	2075	650	263,900	56	7,877	4,713	-
SA175	SUMAC DR	K/LSW	GRAVITY	Urban	110	250	AC	1975	100	2075	650	71,500	56	2,134	1,277	-
SA126	SUMMERSET AV	K/LSW	GRAVITY	Urban	255	200	AC	1969	100	2069	580	147,900	50	4,707	2,958	-
SA613	SUMMERSET AV	K/LSW	GRAVITY	Urban	67	200	AC	1969	100	2069	580	38,860	50	1,237	777	-
SA420	SYCAMORE AV	K/LSW	GRAVITY	Urban	123	200	PVC	1997	100	2097	580	71,340	78	1,814	915	-
SA606	SYCAMORE AV	K/LSW	GRAVITY	Urban	25	375	PVC	1997	100	2097	840	21,000	78	534	269	-
SA420	SYCAMORE AV	K/LSW	GRAVITY	Urban	85	200	PVC	1997	100	2097	580	49,300	78	1,253	632	-
SA557	TALBOT RD	K/LSW	GRAVITY	Urban	138	200	PVC	2007	100	2107	580	80,040	88	1,941	910	-
SA559	TALBOT RD	K/LSW	GRAVITY	Urban	135	250	PVC	2007	100	2107	650	87,750	88	2,127	997	-
SA559	TALBOT RD	K/LSW	GRAVITY	Urban	142	250	PVC	2007	100	2107	650	92,300	88	2,238	1,049	-
SA559	TALBOT RD	K/LSW	GRAVITY	Urban	80	250	PVC	2007	100	2107	650	52,000	88	1,261	591	-
SA557	TALBOT RD	K/LSW	GRAVITY	Urban	132	200	PVC	2007	100	2107	580	76,560	88	1,856	870	-



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SA559	TALBOT RD	K/LSW	GRAVITY	Urban	140	250	PVC	2007	100	2107	650	91,000	88	2,206	1,034	-
SA3800	TALBOT RD	K/LSW	GRAVITY	Urban	9	200	PVC	2007	100	2107	580	5,220	88	127	59	-
SA559	TALBOT RD	K/LSW	GRAVITY	Urban	93	250	PVC	2007	100	2107	650	60,450	88	1,466	687	-
SA559	TALBOT RD	K/LSW	GRAVITY	Urban	145	250	PVC	2007	100	2107	650	94,250	88	2,285	1,071	-
SA218	THORNCREST ST	K/LSW	GRAVITY	Urban	287	250	PVC	1995	100	2095	650	186,550	76	4,796	2,455	-
SA177	TIMBERLAKE DR	K/LSW	GRAVITY	Urban	211	250	PVC	2001	100	2101	650	137,150	82	3,417	1,673	-
SA286	TRAIN CT	K/LSW	GRAVITY	Urban	62	250	AC	1996	100	2096	650	40,300	77	1,030	523	-
SA553	UNION AV	K/LSW	GRAVITY	Urban	120	300	PVC	2007	100	2107	720	86,400	88	2,095	982	-
SA554	UNION AV	K/LSW	GRAVITY	Urban	121	250	PVC	2007	100	2107	650	78,650	88	1,907	894	-
SA556	UNION AV	K/LSW	GRAVITY	Urban	128	250	PVC	2007	100	2107	650	83,200	88	2,017	945	-
SA554	UNION AV	K/LSW	GRAVITY	Urban	112	250	PVC	2007	100	2107	650	72,800	88	1,765	827	-
SA556	UNION AV	K/LSW	GRAVITY	Urban	133	250	PVC	2007	100	2107	650	86,450	88	2,096	982	-
SA553	UNION AV	K/LSW	GRAVITY	Urban	118	300	PVC	2007	100	2107	720	84,960	88	2,060	965	-
SA553	UNION AV	K/LSW	GRAVITY	Urban	118	300	PVC	2007	100	2107	720	84,960	88	2,060	965	-
SA556	UNION AV	K/LSW	GRAVITY	Urban	144	250	PVC	2007	100	2107	650	93,600	88	2,269	1,064	-
SA556	UNION AV	K/LSW	GRAVITY	Urban	136	200	PVC	2007	100	2107	580	78,880	88	1,912	896	-
SA554	UNION AV	K/LSW	GRAVITY	Urban	103	250	PVC	2007	100	2107	650	66,950	88	1,623	761	-
SA325	VERIENA BLVD	Cottam	GRAVITY	Urban	164	250	PVC	1998	100	2098	650	106,600	79	2,696	1,349	-
SA288	VICTORIA AV	K/LSW	GRAVITY	Urban	179	200	PVC	1999	100	2099	580	103,820	80	2,612	1,298	-
SA289	VICTORIA AV	K/LSW	GRAVITY	Urban	97	200	AC	1980	100	2080	580	56,260	61	1,605	922	-
SA289	VICTORIA AV	K/LSW	GRAVITY	Urban	96	200	AC	1976	100	2076	580	55,680	57	1,646	977	-
SA289	VICTORIA AV	K/LSW	GRAVITY	Urban	97	200	AC	1976	100	2076	580	56,260	57	1,663	987	-
SA351	VICTORIA ST	Cottam	GRAVITY	Urban	91	200	AC	1976	100	2076	580	52,780	57	1,560	926	-
SA425	VICTORIA ST	Cottam	GRAVITY	Urban	87	200	AC	1976	100	2076	580	50,460	57	1,492	885	-
SA425	VICTORIA ST	Cottam	GRAVITY	Urban	18	200	AC	1976	100	2076	580	10,440	57	309	183	-
SA351	VICTORIA ST	Cottam	GRAVITY	Urban	27	200	AC	1976	100	2076	580	15,660	57	463	275	-
SA292	VIOLA CR	K/LSW	GRAVITY	Urban	220	200	PVC	1997	100	2097	580	127,600	78	3,244	1,636	-
SA278	WALKER DR	K/LSW	GRAVITY	Urban	44	250	PVC	1996	100	2096	650	28,600	77	731	371	-
SA281	WALKER DR	K/LSW	GRAVITY	Urban	180	250	AC	1996	100	2096	650	117,000	77	2,991	1,519	-
SA585	WALKER DR	K/LSW	GRAVITY	Urban	58	250	PVC	1996	100	2096	650	37,700	77	964	490	-
SA281	WALKER DR	K/LSW	GRAVITY	Urban	261	250	AC	1996	100	2096	650	169,650	77	4,337	2,203	-
SA674	WALNUT ST	K/LSW	GRAVITY	Urban	92	200	PVC	2009	100	2109	580	53,360	90	1,283	593	-
SA677	WALNUT ST	K/LSW	GRAVITY	Urban	44	200	PVC	2009	100	2109	580	25,520	90	614	284	-
SA674	WALNUT ST	K/LSW	GRAVITY	Urban	65	200	PVC	2010	100	2110	580	37,700	91	903	414	-
SA674	WALNUT ST	K/LSW	GRAVITY	Urban	43	200	PVC	2009	100	2109	580	24,940	90	600	277	-
SA503	WATER ST	K/LSW	GRAVITY	Urban	82	200	PVC	2009	100	2109	580	47,560	90	1,144	528	-
SA1734	WATER ST	K/LSW	GRAVITY	Urban	48	200	PVC	2009	100	2109	580	27,840	90	669	309	-
SA1734	WATER ST	K/LSW	GRAVITY	Urban	11	200	PVC	2009	100	2109	580	6,380	90	153	71	-
SA503	WATER ST	K/LSW	GRAVITY	Urban	22	200	PVC	2010	100	2110	580	12,760	91	306	140	-
SA156	WATERMILL ST	K/LSW	GRAVITY	Urban	126	200	PVC	1980	100	2080	580	73,080	61	2,084	1,198	-
SA226	WATERVIEW RD	K/LSW	GRAVITY	Urban	143	200	PVC	1997	100	2097	580	82,940	78	2,109	1,063	-
SA294	WELLINGTON ST	K/LSW	GRAVITY	Urban	78	200	PVC	2011	100	2111	580	45,240	92	1,079	492	-



Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA294	WELLINGTON ST	K/LSW	GRAVITY	Urban	76	200	PVC	2011	100	2111	580	44,080	92	1,052	479	-
SA90	WESTLAWN AV	K/LSW	GRAVITY	Urban	133	200	AC	1974	100	2074	580	77,140	55	2,325	1,403	-
SA91	WESTLAWN AV	K/LSW	GRAVITY	Urban	24	200	AC	1974	100	2074	580	13,920	55	420	253	-
SA345	WHITEWOOD AV	Cottam	GRAVITY	Urban	80	200	PVC	1979	100	2079	580	46,400	60	1,335	773	-
SA345	WHITEWOOD AV	Cottam	GRAVITY	Urban	46	200	PVC	1979	100	2079	580	26,680	60	768	445	-
SA345	WHITEWOOD AV	Cottam	GRAVITY	Urban	52	200	PVC	1979	100	2079	580	30,160	60	868	503	-
SA267	WIGLE AV	K/LSW	GRAVITY	Urban	218	300	AC	2001	100	2101	720	156,960	82	3,910	1,914	-
SA483	WIGLE AV	K/LSW	GRAVITY	Urban	459	300	AC	1978	100	2078	720	330,480	59	9,591	5,601	-
SA267	WIGLE AV	K/LSW	GRAVITY	Urban	112	300	PVC	2001	100	2101	720	80,640	82	2,009	983	-
SA5960	WIGLE GROVE RD	K/LSW	NOT IN SERVICE	Urban	20	200	PVC	2012	100	2112	580	11,600	93	276	125	-
SA274	WILLIAM AV	Cottam	GRAVITY	Urban	198	250	PVC	1979	100	2079	650	128,700	60	3,702	2,145	-
SA328	WILLIAM ST	Cottam	GRAVITY	Urban	169	200	PVC	1995	100	2095	580	98,020	76	2,520	1,290	-
SA339	WILLIAM ST	Cottam	GRAVITY	Urban	213	200	PVC	1995	100	2095	580	123,540	76	3,176	1,626	-
SA562	WILLOW DR	K/LSW	GRAVITY	Urban	135	200	PVC	2007	100	2107	580	78,300	88	1,898	890	-
SA272	WINSTON CR	K/LSW	GRAVITY	Urban	165	200	PVC	1979	100	2079	580	95,700	60	2,753	1,595	-
SA24	WISTERIA LANE	K/LSW	GRAVITY	Urban	98	200	PVC	2005	100	2105	580	56,840	86	1,390	661	-
SA24	WISTERIA LANE	K/LSW	GRAVITY	Urban	51	200	PVC	2005	100	2105	580	29,580	86	723	344	-
SA24	WISTERIA LANE	K/LSW	GRAVITY	Urban	47	200	PVC	2005	100	2105	580	27,260	86	667	317	-
SA24	WISTERIA LANE	K/LSW	GRAVITY	Urban	91	200	PVC	2005	100	2105	580	52,780	86	1,291	614	-
SA24	WISTERIA LANE	K/LSW	GRAVITY	Urban	96	200	PVC	2005	100	2105	580	55,680	86	1,362	647	-
SA24	WISTERIA LANE	K/LSW	GRAVITY	Urban	131	200	PVC	2005	100	2105	580	75,980	86	1,858	883	-
SA24	WISTERIA LANE	K/LSW	GRAVITY	Urban	17	200	PVC	2005	100	2105	580	9,860	86	241	115	-
SA377	WOOD-FERN AV	K/LSW	GRAVITY	Urban	150	200	PVC	2007	100	2107	580	87,000	88	2,109	989	-
SA377	WOOD-FERN AV	K/LSW	GRAVITY	Urban	136	200	PVC	2007	100	2107	580	78,880	88	1,912	896	-
SA377	WOOD-FERN AV	K/LSW	GRAVITY	Urban	134	200	PVC	2007	100	2107	580	77,720	88	1,884	883	-
SA688	WOODLAND ST	K/LSW	GRAVITY	Urban	33	250	PVC	2007	100	2107	650	21,450	88	520	244	-
SA123	WOODLAWN CR	K/LSW	GRAVITY	Urban	93	200	AC	1969	100	2069	580	53,940	50	1,717	1,079	-
SA124	WOODLAWN CR	K/LSW	GRAVITY	Urban	238	250	AC	1969	100	2069	650	154,700	50	4,923	3,094	-
SA141	WOODLAWN CR	K/LSW	GRAVITY	Urban	134	200	AC	1973	100	2073	580	77,720	54	2,367	1,439	-
SA146	WOODLAWN CR	K/LSW	GRAVITY	Urban	41	200	AC	1973	100	2073	580	23,780	54	724	440	-
SA2	WOODYCREST AV	K/LSW	GRAVITY	Urban	86	250	PVC	1978	100	2078	650	55,900	59	1,622	947	-
SA4	WOODYCREST AV	K/LSW	GRAVITY	Urban	75	375	PVC	2005	100	2105	840	63,000	86	1,541	733	-
SA13	WOODYCREST AV	K/LSW	GRAVITY	Urban	110	375	PVC	2006	100	2106	840	92,400	87	2,250	1,062	-
SA14	WOODYCREST AV	K/LSW	GRAVITY	Urban	85	375	PVC	2006	100	2106	840	71,400	87	1,738	821	-
SA22	WOODYCREST AV	K/LSW	GRAVITY	Urban	92	200	PVC	2005	100	2105	580	53,360	86	1,305	620	-
SA387	WOODYCREST AV	K/LSW	GRAVITY	Urban	34	200	PVC	2003	100	2103	580	19,720	84	487	235	-
SA388	WOODYCREST AV	K/LSW	GRAVITY	Urban	50	200	PVC	2002	100	2102	580	29,000	83	719	349	-
SA470	WOODYCREST AV	K/LSW	GRAVITY	Urban	48	200	PVC	1978	100	2078	580	27,840	59	808	472	-
SA471	WOODYCREST AV	K/LSW	GRAVITY	Urban	58	200	PVC	1978	100	2078	580	33,640	59	976	570	-
SA603	WOODYCREST AV	K/LSW	GRAVITY	Urban	29	200	PVC	1978	100	2078	580	16,820	59	488	285	-
SA22	WOODYCREST AV	K/LSW	GRAVITY	Urban	88	200	PVC	2005	100	2105	580	51,040	86	1,248	593	-
SA707	WOODYCREST AVE	K/LSW	GRAVITY	Urban	82	375	PVC	2010	100	2110	840	68,880	91	1,650	757	-



Import ID	Street	Cottam vs. K/LSW	Type	Urban or Rural	Length (m)	Diameter (mm)	Material	Year Installed	Estimated Life	Replacement Year	Replacement Cost / m	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution sinking fund	Annual Lifecycle Contribution straight-line	Amount to be included in 10-year Forecast
SA532	WOODYCREST AVE	K/LSW	GRAVITY	Urban	94	200	PVC	2014	100	2114	580	54,520	95	1,286	574	-
SA707	WOODYCREST AVE	K/LSW	GRAVITY	Urban	66	375	PVC	2010	100	2110	840	55,440	91	1,328	609	-
SA707	WOODYCREST AVE	K/LSW	GRAVITY	Urban	75	375	PVC	2010	100	2110	840	63,000	91	1,509	692	-
SA707	WOODYCREST AVE	K/LSW	GRAVITY	Urban	80	375	PVC	2010	100	2110	840	67,200	91	1,610	738	-
SA1641	WOODYCREST AVE	K/LSW	GRAVITY	Urban	73	200	PVC	2014	100	2114	580	42,340	95	999	446	-
SA1642	WOODYCREST AVE	K/LSW	GRAVITY	Urban	109	200	PVC	2014	100	2114	580	63,220	95	1,492	665	-
SA1646	WOODYCREST AVE	K/LSW	GRAVITY	Urban	104	200	PVC	2014	100	2114	580	60,320	95	1,423	635	-
SA1647	WOODYCREST AVE	K/LSW	GRAVITY	Urban	102	200	PVC	2014	100	2114	580	59,160	95	1,396	623	-
SA245	WRIDE AV	K/LSW	GRAVITY	Urban	149	200	PVC	1999	100	2099	580	86,420	80	2,174	1,080	-
SA246	WRIDE AV	K/LSW	GRAVITY	Urban	511	200	PVC	1997	100	2097	580	296,380	78	7,536	3,800	-
SA699		K/LSW	GRAVITY	Urban	93	200	PVC	1997	100	2097	580	53,940	78	1,371	692	-
Total					108,160							71,386,230		1,924,422	1,085,777	3,760,630
Total	Cottam				7,547							4,632,380		129,517	72,811	0
Total	Kingsville/Lakeshore West				100,613							66,753,850		1,794,905	1,012,966	3,760,630



Appendix C

Detailed Water Rate Calculations



Appendix C: Detailed Water Rate Calculations

Table C-1
Town of Kingsville
Capital Budget Forecast (Uninflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
Ruthven Industrial Park Oversizing within Development	-										
Source Water Protection (Year 3 of 3)	-										
Waterline Looping Cedar Island (2 Canal Crossings)	-										
Water Rate Study/Financial Plan	-										
Water Distribution Master Plan	-										
SW Region Class EA	-										
Road 11 W - Hydrants	-										
County Rd 18 - Watermain Extension Oversizing	-										
Fleet Replacement:	-										
Fleet Replacement - 2004 Ford F-350 Extended Cab Service	-										
2008 GMC Sierra 2500 HD 4x4	62,000	62,000									
2006 Ford F-350 Extended Cab Service	62,000		62,000								
2006 Ford F-350 Extended Cab Service	62,000		62,000								
2010 Case 580SM Backhoe (water portion)	20,000			20,000							
2010 Case 521E Loader (water portion)	15,000			15,000							
2012 International Workstar Tandem Dump	140,000					140,000					
2013 Ford F-150 4x4 extended cab	35,000						35,000				
2012 Valve Excercising/Hydro-Excavation Trailer	74,000							74,000			
New Fleet:	-										
17-03 Ford F250 Pickup Truck with Cap	60,000									60,000	
Growth Related:	-										
SW Service Area Upgrade	-										
Stage 1 - two 400mm watermain	5,200,000	440,840	4,759,160								
Stage 2 - 400mm watermain	1,500,000	127,160	1,372,840								
Stage 3 - 300mm watermain	1,700,000		127,500	1,572,500							
Stage 4 - 1050mm trunk watermain twinning	4,100,000							307,500	3,792,500		
Stage 5 - 600mm trunk watermain twinning	3,850,000								288,750	3,561,250	
Stage 6 - 600mm trunk watermain twinning	3,450,000									258,750	3,191,250
Total Capital Expenditures	20,330,000	630,000	6,383,500	1,607,500	-	140,000	35,000	381,500	4,081,250	3,880,000	3,191,250

Table C-2
Town of Kingsville
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
Ruthven Industrial Park Oversizing within Development	-	-	-	-	-	-	-	-	-	-	-
Source Water Protection (Year 3 of 3)	-	-	-	-	-	-	-	-	-	-	-
Waterline Looping Cedar Island (2 Canal Crossings)	-	-	-	-	-	-	-	-	-	-	-
Water Rate Study/Financial Plan	-	-	-	-	-	-	-	-	-	-	-
Water Distribution Master Plan	-	-	-	-	-	-	-	-	-	-	-
SW Region Class EA	-	-	-	-	-	-	-	-	-	-	-
Road 11 W - Hydrants	-	-	-	-	-	-	-	-	-	-	-
County Rd 18 - Watermain Extension Oversizing	-	-	-	-	-	-	-	-	-	-	-
Fleet Replacement:	-	-	-	-	-	-	-	-	-	-	-
Fleet Replacement - 2004 Ford F-350 Extended Cab Service	-	-	-	-	-	-	-	-	-	-	-
2008 GMC Sierra 2500 HD 4x4	63,000	63,000	-	-	-	-	-	-	-	-	-
2006 Ford F-350 Extended Cab Service	65,000	-	65,000	-	-	-	-	-	-	-	-
2006 Ford F-350 Extended Cab Service	65,000	-	65,000	-	-	-	-	-	-	-	-
2010 Case 580SM Backhoe (water portion)	21,000	-	-	21,000	-	-	-	-	-	-	-
2010 Case 521E Loader (water portion)	16,000	-	-	16,000	-	-	-	-	-	-	-
2012 International Workstar Tandem Dump	155,000	-	-	-	-	155,000	-	-	-	-	-
2013 Ford F-150 4x4 extended cab	39,000	-	-	-	-	-	39,000	-	-	-	-
2012 Valve Excercising/Hydro-Excavation Trailer	85,000	-	-	-	-	-	-	85,000	-	-	-
New Fleet:	-	-	-	-	-	-	-	-	-	-	-
17-03 Ford F250 Pickup Truck with Cap	72,000	-	-	-	-	-	-	-	-	72,000	-
Growth Related:	-	-	-	-	-	-	-	-	-	-	-
SW Service Area Upgrade	-	-	-	-	-	-	-	-	-	-	-
Stage 1 - two 400mm watermain	5,401,000	450,000	4,951,000	-	-	-	-	-	-	-	-
Stage 2 - 400mm watermain	1,558,000	130,000	1,428,000	-	-	-	-	-	-	-	-
Stage 3 - 300mm watermain	1,802,000	-	133,000	1,669,000	-	-	-	-	-	-	-
Stage 4 - 1050mm trunk watermain twinning	4,797,000	-	-	-	-	-	-	353,000	4,444,000	-	-
Stage 5 - 600mm trunk watermain twinning	4,594,000	-	-	-	-	-	-	-	338,000	4,256,000	-
Stage 6 - 600mm trunk watermain twinning	4,199,000	-	-	-	-	-	-	-	-	309,000	3,890,000
Total Capital Expenditures	22,932,000	643,000	6,642,000	1,706,000	-	155,000	39,000	438,000	4,782,000	4,637,000	3,890,000

Table C-3
Town of Kingsville
Schedule of Non-Growth-Related Debenture Repayments

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	-			-	-	-	-	-	-	-	-
2021	-				-	-	-	-	-	-	-
2022	-					-	-	-	-	-	-
2023	-						-	-	-	-	-
2024	-							-	-	-	-
2025	-								-	-	-
2026	-									-	-
2027	-										-
2028	-										
Total Annual Debt Charges	-	-	-	-	-	-	-	-	-	-	-



Table C-4
Town of Kingsville
Schedule of Growth-Related Debenture Repayments

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	4,000,000			294,327	294,327	294,327	294,327	294,327	294,327	294,327	294,327
2021	1,000,000				73,582	73,582	73,582	73,582	73,582	73,582	73,582
2022	-					-	-	-	-	-	-
2023	-						-	-	-	-	-
2024	-							-	-	-	-
2025	-								-	-	-
2026	3,000,000									220,745	220,745
2027	3,000,000										220,745
2028	2,000,000										
Total Annual Debt Charges	13,000,000	-	-	294,327	367,909	367,909	367,909	367,909	367,909	588,654	809,399

Table C-5
Town of Kingsville
Water Working Capital Reserve Continuity (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	522,156	522,156	522,156	522,156	522,156	522,156	522,156	522,156	522,156	522,156
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	522,156	522,156	522,156	522,156	522,156	522,156	522,156	522,156	522,156	522,156
Interest										

Table C-6
Town of Kingsville
Water Development Charges Reserve Fund Continuity (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	310,673	157,892	0	0	12,819	33,705	62,929	0	0	0
Development Charge Proceeds	279,123	328,664	390,938	380,477	388,134	395,899	403,848	411,907	411,830	425,121
Transfer from Future Waterline Maintenance Reserve	-	397,444	155,139	-	-	-	165,881	542,502	600,574	1,301,778
Transfer to Capital	435,000	884,000	251,750				264,750	586,500	423,750	917,500
Transfer to Operating	-	-	294,327	367,909	367,909	367,909	367,909	367,909	588,654	809,399
Closing Balance	154,796	0	0	12,568	33,044	61,695	0	0	0	0
Interest	3,096	0	0	251	661	1,234	0	0	0	0
Required from Development Charges	435,000	4,884,000	1,251,750	-	-	-	264,750	3,586,500	3,423,750	2,917,500

Table C-7
Town of Kingsville
Water M.O.E. Reserve Continuity (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	59,278	59,278	59,278	59,278	59,278	59,278	59,278	59,278	59,278	59,278
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	59,278	59,278	59,278	59,278	59,278	59,278	59,278	59,278	59,278	59,278
Interest										

Table C-8
Town of Kingsville
Water Future Waterline Maintenance Reserve Continuity (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	2,047,019	2,749,005	1,614,586	1,974,000	2,942,552	3,945,398	4,979,867	5,789,438	5,140,389	4,568,136
Transfer from Operating	846,986	891,025	931,803	968,553	1,002,846	1,034,469	1,063,702	1,088,953	1,169,571	1,248,009
Transfer to Capital	145,000	1,628,000	417,250	-	-	-	88,250	1,195,500	1,141,250	972,500
Transfer to DC Reserve Fund (interim financing)		397,444	155,139				165,881	542,502	600,574	1,301,778
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	2,749,005	1,614,586	1,974,000	2,942,552	3,945,398	4,979,867	5,789,438	5,140,389	4,568,136	3,541,868
Interest										
Interim Financing to DC Reserve Fund - Balance Remaining	-	397,444	552,583	552,583	552,583	552,583	718,464	1,260,966	1,861,540	3,163,318

Table C-9
Town of Kingsville
Water Meter Changeout Reserve Continuity (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	25,000	50,000	75,000	100,000	125,000	150,000	175,000	200,000	225,000	250,000
Transfer from Operating	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	50,000	75,000	100,000	125,000	150,000	175,000	200,000	225,000	250,000	275,000
Interest										

Table C-10
Town of Kingsville
Water Equipment Reserve Continuity (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	51,559	63,559	8,559	46,559	121,559	41,559	77,559	67,559	142,559	145,559
Transfer from Operating	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000
Transfer to Capital	63,000	130,000	37,000	-	155,000	39,000	85,000	-	72,000	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	63,559	8,559	46,559	121,559	41,559	77,559	67,559	142,559	145,559	220,559
Interest										



Table C-11
Town of Kingsville
Operating Budget Forecast (Inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Salaries - Full Time	546,200	557,100	568,200	579,600	591,200	603,000	615,100	627,400	639,900	652,700
Salaries - Overtime	14,500	14,800	15,100	15,400	15,700	16,000	16,300	16,600	16,900	17,200
Salaries - Student	10,500	10,700	10,900	11,100	11,300	11,500	11,700	11,900	12,100	12,300
Committee Honorarium	12,300	12,500	12,800	13,100	13,400	13,700	14,000	14,300	14,600	14,900
Vehicle Expense	-	-	-	-	-	-	-	-	-	-
Benefits - EI	9,700	9,900	10,100	10,300	10,500	10,700	10,900	11,100	11,300	11,500
Benefits - CPP	21,500	21,900	22,300	22,700	23,200	23,700	24,200	24,700	25,200	25,700
Benefits - EHT	11,400	11,600	11,800	12,000	12,200	12,400	12,600	12,900	13,200	13,500
Benefits - OMERS	55,300	56,400	57,500	58,700	59,900	61,100	62,300	63,500	64,800	66,100
Benefits - Health Coverage	70,600	72,000	73,400	74,900	76,400	77,900	79,500	81,100	82,700	84,400
Benefits - WSIB	11,800	12,000	12,200	12,400	12,600	12,900	13,200	13,500	13,800	14,100
Benefits - Uniforms	5,600	5,700	5,800	5,900	6,000	6,100	6,200	6,300	6,400	6,500
Benefits - Meal Allowance	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Benefits - Eyeglasses	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200
Benefits - Ortho	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Training & Development	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Office Supplies	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
Computer Supplies	500	500	500	500	500	500	500	500	500	500
Postage Supplies	30,600	31,200	31,800	32,400	33,000	33,700	34,400	35,100	35,800	36,500
Courier & Express	500	500	500	500	500	500	500	500	500	500
Advertising	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
Computer Maintenance	500	500	500	500	500	500	500	500	500	500
Computer Consultants	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
General Insurance	23,700	24,200	24,700	25,200	25,700	26,200	26,700	27,200	27,700	28,300
Utilities	-	-	-	-	-	-	-	-	-	-
Facility Maintenance	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Equipment Repair	17,300	17,600	18,000	18,400	18,800	19,200	19,600	20,000	20,400	20,800
Miscellaneous	500	500	500	500	500	500	500	500	500	500
Equipment Rental	500	500	500	500	500	500	500	500	500	500
Professional Svc (Legal Audits)	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400	4,500
Membership & Subscription	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
Write offs	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Professional Fees (Engineering)	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
Communication	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
Shop Supplies	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Fuel & Oil	23,100	24,300	25,500	26,800	28,100	29,500	31,000	32,600	34,200	35,900
Licences & Permits	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000	6,100	6,200
Safety Supplies	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
Small Tools	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000
Mileage	500	500	500	500	500	500	500	500	500	500
Curb Stop Repairs	9,700	9,900	10,100	10,300	10,500	10,700	10,900	11,100	11,300	11,500
Back Flow Program	25,500	26,000	26,500	27,000	27,500	28,100	28,700	29,300	29,900	30,500
Road Repair / Restoration	17,900	18,300	18,700	19,100	19,500	19,900	20,300	20,700	21,100	21,500
Meter Reading Expense	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
Water Purchases - Estimated	3,902,000	4,072,000	4,250,000	4,435,000	4,626,000	4,825,000	5,032,000	5,249,000	5,475,000	5,710,000
Water Meters	56,100	57,200	58,300	59,500	60,700	61,900	63,100	64,400	65,700	67,000
Water Meter Maintenance	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Water Locates	7,700	7,900	8,100	8,300	8,500	8,700	8,900	9,100	9,300	9,500
Water Service Connections	61,200	62,400	63,600	64,900	66,200	67,500	68,900	70,300	71,700	73,100
Watermain Line Breaks	45,900	46,800	47,700	48,700	49,700	50,700	51,700	52,700	53,800	54,900
Water Line Maintenance	15,300	15,600	15,900	16,200	16,500	16,800	17,100	17,400	17,700	18,100
Hydrant Maintenance	20,400	20,800	21,200	21,600	22,000	22,400	22,800	23,300	23,800	24,300
Property Taxes	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900
Program Support Costs	198,800	202,800	206,900	211,000	215,200	219,500	223,900	228,400	233,000	237,700
Sub Total Operating	5,307,300	5,505,900	5,713,000	5,928,000	6,149,400	6,379,500	6,618,300	6,867,800	7,126,800	7,395,800
Capital-Related										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)	-	-	134,327	173,282	180,213	187,422	194,918	202,715	311,569	424,777
New Growth Related Debt (Interest)	-	-	160,000	194,627	187,696	180,487	172,990	165,194	277,085	384,622
Existing Debt (Principal) - Non-Growth Related										
Existing Debt (Interest) - Non-Growth Related										
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to DC Reserve Fund (from Waterline Maintenance)	-	397,444	155,139	-	-	-	165,881	542,502	600,574	1,301,778
Transfer to Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Transfer to MOE Reserves - GS	-	-	-	-	-	-	-	-	-	-
Transfer to Future Waterline Maintenance Reserve	846,986	891,025	931,803	968,553	1,002,846	1,034,469	1,063,702	1,088,953	1,169,571	1,248,009
Transfer to Water Meter Changeout Reserve	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Transfer to Water Equipment Reserve	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000
Sub Total Capital Related	946,986	1,388,469	1,481,269	1,436,462	1,470,754	1,502,378	1,697,492	2,099,363	2,458,799	3,459,187
Total Expenditures	6,254,286	6,894,369	7,194,269	7,364,462	7,620,154	7,881,878	8,315,792	8,967,163	9,585,599	10,854,987
Revenues										
Base Charge	664,588	715,765	770,884	830,246	894,175	963,027	1,037,179	1,117,042	1,203,054	1,295,723
Other Revenue										
Service Connection Installation	51,000	52,000	53,000	54,100	55,200	56,300	57,400	58,500	59,700	60,900
Meter Installation/ Maintenance	7,100	7,200	7,300	7,400	7,500	7,700	7,900	8,100	8,300	8,500
Extra Charges	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300	3,400	3,500
Recovered Wages	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900	5,000
Account Set-up Fees	14,300	14,600	14,900	15,200	15,500	15,800	16,100	16,400	16,700	17,000
Watermain Dev. Review	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Water Meter Sales	22,400	22,800	23,300	23,800	24,300	24,800	25,300	25,800	26,300	26,800
Miscellaneous Revenue	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Penalties & Interest	14,300	14,600	14,900	15,200	15,500	15,800	16,100	16,400	16,700	17,000
Investment Income	-	-	-	-	-	-	-	-	-	-
Contributions from Development Charges Reserve Fund	-	-	294,327	367,909	367,909	367,909	367,909	367,909	588,654	809,399
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from MOE Reserves - GS	-	-	-	-	-	-	-	-	-	-
Contributions from Future Waterline Maintenance Reserve (for DC Reserve Fund Interim Financing)	-	397,444	155,139	-	-	-	165,881	542,502	600,574	1,301,778
Contributions from Future Waterline Maintenance Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Water Meter Changeout Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Water Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	783,388	1,234,309	1,343,850	1,324,155	1,390,584	1,462,035	1,704,669	2,163,753	2,531,282	3,548,600
Water Billing Recovery - Total	5,470,898	5,660,060	5,850,419	6,040,306	6,229,570	6,419,843	6,611,123	6,803,411	7,054,317	7,306,386



Table C-12
Town of Kingsville
Water Rate Forecast (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Water Billing Recovery	5,470,898	5,660,060	5,850,419	6,040,306	6,229,570	6,419,843	6,611,123	6,803,411	7,054,317	7,306,386
Total Volume (m ³)	5,640,101	5,660,060	5,680,019	5,698,402	5,715,202	5,732,002	5,748,802	5,765,602	5,782,227	5,798,719
Constant Rate	0.97	1.00	1.03	1.06	1.09	1.12	1.15	1.18	1.22	1.26
Annual Percentage Change	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Annual Dollar Change	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04



Appendix D

Detailed Wastewater Rate Calculations

Appendix D: Detailed Wastewater Rate Calculations

D.1 – Cottam - Current Rate Structure – Fixed Monthly Rate

Table D.1-1
Town of Kingsville
Capital Budget Forecast (Uninflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:	-										
Lagoon Interconnect Valve Replacement	-										
Pump Station #1 pump station indoor refurbishing	-										
Arc Flash Assessment	-										
Major Maintenance	300,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Growth Related:	-										
Cottam Sewage Lagoon - Phase 2 (Aeration Pond & Pond 3)	3,223,000										3,223,000
	-										
Total Capital Expenditures	3,523,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	3,253,000

Table D.1-2
Town of Kingsville
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:	-	-	-	-	-	-	-	-	-	-	-
Lagoon Interconnect Valve Replacement	-	-	-	-	-	-	-	-	-	-	-
Pump Station #1 pump station indoor refurbishing	-	-	-	-	-	-	-	-	-	-	-
Arc Flash Assessment	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Growth Related:	-	-	-	-	-	-	-	-	-	-	-
Cottam Sewage Lagoon - Phase 2 (Aeration Pond & Pond 3)	3,929,000	-	-	-	-	-	-	-	-	-	3,929,000
Total Capital Expenditures	4,264,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	3,966,000
Capital Financing											
Provincial/Federal Grants	-										
Development Charges Reserve Fund	929,000	-	-	-	-	-	-	-	-	-	929,000
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	3,000,000	-	-	-	-	-	-	-	-	-	3,000,000
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Cottam Equipment Reserve	-	-	-	-	-	-	-	-	-	-	-
Cottam Working Capital Reserve	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Total Capital Financing	4,264,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	3,966,000

Table D.1-3
Town of Kingsville
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	-			-	-	-	-	-	-	-	-
2021	-				-	-	-	-	-	-	-
2022	-					-	-	-	-	-	-
2023	-						-	-	-	-	-
2024	-							-	-	-	-
2025	-								-	-	-
2026	-									-	-
2027	-										-
2028	-										
Total Annual Debt Charges	-	-	-	-	-	-	-	-	-	-	-

Table D.1-4
Town of Kingsville
Schedule of Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	-			-	-	-	-	-	-	-	-
2021	-				-	-	-	-	-	-	-
2022	-					-	-	-	-	-	-
2023	-						-	-	-	-	-
2024	-							-	-	-	-
2025	-								-	-	-
2026	-									-	-
2027	-										-
2028	3,000,000										
Total Annual Debt Charges	3,000,000	-	-	-	-	-	-	-	-	-	-

Table D.1-5
Town of Kingsville
Wastewater Cottam Working Capital Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	(1,219,041)	(1,138,363)	(1,049,426)	(952,796)	(847,058)	(732,620)	(608,915)	(474,437)	(329,572)	(173,658)
Transfer from Operating (deficit reduction)	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Transfer from Operating (Lifecycle Contribution)	18,821	24,467	30,527	47,982	43,903	51,363	59,300	67,717	76,757	86,586
Transfer to Capital	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	(1,138,363)	(1,049,426)	(952,796)	(847,058)	(732,620)	(608,915)	(474,437)	(329,572)	(173,658)	(5,040)
Interest										



Table D.1-6
Town of Kingsville
Wastewater Development Charges Reserve Fund Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	353,729	402,642	43,937	(0)	0	0	0	0	(0)	(0)
Development Charge Proceeds	183,218	215,583	255,991	254,794	259,864	265,033	270,321	275,725	276,786	293,671
Transfer from Kingsville/Lakeshore West Sewer Capital Reserve	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,895
Transfer to Capital - Cottam	-	-	-	-	-	-	-	-	-	929,000
Transfer to Capital - Kingsville/Lakeshore West	142,200	575,150	-	44,000	590,850	442,850	236,550	971,600	-	-
Transfer to Operating - Cottam	-	-	-	-	-	-	-	-	-	-
Transfer to Operating - Kingsville/Lakeshore West	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565
Closing Balance	394,747	43,075	(0)	0	0	0	0	(0)	(0)	0
Interest	7,895	862	(0)	0	0	0	0	(0)	(0)	0
Required from Development Charges	-	-	-	-	-	-	-	-	-	3,929,000

Table D.1-7
Town of Kingsville
Wastewater Cottam Equipment Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Interest										

Table D.1-8
Town of Kingsville
Operating Budget Forecast (Inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Utilities	11,800	12,400	13,000	13,700	14,400	15,100	15,900	16,700	17,500	18,400
Write Offs	-	-	-	-	-	-	-	-	-	-
Communication Expense	600	600	600	600	600	600	600	600	600	600
Property Taxes	8,900	9,100	9,300	9,500	9,700	9,900	10,100	10,300	10,500	10,700
Sewer Service Connection	-	-	-	-	-	-	-	-	-	-
Sanitary Backwater Valve Program	-	-	-	-	-	-	-	-	-	-
OCWA Billing	72,400	73,800	75,300	76,800	78,300	79,900	81,500	83,100	84,800	86,500
OCWA Billing (Lagoon Batch Treatment 2-43)	-	-	-	-	-	-	-	-	-	-
Sewer Flush & Mtce (Sanitary)	6,100	6,200	6,300	6,400	6,500	6,600	6,700	6,800	6,900	7,000
Cottam System Repairs	-	-	-	-	-	-	-	-	-	-
Sub Total Operating	99,800	102,100	104,500	107,000	109,500	112,100	114,800	117,500	120,300	123,200
Capital-Related										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related										
Existing Debt (Interest) - Non-Growth Related										
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Equipment Reserve										
Transfer to Working Capital Reserve	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Sub Total Capital Related	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Total Expenditures	192,657	197,570	202,602	196,756	213,035	218,441	223,978	229,649	235,456	242,233
Revenues										
Base Charge	201,822	212,001	222,689	233,893	245,688	258,082	271,084	284,699	299,007	315,073
Penalties & Interest	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-
Contributions from Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	203,022	213,201	223,889	235,093	246,888	259,282	272,284	285,899	300,207	316,273
Wastewater Billing Recovery - Operating	(10,365)	(15,631)	(21,287)	(38,337)	(33,853)	(40,841)	(48,305)	(56,250)	(64,751)	(74,040)
Lifecycle Contribution (\$)	18,821	24,467	30,527	47,982	43,903	51,363	59,300	67,717	76,757	86,586
Wastewater Billing Recovery - Total	8,456	8,836	9,241	9,645	10,050	10,522	10,994	11,467	12,006	12,546

Table D.1-9
Town of Kingsville
Wastewater Rate Forecast (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Wastewater Billing Recovery	8,456	8,836	9,241	9,645	10,050	10,522	10,994	11,467	12,006	12,546
Total Volume (m ³) (non-residential and greenhouse)	6,745	6,745	6,745	6,745	6,745	6,745	6,745	6,745	6,745	6,745
Constant Rate	1.25	1.31	1.37	1.43	1.49	1.56	1.63	1.70	1.78	1.86
Annual Percentage Change		4.5%	4.6%	4.4%	4.2%	4.7%	4.5%	4.3%	4.7%	4.5%
Dollar Change		0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08



D.2 – Cottam – Alternative Rate Structure – Base Charge and Variable Rate

Table D.2-1
Town of Kingsville
Capital Budget Forecast (Uninflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:	-										
Lagoon Interconnect Valve Replacement	-										
Pump Station #1 pump station indoor refurbishing	-										
Arc Flash Assessment	-										
Major Maintenance	300,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Growth Related:	-										
Cottam Sewage Lagoon - Phase 2 (Aeration Pond & Pond 3)	3,223,000										3,223,000
	-										
Total Capital Expenditures	3,523,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	3,253,000

Table D.2-2
Town of Kingsville
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:	-	-	-	-	-	-	-	-	-	-	-
Lagoon Interconnect Valve Replacement	-	-	-	-	-	-	-	-	-	-	-
Pump Station #1 pump station indoor refurbishing	-	-	-	-	-	-	-	-	-	-	-
Arc Flash Assessment	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Growth Related:	-	-	-	-	-	-	-	-	-	-	-
Cottam Sewage Lagoon - Phase 2 (Aeration Pond & Pond 3)	3,929,000	-	-	-	-	-	-	-	-	-	3,929,000
Total Capital Expenditures	4,264,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	3,966,000
Capital Financing											
Provincial/Federal Grants	-										
Development Charges Reserve Fund	929,000	-	-	-	-	-	-	-	-	-	929,000
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	3,000,000	-	-	-	-	-	-	-	-	-	3,000,000
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Cottam Equipment Reserve	-	-	-	-	-	-	-	-	-	-	-
Cottam Working Capital Reserve	335,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Total Capital Financing	4,264,000	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	3,966,000

Table D.2-3
Town of Kingsville
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	-			-	-	-	-	-	-	-	-
2021	-				-	-	-	-	-	-	-
2022	-					-	-	-	-	-	-
2023	-						-	-	-	-	-
2024	-							-	-	-	-
2025	-								-	-	-
2026	-									-	-
2027	-										-
2028	-										
Total Annual Debt Charges	-	-	-	-	-	-	-	-	-	-	-

Table D.2-4
Town of Kingsville
Schedule of Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	-			-	-	-	-	-	-	-	-
2021	-				-	-	-	-	-	-	-
2022	-					-	-	-	-	-	-
2023	-						-	-	-	-	-
2024	-							-	-	-	-
2025	-								-	-	-
2026	-									-	-
2027	-										-
2028	3,000,000										
Total Annual Debt Charges	3,000,000	-	-	-	-	-	-	-	-	-	-

Table D.2-5
Town of Kingsville
Wastewater Cottam Working Capital Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	(1,219,041)	(1,133,865)	(1,042,500)	(945,184)	(839,815)	(726,310)	(603,426)	(468,648)	(325,456)	(172,903)
Transfer from Operating (deficit reduction)	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Transfer from Operating (Lifecycle Contribution)	23,319	26,896	31,213	47,613	42,970	50,543	59,600	66,043	73,397	81,430
Transfer to Capital	31,000	31,000	32,000	32,000	33,000	34,000	34,000	35,000	36,000	37,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	(1,133,865)	(1,042,500)	(945,184)	(839,815)	(726,310)	(603,426)	(468,648)	(325,456)	(172,903)	(9,440)
Interest										



Table D.2-6
Town of Kingsville
Wastewater Development Charges Reserve Fund Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	353,729	402,642	43,937	(0)	0	0	0	0	(0)	(0)
Development Charge Proceeds	183,218	215,583	255,991	254,794	259,864	265,033	270,321	275,725	276,786	293,671
Transfer from Kingsville/Lakeshore West Sewer Capital Reserve	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,895
Transfer to Capital - Cottam	-	-	-	-	-	-	-	-	-	929,000
Transfer to Capital - Kingsville/Lakeshore West	142,200	575,150	-	44,000	590,850	442,850	236,550	971,600	-	-
Transfer to Operating - Cottam	-	-	-	-	-	-	-	-	-	-
Transfer to Operating - Kingsville/Lakeshore West	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565
Closing Balance	394,747	43,075	(0)	0	0	0	0	(0)	(0)	0
Interest	7,895	862	(0)	0	0	0	0	(0)	(0)	0
Required from Development Charges	-	-	-	-	-	-	-	-	-	3,929,000

Table D.2-7
Town of Kingsville
Wastewater Cottam Equipment Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Interest										

Table D.2-8
Town of Kingsville
Operating Budget Forecast (Inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Utilities	11,800	12,400	13,000	13,700	14,400	15,100	15,900	16,700	17,500	18,400
Write Offs	-	-	-	-	-	-	-	-	-	-
Communication Expense	600	600	600	600	600	600	600	600	600	600
Property Taxes	8,900	9,100	9,300	9,500	9,700	9,900	10,100	10,300	10,500	10,700
Sewer Service Connection	-	-	-	-	-	-	-	-	-	-
Sanitary Backwater Valve Program	-	-	-	-	-	-	-	-	-	-
OCWA Billing	72,400	73,800	75,300	76,800	78,300	79,900	81,500	83,100	84,800	86,500
OCWA Billing (Lagoon Batch Treatment 2-43)	-	-	-	-	-	-	-	-	-	-
Sewer Flush & Mtce (Sanitary)	6,100	6,200	6,300	6,400	6,500	6,600	6,700	6,800	6,900	7,000
Cottam System Repairs	-	-	-	-	-	-	-	-	-	-
Sub Total Operating	99,800	102,100	104,500	107,000	109,500	112,100	114,800	117,500	120,300	123,200
Capital-Related										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Existing Debt (Principal) - Non-Growth Related										
Existing Debt (Interest) - Non-Growth Related										
New Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Equipment Reserve										
Transfer to Working Capital Reserve (Deficit Reduction)	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Sub Total Capital Related	92,857	95,470	98,102	89,756	103,535	106,341	109,178	112,149	115,156	119,033
Total Expenditures	192,657	197,570	202,602	196,756	213,035	218,441	223,978	229,649	235,456	242,233
Revenues										
Base Charge	170,400	173,013	175,644	178,362	181,099	183,855	186,629	189,493	192,376	195,935
Non-residential and Greenhouse Rate Revenue	8,634	8,971	9,308	9,713	10,118	10,522	10,927	11,332	11,804	12,276
Penalties & Interest	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Contributions from Development Charges Reserve Fund	-	-	-	-	-	-	-	-	-	-
Contributions from Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	180,234	183,184	186,152	189,275	192,417	195,577	198,756	202,025	205,380	209,411
Wastewater Billing Recovery - Operating	12,423	14,386	16,450	7,481	20,618	22,864	25,222	27,624	30,076	32,822
Lifecycle Contribution (\$)	23,319	26,896	31,213	47,613	42,970	50,543	59,600	66,043	73,397	81,430
Wastewater Billing Recovery - Total	35,742	41,282	47,663	55,094	63,588	73,408	84,822	93,667	103,473	114,251

Table D.2-9
Town of Kingsville
Wastewater Rate Forecast (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Wastewater Billing Recovery	35,742	41,282	47,663	55,094	63,588	73,408	84,822	93,667	103,473	114,251
Total Volume (m ³)	123,248	123,598	124,123	124,648	125,173	125,698	126,223	126,748	127,273	127,798
Constant Rate	0.29	0.33	0.38	0.44	0.51	0.58	0.67	0.74	0.81	0.89
Annual Percentage Change		15%	15%	15%	15%	15%	15%	10%	10%	10%
Dollar Change		0.04	0.05	0.06	0.07	0.08	0.09	0.07	0.07	0.08



D.3 – Kingsville/Lakeshore West - Current Rate Structure - Fixed Monthly Rate

Table D.3-1
Town of Kingsville
Capital Budget Forecast (Uninflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:											
Lakeshore West WWTP											
Major Maintenance - Lakeshore West	3,580,000	358,000	358,000	358,000	358,000	358,000	358,000	358,000	358,000	358,000	358,000
Kingsville Wastewater Lagoons	-										
Major Maintenance - Kingsville Lagoons	320,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000
	-										
Fleet Replacement:	-										
2004 Kubota 32 HP Front Mount Lawnmower	62,500	25,000				6,250	6,250	6,250	6,250	6,250	6,250
1999 Daewoo Extended Boom Litruck	50,000	20,000				5,000	5,000	5,000	5,000	5,000	5,000
1997 International Dump	25,000	10,000				2,500	2,500	2,500	2,500	2,500	2,500
2012 Kubota Tractor	75,000				30,000	7,500	7,500	7,500	7,500	7,500	7,500
2013 Kioti Tractor CK20S	50,000					25,000	5,000	5,000	5,000	5,000	5,000
Growth Related:	-										
Phase II Capacity Expansion Lakeshore West PCP	2,886,600							216,495	2,670,105		
Kingsville PCP Lagoons Quality Upgrade	1,089,000				81,675	1,007,325					
Wastewater Master Plan	-										
Ruthven PS Upgrade	500,000					37,500	462,500				
LSE Trunk Sewer & PS	3,951,000		3,951,000								
Lakeside Park Sanitary Sewer Twinning	2,069,000	155,175	1,913,825								
Total Capital Expenditures	14,658,100	600,175	6,254,825	390,000	501,675	1,481,075	878,750	632,745	3,086,355	416,250	416,250

Table D.3-2
Town of Kingsville
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:	-	-	-	-	-	-	-	-	-	-	-
Lakeshore West WWTP	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance - Lakeshore West	3,997,000	365,000	372,000	380,000	388,000	395,000	403,000	411,000	419,000	428,000	436,000
Kingsville Wastewater Lagoons	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance - Kingsville Lagoons	357,000	33,000	33,000	34,000	35,000	35,000	36,000	37,000	37,000	38,000	39,000
Fleet Replacement:	-	-	-	-	-	-	-	-	-	-	-
2004 Kubota 32 HP Front Mount Lawnmower	69,000	26,000	-	-	-	7,000	7,000	7,000	7,000	7,000	8,000
1999 Daewoo Extended Boom Litruck	56,000	20,000	-	-	-	6,000	6,000	6,000	6,000	6,000	6,000
1997 International Dump	28,000	10,000	-	-	-	3,000	3,000	3,000	3,000	3,000	3,000
2012 Kubota Tractor	84,000	-	-	-	32,000	8,000	8,000	9,000	9,000	9,000	9,000
2013 Kioti Tractor CK20S	58,000	-	-	-	-	28,000	6,000	6,000	6,000	6,000	6,000
Growth Related:	-	-	-	-	-	-	-	-	-	-	-
Phase II Capacity Expansion Lakeshore West PCP	3,377,000	-	-	-	-	-	-	249,000	3,128,000	-	-
Kingsville PCP Lagoons Quality Upgrade	1,200,000	-	-	-	88,000	1,112,000	-	-	-	-	-
Wastewater Master Plan	-	-	-	-	-	-	-	-	-	-	-
Ruthven PS Upgrade	562,000	-	-	-	-	41,000	521,000	-	-	-	-
LSE Trunk Sewer & PS	4,111,000	-	4,111,000	-	-	-	-	-	-	-	-
Lakeside Park Sanitary Sewer Twinning	2,149,000	158,000	1,991,000	-	-	-	-	-	-	-	-
Total Capital Expenditures	16,048,000	612,000	6,507,000	414,000	543,000	1,635,000	990,000	728,000	3,615,000	497,000	507,000
Capital Financing											
Provincial/Federal Grants	-										
Development Charges Reserve Fund	3,003,200	142,200	575,150	-	44,000	590,850	442,850	236,550	971,600	-	-
Non-Growth Related Debenture Requirements	1,100,000	-	500,000	-	-	300,000	-	-	300,000	-	-
Growth Related Debenture Requirements	6,300,000	-	4,300,000	-	-	-	-	-	2,000,000	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Capital Connection Charges Reserve	-	-	-	-	-	-	-	-	-	-	-
Equipment Reserve	444,000	78,000	12,000	11,000	43,000	67,000	45,000	46,000	47,000	47,000	48,000
Sewer Capital Reserve	5,200,800	391,800	1,119,850	403,000	456,000	677,150	502,150	445,450	296,400	450,000	459,000
Working Capital Reserve	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	16,048,000	612,000	6,507,000	414,000	543,000	1,635,000	990,000	728,000	3,615,000	497,000	507,000

Table D.3-3
Town of Kingsville
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	500,000			36,791	36,791	36,791	36,791	36,791	36,791	36,791	36,791
2021	-	-	-		-	-	-	-	-	-	-
2022	-	-	-	-		-	-	-	-	-	-
2023	300,000						22,075	22,075	22,075	22,075	22,075
2024	-	-	-	-	-	-		-	-	-	-
2025	-	-	-	-	-	-	-		-	-	-
2026	300,000									22,075	22,075
2027	-	-	-	-	-	-	-	-	-		-
2028	-	-	-	-	-	-	-	-	-	-	
Total Annual Debt Charges	1,100,000	-	-	36,791	36,791	36,791	58,865	58,865	58,865	80,940	80,940

Table D.3-4
Town of Kingsville
Schedule of Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	4,300,000			316,402	316,402	316,402	316,402	316,402	316,402	316,402	316,402
2021	-	-	-		-	-	-	-	-	-	-
2022	-	-	-	-		-	-	-	-	-	-
2023	-	-	-	-	-		-	-	-	-	-
2024	-	-	-	-	-	-		-	-	-	-
2025	-	-	-	-	-	-	-		-	-	-
2026	2,000,000									147,164	147,164
2027	-	-	-	-	-	-	-	-	-		-
2028	-	-	-	-	-	-	-	-	-	-	
Total Annual Debt Charges	6,300,000	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565



Table D.3-5
Town of Kingsville
Wastewater K/L.S.W. Working Capital Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584
Interest										

Table D.3-6
Town of Kingsville
Wastewater Development Charges Reserve Fund Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	353,729	402,642	43,937	(0)	0	0	0	0	0	(0)
Development Charge Proceeds	183,218	215,583	255,991	254,794	259,864	265,033	270,321	275,725	276,786	293,671
Transfer from Kingsville/Lakeshore West Sewer Capital Reserve	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,894
Transfer to Capital - Kingsville/Lakeshore West	142,200	575,150	-	44,000	590,850	442,850	236,550	971,600	-	-
Transfer to Capital - Cottam	-	-	-	-	-	-	-	-	-	929,000
Transfer to Operating - Kingsville/Lakeshore West	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565
Transfer to Operating - Cottam	-	-	-	-	-	-	-	-	-	-
Closing Balance	394,747	43,075	(0)	0	0	0	0	0	(0)	0
Interest	7,895	862	(0)	0	0	0	0	0	(0)	0
Required from Development Charges	142,200	4,875,150	-	44,000	590,850	442,850	236,550	2,971,600	-	-

Table D.3-7
Town of Kingsville
Wastewater Connection Charges Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	187,811	210,208	233,176	256,732	280,894	305,681	331,117	357,220	384,013	411,518
Transfer from Operating	22,397	22,968	23,556	24,162	24,788	25,436	26,103	26,793	27,506	28,242
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	210,208	233,176	256,732	280,894	305,681	331,117	357,220	384,013	411,518	439,760
Interest										

Table D.3-8
Town of Kingsville
Wastewater Equipment Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	124,916	86,916	114,916	143,916	140,916	113,916	108,916	102,916	95,916	88,916
Transfer from Operating	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Transfer to Capital	78,000	12,000	11,000	43,000	67,000	45,000	46,000	47,000	47,000	48,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	86,916	114,916	143,916	140,916	113,916	108,916	102,916	95,916	88,916	80,916
Interest										

Table D.3-9
Town of Kingsville
Wastewater Sewer Capital Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	890,383	971,749	407,222	593,890	727,574	189,266	54,066	289,676	53,326	580,965
Transfer from Operating	223,965	169,833	235,560	241,620	247,875	254,355	261,030	267,930	275,055	282,420
Transfer from Operating - Lifecycle Contribution	249,201	385,489	370,583	453,671	538,355	606,814	702,660	804,397	889,362	1,000,881
Transfer to Capital	391,800	1,119,850	403,000	456,000	677,150	502,150	445,450	296,400	450,000	459,000
Transfer to DC Reserve Fund (interim financing)			16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,894
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	971,749	407,222	593,890	727,574	189,266	54,066	289,676	53,326	580,965	306,371
Interest										
Interim Financing to DC Reserve Fund - Balance Remaining	-	-	16,474	122,082	769,470	1,263,689	1,546,319	2,558,595	2,745,374	3,844,269



Table D.3-10
Town of Kingsville
Operating Budget Forecast (Inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Salaries - Full Time	62,800	64,100	65,400	66,700	68,000	69,400	70,800	72,200	73,600	75,100
Salaries - Overtime	-	-	-	-	-	-	-	-	-	-
Vehicle Expense	-	-	-	-	-	-	-	-	-	-
Benefits - EI	900	900	900	900	900	900	900	900	900	900
Benefits - CPP	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Benefits - EHT	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Benefits - OMERS	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500	7,700	7,900
Benefits - Health Coverage	4,600	4,700	4,800	4,900	5,000	5,100	5,200	5,300	5,400	5,500
Benefits - WSIB	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Training & Development	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Courier Expense	100	100	100	100	100	100	100	100	100	100
Advertising	300	300	300	300	300	300	300	300	300	300
Utilities	299,300	314,300	330,000	346,500	363,800	382,000	401,100	421,200	442,300	464,400
Facility Maintenance	500	500	500	500	500	500	500	500	500	500
Equipment Repair & Mlce	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
Miscellaneous	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Professional Svcs (Legal Audits)	-	-	-	-	-	-	-	-	-	-
Membership & Subscription	300	300	300	300	300	300	300	300	300	300
Write Offs	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Professional Fees	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Sewer Report	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Licences Permits & Certification	500	500	500	500	500	500	500	500	500	500
Safety Supplies	500	500	500	500	500	500	500	500	500	500
Waste Disposal	-	-	-	-	-	-	-	-	-	-
Sewer Locates	-	-	-	-	-	-	-	-	-	-
Property Taxes	39,300	40,100	40,900	41,700	42,500	43,400	44,300	45,200	46,100	47,000
OCWA Billing	989,400	1,009,200	1,029,400	1,050,000	1,071,000	1,092,400	1,114,200	1,136,500	1,159,200	1,182,400
OCWA Billing Lagoons(Batch Treat 2-42)	-	-	-	-	-	-	-	-	-	-
Sewer Flush & Mlce (Sanitary)	35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800	42,600
Lakeshore West Repairs	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Sewer Service Connections	8,200	8,400	8,600	8,800	9,000	9,200	9,400	9,600	9,800	10,000
Sanitary Backwater Valve Program	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Storm Backwater Valve Program	-	-	-	-	-	-	-	-	-	-
Sub Total Operating	1,493,100	1,531,200	1,570,400	1,610,800	1,652,500	1,695,700	1,740,200	1,786,200	1,833,700	1,882,800
Capital-Related										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)	-	-	144,402	150,178	156,185	162,432	168,929	175,687	249,877	259,873
New Growth Related Debt (Interest)	-	-	172,000	166,224	160,217	153,969	147,472	140,715	213,688	203,692
Existing Debt (Principal) - Non-Growth Related										
Existing Debt (Interest) - Non-Growth Related										
New Non-Growth Related Debt (Principal)	-	-	16,791	17,463	18,161	28,962	30,120	31,325	42,653	44,359
New Non-Growth Related Debt (Interest)	-	-	20,000	19,328	18,630	29,903	28,745	27,540	38,287	36,581
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to DC Reserve Fund (From Sewer Capital)	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,894
Transfer to Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Connection Charge Reserve	22,397	22,968	23,556	24,162	24,788	25,436	26,103	26,793	27,506	28,242
Transfer to Equipment Reserve	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Transfer to Sewer Capital Reserve	223,965	169,833	235,560	241,620	247,875	254,355	261,030	267,930	275,055	282,420
Sub Total Capital Related	286,362	232,801	668,782	764,582	1,313,243	1,189,276	985,030	1,722,266	1,073,844	1,994,061
Total Expenditures	1,779,462	1,764,001	2,239,182	2,375,382	2,965,743	2,884,976	2,725,230	3,508,466	2,907,544	3,876,861
Revenues										
Base Charge	1,608,818	1,712,980	1,823,134	1,935,387	2,050,093	2,171,400	2,298,878	2,433,338	2,573,853	2,719,726
Misc. Revenue	510	520	530	540	550	560	570	580	590	600
Penalties & Interest	7,650	7,800	7,960	8,120	8,280	8,450	8,620	8,790	8,970	9,150
Contributions from Development Charges Reserve Fund	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Capital Connection Charge Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Sewer Capital Reserve (for DC Reserve Fund Interim Financing)	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,894
Contributions from Sewer Capital Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	1,616,978	1,721,300	2,164,500	2,366,056	3,022,712	2,991,031	2,907,100	3,771,386	3,233,757	4,291,935
Wastewater Billing Recovery - Operating	162,483	42,701	74,683	9,326	(56,969)	(106,054)	(181,870)	(262,920)	(326,213)	(415,074)
Lifecycle Contribution (\$)	249,201	385,489	370,583	453,671	538,355	606,814	702,660	804,397	889,362	1,000,881
Wastewater Billing Recovery - Total	411,685	428,191	445,266	462,997	481,386	500,760	520,790	541,477	563,149	585,807

Table D.3-11
Town of Kingsville
Wastewater Rate Forecast (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Wastewater Billing Recovery	411,685	428,191	445,266	462,997	481,386	500,760	520,790	541,477	563,149	585,807
Total Volume (m³) - Non-residential and greenhouses	328,367	328,367	328,367	328,367	328,367	328,367	328,367	328,367	328,367	328,367
Constant Rate (non-residential)	1.254	1.304	1.356	1.410	1.466	1.525	1.586	1.649	1.715	1.784
Annual Percentage Change		4%	4%	4%	4%	4%	4%	4%	4%	4%
Dollar Change		0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.07



D.4 – Kingsville/ Lakeshore West – Alternative Rate Structure – Base Charge and Variable Rate

Table D.4-1
Town of Kingsville
Capital Budget Forecast (Uninflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:											
Lakeshore West WWTP											
Major Maintenance - Lakeshore West	3,580,000	358,000	358,000	358,000	358,000	358,000	358,000	358,000	358,000	358,000	358,000
Kingsville Wastewater Lagoons	-										
Major Maintenance - Kingsville Lagoons	320,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000
	-										
Fleet Replacement:	-										
2004 Kubota 32 HP Front Mount Lawnmower	62,500	25,000				6,250	6,250	6,250	6,250	6,250	6,250
1999 Daewoo Extended Boom Litruck	50,000	20,000				5,000	5,000	5,000	5,000	5,000	5,000
1997 International Dump	25,000	10,000				2,500	2,500	2,500	2,500	2,500	2,500
2012 Kubota Tractor	75,000				30,000	7,500	7,500	7,500	7,500	7,500	7,500
2013 Kioti Tractor CK20S	50,000					25,000	5,000	5,000	5,000	5,000	5,000
Growth Related:	-										
Phase II Capacity Expansion Lakeshore West PCP	2,886,600							216,495	2,670,105		
Kingsville PCP Lagoons Quality Upgrade	1,089,000				81,675	1,007,325					
Wastewater Master Plan	-										
Ruthven PS Upgrade	500,000					37,500	462,500				
LSE Trunk Sewer & PS	3,951,000		3,951,000								
Lakeside Park Sanitary Sewer Twinning	2,069,000	155,175	1,913,825								
Total Capital Expenditures	14,658,100	600,175	6,254,825	390,000	501,675	1,481,075	878,750	632,745	3,086,355	416,250	416,250

Table D.4-2
Town of Kingsville
Capital Budget Forecast (Inflated \$)

Description	Total	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Capital Expenditures											
OCWA:	-	-	-	-	-	-	-	-	-	-	-
Lakeshore West WWTP	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance - Lakeshore West	3,997,000	365,000	372,000	380,000	388,000	395,000	403,000	411,000	419,000	428,000	436,000
Kingsville Wastewater Lagoons	-	-	-	-	-	-	-	-	-	-	-
Major Maintenance - Kingsville Lagoons	357,000	33,000	33,000	34,000	35,000	35,000	36,000	37,000	37,000	38,000	39,000
Fleet Replacement:	-	-	-	-	-	-	-	-	-	-	-
2004 Kubota 32 HP Front Mount Lawnmower	69,000	26,000	-	-	-	7,000	7,000	7,000	7,000	7,000	8,000
1999 Daewoo Extended Boom Litruck	56,000	20,000	-	-	-	6,000	6,000	6,000	6,000	6,000	6,000
1997 International Dump	28,000	10,000	-	-	-	3,000	3,000	3,000	3,000	3,000	3,000
2012 Kubota Tractor	84,000	-	-	-	32,000	8,000	8,000	9,000	9,000	9,000	9,000
2013 Kioti Tractor CK20S	58,000	-	-	-	-	28,000	6,000	6,000	6,000	6,000	6,000
Growth Related:	-	-	-	-	-	-	-	-	-	-	-
Phase II Capacity Expansion Lakeshore West PCP	3,377,000	-	-	-	-	-	-	249,000	3,128,000	-	-
Kingsville PCP Lagoons Quality Upgrade	1,200,000	-	-	-	88,000	1,112,000	-	-	-	-	-
Wastewater Master Plan	-	-	-	-	-	-	-	-	-	-	-
Ruthven PS Upgrade	562,000	-	-	-	-	41,000	521,000	-	-	-	-
LSE Trunk Sewer & PS	4,111,000	-	4,111,000	-	-	-	-	-	-	-	-
Lakeside Park Sanitary Sewer Twinning	2,149,000	158,000	1,991,000	-	-	-	-	-	-	-	-
Total Capital Expenditures	16,048,000	612,000	6,507,000	414,000	543,000	1,635,000	990,000	728,000	3,615,000	497,000	507,000
Capital Financing											
Provincial/Federal Grants	-										
Development Charges Reserve Fund	3,003,200	142,200	575,150	-	44,000	590,850	442,850	236,550	971,600	-	-
Non-Growth Related Debenture Requirements	1,100,000	-	500,000	-	-	300,000	-	-	300,000	-	-
Growth Related Debenture Requirements	6,300,000	-	4,300,000	-	-	-	-	-	2,000,000	-	-
Operating Contributions	-	-	-	-	-	-	-	-	-	-	-
Capital Connection Charges Reserve	-	-	-	-	-	-	-	-	-	-	-
Equipment Reserve	444,000	78,000	12,000	11,000	43,000	67,000	45,000	46,000	47,000	47,000	48,000
Sewer Capital Reserve	5,200,800	391,800	1,119,850	403,000	456,000	677,150	502,150	445,450	296,400	450,000	459,000
Working Capital Reserve	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	16,048,000	612,000	6,507,000	414,000	543,000	1,635,000	990,000	728,000	3,615,000	497,000	507,000

Table D.4-3
Town of Kingsville
Schedule of Non-Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	500,000			36,791	36,791	36,791	36,791	36,791	36,791	36,791	36,791
2021	-				-	-	-	-	-	-	-
2022	-					-	-	-	-	-	-
2023	300,000						22,075	22,075	22,075	22,075	22,075
2024	-							-	-	-	-
2025	-								-	-	-
2026	300,000									22,075	22,075
2027	-										-
2028	-										
Total Annual Debt Charges	1,100,000	-	-	36,791	36,791	36,791	58,865	58,865	58,865	80,940	80,940

Table D.4-4
Town of Kingsville
Schedule of Growth-Related Debenture Repayments (Inflated \$)

Debenture Year	Principal (Inflated)	Forecast									
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2019	-		-	-	-	-	-	-	-	-	-
2020	4,300,000			316,402	316,402	316,402	316,402	316,402	316,402	316,402	316,402
2021	-				-	-	-	-	-	-	-
2022	-					-	-	-	-	-	-
2023	-						-	-	-	-	-
2024	-							-	-	-	-
2025	-								-	-	-
2026	2,000,000									147,164	147,164
2027	-										-
2028	-										
Total Annual Debt Charges	6,300,000	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565



Table D.4-5
Town of Kingsville
Wastewater K/L.S.W. Working Capital Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584
Transfer from Operating	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584	297,584
Interest										

Table D.4-6
Town of Kingsville
Wastewater Development Charges Reserve Fund Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	353,729	402,642	43,937	(0)	0	0	0	0	(0)	(0)
Development Charge Proceeds	183,218	215,583	255,991	254,794	259,864	265,033	270,321	275,725	276,786	293,671
Transfer from Kingsville/Lakeshore West Sewer Capital Reserve	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,895
Transfer to Capital - Kingsville/Lakeshore West	142,200	575,150	-	44,000	590,850	442,850	236,550	971,600	-	-
Transfer to Capital - Cottam	-	-	-	-	-	-	-	-	-	929,000
Transfer to Operating - Kingsville/Lakeshore West	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565
Transfer to Operating - Cottam	-	-	-	-	-	-	-	-	-	-
Closing Balance	394,747	43,075	(0)	0	0	0	0	(0)	(0)	0
Interest	7,895	862	(0)	0	0	0	0	(0)	(0)	0
Required from Development Charges	142,200	4,875,150	-	44,000	590,850	442,850	236,550	2,971,600	-	-

Table D.4-7
Town of Kingsville
Wastewater Connection Charges Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	187,811	210,208	233,176	256,732	280,894	305,681	331,117	357,220	384,013	411,518
Transfer from Operating	22,397	22,968	23,556	24,162	24,788	25,436	26,103	26,793	27,506	28,242
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	210,208	233,176	256,732	280,894	305,681	331,117	357,220	384,013	411,518	439,760
Interest										

Table D.4-8
Town of Kingsville
Wastewater Equipment Reserve Continuity

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance	124,916	86,916	114,916	143,916	140,916	113,916	108,916	102,916	95,916	88,916
Transfer from Operating	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Transfer to Capital	78,000	12,000	11,000	43,000	67,000	45,000	46,000	47,000	47,000	48,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-
Closing Balance	86,916	114,916	143,916	140,916	113,916	108,916	102,916	95,916	88,916	80,916
Interest										

Table D.4-9
Town of Kingsville
Wastewater Sewer Capital Reserve Continuity

Description		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Opening Balance		890,383	1,002,266	466,899	683,053	854,160	365,200	296,523	596,408	423,208	1,018,752
Transfer from Operating		223,965	169,833	235,560	241,620	247,875	254,355	261,030	267,930	275,055	282,420
Transfer from Operating - Lifecycle Contribution		279,719	414,650	400,067	491,095	587,702	673,337	766,935	867,546	957,268	1,076,313
Transfer to Capital		391,800	1,119,850	403,000	456,000	677,150	502,150	445,450	296,400	450,000	459,000
Transfer to DC Reserve Fund (interim financing)				16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,895
Transfer to Operating		-	-	-	-	-	-	-	-	-	-
Closing Balance		1,002,266	466,899	683,053	854,160	365,200	296,523	596,408	423,208	1,018,752	819,590
Interest											
Interim Financing to DC Reserve Fund - Balance Remaining		-	-	16,474	122,082	769,470	1,263,689	1,546,319	2,558,595	2,745,374	3,844,269



Table D.4-10
Town of Kingsville
Operating Budget Forecast (Inflated \$)

Description	Forecast									
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Expenditures										
Operating Costs										
Salaries - Full Time	62,800	64,100	65,400	66,700	68,000	69,400	70,800	72,200	73,600	75,100
Salaries - Overtime	-	-	-	-	-	-	-	-	-	-
Vehicle Expense	-	-	-	-	-	-	-	-	-	-
Benefits - EI	900	900	900	900	900	900	900	900	900	900
Benefits - CPP	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Benefits - EHT	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Benefits - OMERS	6,800	6,900	7,000	7,100	7,200	7,300	7,400	7,500	7,700	7,900
Benefits - Health Coverage	4,600	4,700	4,800	4,900	5,000	5,100	5,200	5,300	5,400	5,500
Benefits - WSIB	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Training & Development	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Courier Expense	100	100	100	100	100	100	100	100	100	100
Advertising	300	300	300	300	300	300	300	300	300	300
Utilities	299,300	314,300	330,000	346,500	363,800	382,000	401,100	421,200	442,300	464,400
Facility Maintenance	500	500	500	500	500	500	500	500	500	500
Equipment Repair & Mice	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	5,900	6,000
Miscellaneous	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Professional Svcs (Legal Audits)	-	-	-	-	-	-	-	-	-	-
Membership & Subscription	300	300	300	300	300	300	300	300	300	300
Write Offs	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Professional Fees	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Sewer Report	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Licences Permits & Certification	500	500	500	500	500	500	500	500	500	500
Safety Supplies	500	500	500	500	500	500	500	500	500	500
Waste Disposal	-	-	-	-	-	-	-	-	-	-
Sewer Locates	-	-	-	-	-	-	-	-	-	-
Property Taxes	39,300	40,100	40,900	41,700	42,500	43,400	44,300	45,200	46,100	47,000
OCWA Billing	989,400	1,009,200	1,029,400	1,050,000	1,071,000	1,092,400	1,114,200	1,136,500	1,159,200	1,182,400
OCWA Billing Lagoons(Batch Treat 2-42)	-	-	-	-	-	-	-	-	-	-
Sewer Flush & Mice (Sanitary)	35,700	36,400	37,100	37,800	38,600	39,400	40,200	41,000	41,800	42,600
Lakeshore West Repairs	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Sewer Service Connections	8,200	8,400	8,600	8,800	9,000	9,200	9,400	9,600	9,800	10,000
Sanitary Backwater Valve Program	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Storm Backwater Valve Program	-	-	-	-	-	-	-	-	-	-
Sub Total Operating	1,493,100	1,531,200	1,570,400	1,610,800	1,652,500	1,695,700	1,740,200	1,786,200	1,833,700	1,882,800
Capital-Related										
Existing Debt (Principal) - Growth Related										
Existing Debt (Interest) - Growth Related										
New Growth Related Debt (Principal)	-	-	144,402	150,178	156,185	162,432	168,929	175,687	249,877	259,873
New Growth Related Debt (Interest)	-	-	172,000	166,224	160,217	153,969	147,472	140,715	213,688	203,692
Existing Debt (Principal) - Non-Growth Related										
Existing Debt (Interest) - Non-Growth Related										
New Non-Growth Related Debt (Principal)	-	-	16,791	17,463	18,161	28,962	30,120	31,325	42,653	44,359
New Non-Growth Related Debt (Interest)	-	-	20,000	19,328	18,630	29,903	28,745	27,540	38,287	36,581
Transfer to Capital	-	-	-	-	-	-	-	-	-	-
Transfer to DC Reserve Fund (From Sewer Capital)	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,895
Transfer to Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Connection Charge Reserve	22,397	22,968	23,556	24,162	24,788	25,436	26,103	26,793	27,506	28,242
Transfer to Equipment Reserve	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Transfer to Sewer Capital Reserve	223,965	169,833	235,560	241,620	247,875	254,355	261,030	267,930	275,055	282,420
Sub Total Capital Related	286,362	232,801	668,782	764,582	1,313,243	1,189,276	985,030	1,722,266	1,073,844	1,994,062
Total Expenditures	1,779,462	1,764,001	2,239,182	2,375,382	2,965,743	2,884,976	2,725,230	3,508,466	2,907,544	3,876,862
Revenues										
Base Charge	1,398,000	1,459,926	1,523,770	1,586,706	1,648,603	1,712,304	1,777,841	1,845,249	1,914,209	1,984,324
Non-residential Variable Revenue	420,310	436,728	453,146	472,848	492,551	512,253	531,955	551,657	574,642	597,628
Misc. Revenue	510	520	530	540	550	560	570	580	590	600
Penalties & Interest	7,650	7,800	7,960	8,120	8,280	8,450	8,620	8,790	8,970	9,150
Contributions from Development Charges Reserve Fund	-	-	316,402	316,402	316,402	316,402	316,402	316,402	463,565	463,565
Contributions from Working Capital Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Capital Connection Charge Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Equipment Reserve	-	-	-	-	-	-	-	-	-	-
Contributions from Sewer Capital Reserve (for DC Reserve Fund Interim Financing)	-	-	16,474	105,608	647,388	494,219	282,630	1,012,276	186,779	1,098,895
Contributions from Sewer Capital Reserve	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	1,826,470	1,904,974	2,318,282	2,490,224	3,113,773	3,044,187	2,918,017	3,734,953	3,148,756	4,154,162
Wastewater Billing Recovery - Operating	(47,008)	(140,973)	(79,099)	(114,842)	(148,031)	(159,211)	(192,788)	(226,487)	(241,211)	(277,300)
Lifecycle Contribution (\$)	279,719	414,650	400,067	491,095	587,702	673,337	766,935	867,546	957,268	1,076,313
Wastewater Billing Recovery - Total	232,711	273,677	320,968	376,254	439,672	514,126	574,147	641,059	716,057	799,013

Table D.4-11
Town of Kingsville
Wastewater Rate Forecast (Inflated \$)

Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total Wastewater Billing Recovery	232,711	273,677	320,968	376,254	439,672	514,126	574,147	641,059	716,057	799,013
Total Volume (m ³)	930,842	950,267	969,692	987,542	1,003,817	1,020,092	1,036,367	1,052,642	1,068,742	1,084,142
Constant Rate	0.250	0.288	0.331	0.381	0.438	0.504	0.554	0.609	0.670	0.737
Annual Percentage Change		15%	15%	15%	15%	15%	10%	10%	10%	10%
Dollar Change		0.04	0.04	0.05	0.06	0.07	0.05	0.05	0.06	0.07