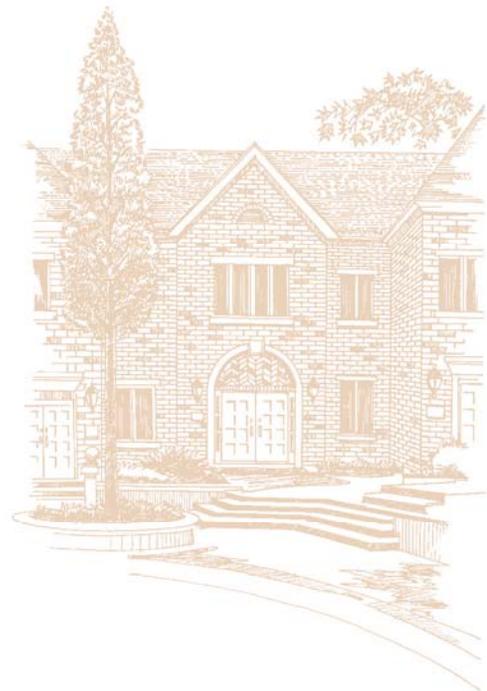


TOWN OF PETROLIA
WATER AND WASTEWATER
RATE STUDY

FEBRUARY 15, 2012



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 **Planning for growth**

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1. INTRODUCTION

1. INTRODUCTION

1.1 Background

The Town of Petrolia Bright's Grove Water Treatment Plant (WTP) supplies water to the Town of Petrolia and other service area municipalities, including the Township of Enniskillen, Village of Oil Springs and Township of Dawn-Euphemia. The plant also supplies water to portions of Brooke-Alviston, Sarnia, St. Clair and Plympton-Wyoming. The WTP provides treatment for water drawn from Lake Huron. The main treatment processes in the plant are membrane filtration, fluoridation and chlorination.

The Town of Petrolia operates the Petrolia wastewater collection system, which collects and delivers wastewater to the Petrolia Wastewater Treatment Plant (WWTP). The plant provides a high level of treatment, and ultimately discharges treated and disinfected effluent to Bear Creek.

Currently, there are over 2,411 water customers and 2,366 wastewater customers within the Town. Water and wastewater billings are currently calculated using a monthly service charge and a consumption charge, with a monthly minimum volume charge.

The water and wastewater rates presently in effect (effective January 1, 2009) are as follows:

Rate Code	Meter Size	Water Rates					Sewer Rates						
		Monthly Service Charge	Water Rate per m ³	Monthly Minimum Bill (m ³)	Water Rate per 1,000 imperial gallons	Monthly Minimum Bill (gallons)	Monthly Service Charge	% of Water /m ² rate	Sewer Rate per m ³	Monthly Minimum Bill (m ³)	Sewer Rate per 1,000 imperial gallons	Monthly Minimum Bill (gallons)	
1	100 E	5/8" metric	\$8.25	\$1.20	5 m ³			\$0.00	125%	\$1.50	5 m ³		
2	101 E	¾" metric	\$8.25	\$1.20	9 m ³			\$0.00	125%	\$1.50	9 m ³		
3	200 E	5/8" imperial	\$8.25			\$5.47	1,100	\$0.00	125%			\$6.84	1,100
4	201 E	¾" imperial	\$8.25			\$5.47	2,200	\$0.00	125%			\$6.84	2,200
5	300 E			\$2.12			1,100			n/a			1,100
6	700 E	5/8" metric	\$8.25	\$1.20	5 m ³			\$0.00	125%	\$1.50	5 m ³		
7	701 E	5/8" imperial	\$8.25			\$5.47	1,100	\$0.00	125%			\$6.84	1,100
8	702 E - Meadowview & Lambonian		\$8.25	\$1.20	5 m ³			\$0.00	150%	\$1.80	5 m ³		
9	703 E - Bridgeview Park		\$8.25	\$1.20	5 m ³			\$0.00	125%	\$1.50	5 m ³		
10	708 E - Main Line Customers	1" metric	n/a	\$1.34	n/a			n/a		n/a	n/a		
11	709 E - Main Line Customers	1" imperial	n/a			\$6.10	n/a	n/a		n/a			n/a
12	710 E - Main Line Customers	1" metric	n/a	\$1.34	n/a			n/a		n/a	n/a		
13	751 E - Main Line Customers	1" metric	\$8.25	\$1.20	10 m ³			\$0.00	125%	\$1.50	10 m ³		
14	752 E - COMMERCIAL	1" metric	\$8.25	\$1.20	18 m ³			\$0.00	125%	\$1.50	18 m ³		
15	753 E	1½" metric	\$8.25	\$1.20	40 m ³			\$0.00	125%	\$1.50	40 m ³		
16	754 E	2" metric	\$8.25	\$1.20	72 m ³			\$0.00	125%	\$1.50	72 m ³		
17	756 E	4" metric	\$8.25	\$1.20	227 m ³			\$0.00	125%	\$1.50	227 m ³		
18	764 E	2" imperial	\$8.25			\$5.47	16,000	\$0.00	125%			\$6.84	16,000
19	761 E	¾" imperial	\$8.25			\$5.47	2,000	\$0.00	125%			\$6.84	2,000
20	762 E	1" imperial	\$8.25			\$5.47	4,000	\$0.00	125%			\$6.84	4,000
21	763 E	1½" imperial	\$8.25			\$5.47	9,000	\$0.00	125%			\$6.84	9,000
22	803 E - Enniskillen Township		\$25.00	\$1.34	n/a			\$0.00		n/a	n/a		

Note: Sewer charge shall be calculated on no less than the minimum water charges.

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 and wastewater systems. Watson & Associates Economists Ltd. was retained by the Town of Petrolia to assist in addressing these changes in a proactive manner as they relate to the water and wastewater systems.

As discussed in more detail in section 1.5, 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” six months after the granting of the license. The Town of Petrolia’s Municipal Drinking Water Licence was issued on August 23, 2011. Watson & Associates has prepared the Water Ontario Regulation 453/07 Financial Plan, dated February 15, 2012, under separate cover.

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, *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.
- Provide a presentation to staff and Council relative to the findings (February 6, 2012).

1.3 Regulatory Changes in Ontario

Resulting from the water crisis in Walkerton, significant regulatory changes have been made in Ontario over the past few years. 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 will most impact municipal water and wastewater rates is the *Sustainable Water and Sewage Systems Act* (SWSSA) which will require municipalities to implement full cost pricing. The Act was enacted in 2002, however, has not been implemented pending the approval of its regulations. It is not known when the Act will be fully implemented however 'interim' legislation was introduced on August 16, 2007 which requires similar principles be introduced. The following sections describe these changes.

1.4 Sustainable Water and Sewage Systems Act

The *Sustainable Water and Sewage Systems Act* (SWSSA) was passed on December 13, 2002. The intent of the Act is to introduce the requirement for municipalities to undertake an assessment of the "full cost" of providing their water and the wastewater services. It is noted that, at the time of writing, the regulations, which accompany the Act, have not been issued. In total, there are 40 areas within the Act to which the Minister may make Regulations. As will be discussed in the next section, interim legislation was passed on August 16, 2007 which will implement many of the principles provided by SWSSA.

Full costs for water service is defined in subsection 3(7) of the Act and includes "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 are made for wastewater services in subsection 4(7) respecting the "collecting, treating or discharging waste water."

The Act would require 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 is on the "full cost of services" and the second is the "cost recovery plan." Once these reports have been reviewed and approved by the Ministry, the municipality would be 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) must prepare and approve a report concerning the provision of water and sewage services. This report must include an inventory of the infrastructure, a management plan providing for the long-term integrity of the systems and 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 must 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 is referred to as a "Cost Recovery Plan" and would address how the municipality intends to pay for the full costs of providing the service. The regulations may specify limitations on what sources of revenue the municipality may use. The regulations may also provide limits as to the level of increases any customer or class of customer may experience over any period of time. Provision is 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 provides the Minister the power to approve or not approve the plans. If the Minister is not satisfied with the report or if a municipality does not submit a plan, the Minister may have a plan prepared. The cost to the Crown for preparing the plan will 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 has the power to order a municipality to generate revenue from a specific revenue source or in a specified manner. The Minister may also order a regulated entity to do or refrain from doing such things as the Minister considers advisable to ensure that the entity pays the full cost of providing the services to the public.

Once the plans are 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 will be established by the regulations. A municipal auditor's opinion must be provided with the progress report. Municipalities may 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 must then revise its prior plan, provide an auditor's opinion, and submit the plan to the Minister.

As of the time of writing, the regulations to implement this Act have not been passed; hence the Act would not be in effect until these regulations are passed. As discussed in Section 1.5, interim legislation has been introduced by the Province.

1.5 Financial Plans Regulation

On August 16, 2007, the MOE passed O.Reg 453/07 which requires the preparation of financial plans for water (and wastewater) systems. The MOE has also provided a Financial Plan

Guidance Document to assist in preparing the plans. A brief summary of the key elements of the regulations is provided below:

- The financial plan will represent one of the key elements for the Town to obtain its Drinking Water License.
- The plan is to be completed six months after the granting of the license. The Town of Petrolia's Municipal Drinking Water Licence was issued on August 23, 2011. Watson & Associates has prepared the Water Ontario Regulation 453/07 Financial Plan, dated February 15, 2012, under separate cover.
- 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 *Drinking Water Act*, 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, PSAB 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 Town's web site. The availability of this information must also be advertised.
- 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 SWSSA to move municipalities towards financial sustainability. However, many of the prescriptive requirements have been removed (e.g. preparation of two separate documents for Provincial approval, auditor opinions, engineer certifications, etc.).

A Guideline ("Towards Financially Sustainable Drinking-Water and Wastewater Systems") has been developed to assist municipalities in understanding the Province's direction and provides 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 storm water 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: Life-cycle 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.

The preparation of this study document is consistent with the principles of the SWSSA and the new regulations.

1.6 Water Opportunities Act, 2010

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

On November 29, 2010, Bill 72, the *Water Opportunities Act, 2010* received Royal Assent.

The Act provides for the following elements:

- Foster innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors;
- Prepare water conservation plans to achieve water conservation targets established by the regulations;

-
- Prepare 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;
- 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;
- Financial Plan;
- For water, a water conservation plan;
- 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;
- 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:

- May relate to the financing, operation or maintenance of a municipal service or to any other matter in respect of which 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;
- Identifying what portions of the plan will require certification;
- Public consultation process;
- Limitations, updates, refinements, etc.

1.7 Forecast Growth and Servicing Requirements

The Town, as of December, 2011, services approximately 2,411 water customers and approximately 2,366 customers are serviced with wastewater services. Information on the existing number of customers and existing billable volumes was obtained from the Town and Bluewater Power Services.

For forecasting future water and wastewater volumes in the average volume per residential customer of 220 m³ has been used, based on past usage.

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 2012-2020.

Table 1-1 provides for the forecast of water users and volumes within the Town of Petrolia. Table 1-2 provides the forecast of wastewater users and volumes.

**Table 1-1
Town of Petrolia
System User Forecast**

Water Users Forecast												
Year	Total Users	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2011	30		15	30	30	30	30	30	30	30	30	30
2012	30			15	30	30	30	30	30	30	30	30
2013	30				15	30	30	30	30	30	30	30
2014	40					20	40	40	40	40	40	40
2015	40						20	40	40	40	40	40
2016	55							27	55	55	55	55
2017	55								27	55	55	55
2018	55									27	55	55
2019	55										27	55
2020	55											27
Total	444	-	15	45	75	110	150	197	252	307	361	416
m ³ /user	220	220	220	220	220	220	220	220	220	220	220	220
Annual Flow		-	3,300	9,900	16,500	24,200	33,000	43,340	55,389	67,437	79,486	91,534

Water Customer Forecast												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Existing	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	
New - Growth	220	15	45	75	110	150	197	252	307	361	416	
Total	2,631	2,426	2,456	2,486	2,521	2,561	2,608	2,663	2,718	2,772	2,827	

Water volume Forecast (m³)												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Existing	537,735	537,735	537,735	537,735	537,735	537,735	537,735	537,735	537,735	537,735	537,735	
New	-	3,300	9,900	16,500	24,200	33,000	43,340	55,389	67,437	79,486	91,534	
Annual Flow	537,735	541,035	547,635	554,235	561,935	570,735	581,075	593,123	605,172	617,220	629,269	

Out of Boundary Water												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Existing	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	
New												
Annual Flow	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	

Mainline Water Volume												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Existing	24,581	24,581	24,581	24,581	24,581	24,581	24,581	24,581	24,581	24,581	24,581	
New												
Annual Flow	24,581	24,581	24,581	24,581	24,581	24,581	24,581	24,581	24,581	24,581	24,581	

Total Petrolia Annual Flow												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Existing	593,873	597,173	603,773	610,373	618,073	626,873	637,213	649,262	661,310	673,359	685,407	
New												
Annual Flow	593,873	597,173	603,773	610,373	618,073	626,873	637,213	649,262	661,310	673,359	685,407	

Enniskillen Water volume												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Existing	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	
New												
Annual Flow	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	

Note: 2010 Volume was used as a startpoint for the System Growth.

**Table 1-2
Town of Petrolia
System User Forecast**

Wastewater Users Forecast

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Users											
2011		15	30	30	30	30	30	30	30	30	30
2012			15	30	30	30	30	30	30	30	30
2013				15	30	30	30	30	30	30	30
2014					20	40	40	40	40	40	40
2015						20	40	40	40	40	40
2016							27	55	55	55	55
2017								27	55	55	55
2018									27	55	55
2019										27	55
2020											27
Total	-	15	45	75	110	150	197	252	307	361	416
m ³ /user	220	220	220	220	220	220	220	220	220	220	220
Annual Flow	-	3,300	9,900	16,500	24,200	33,000	43,340	55,389	67,437	79,486	91,534

Wastewater Customer

Customer	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Existing	2,366	2,366	2,366	2,366	2,366	2,366	2,366	2,366	2,366	2,366	2,366
New - Growth	-	15	45	75	110	150	197	252	307	361	416
Total	2,366	2,381	2,411	2,441	2,476	2,516	2,563	2,618	2,673	2,727	2,782

Wastewater Flows Forecast

Customer	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Existing	535,535	535,535	535,535	535,535	535,535	535,535	535,535	535,535	535,535	535,535	535,535
New	-	3,300	9,900	16,500	24,200	33,000	43,340	55,389	67,437	79,486	91,534
Total	535,535	538,835	545,435	552,035	559,735	568,535	578,875	590,923	602,972	615,020	627,069
Out of Boundary Wastewater	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Existing	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558
New											
Annual Flow	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558	31,558
Total Annual Flow	567,092	570,392	576,992	583,592	591,292	600,092	610,432	622,481	634,529	646,578	658,626

Note: Above flows are water flows on which the wastewater billing will be calculated

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 on Tables 2-1 and 2-2 (Note: the costs are in inflated dollars). The basis for these forecasts is the Town's Capital Forecast as well as works as identified as part of the lifecycle replacement analysis.

A summary of the capital works related to water services is provided below:

Description	Total 2011 - 2020	Timing
Capital Expenditures:		
New Intake	\$4,871,000	2015
Water Tower Rehabilitation - 2012	\$1,020,000	2012
Water Tower Inspection - 2011	\$10,000	2011
Mandaumin Reservoir Expansion & PS Upgrade		
Phase 1	\$2,666,000	2012-2014
Phase 2	\$7,434,000	2015-2016
Studies:		
Water and Wastewater Rate Study (50% Water)	\$13,000	2011
Lifecycle:		
Hydrants	\$98,000	2012-2020
Watermains	\$635,000	2012-2020
Total Capital Expenditures	\$16,747,000	

A summary of the capital works related to wastewater services is provided below:

Description	Total 2011 - 2020	Timing
Capital Expenditures		
Plant Expansion		
Class EA Study	\$214,000	2011
Pre-Design	\$245,000	2012
Detail Design and Construction	\$5,140,000	2013
Construction	\$15,727,000	2014
Pumping Stations Condition Assessment	\$77,000	2012
Studies:		
Water and Wastewater Rate Study (50% Wastewater)	\$13,000	2011
Lifecycle:	\$0	
Wastewater Facilities	\$2,258,000	2013, 2017
Sewer Laterals	\$618,000	2012-2020
Manholes	\$185,000	2012-2020
Sewer Mains	\$1,400,000	2012-2020
Total Capital Expenditures	\$25,877,000	

Table 2-1
Town of Petrolia - Water Service
Capital Budget Forecast
Inflated \$

Description	Total 2011 - 2020	Forecast																		
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020									
Capital Expenditures:																				
New Intake	\$4,871,000	-	-	-	-	4,871,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Tower Rehabilitation - 2012	\$1,020,000	-	1,020,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Tower Inspection - 2011	\$10,000	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mandaamin Reservoir Expansion & PS Upgrade																				
Phase 1	\$2,666,000	-	260,000	1,191,000	1,215,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phase 2	\$7,434,000	-	-	-	-	3,680,000	-	-	-	3,754,000	-	-	-	-	-	-	-	-	-	-
Studies:																				
Water and Wastewater Rate Study (50% Water)	\$13,000	13,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle:																				
Hydrants	\$98,000	-	29,000	7,000	-	45,000	-	-	-	-	-	-	-	8,000	-	-	-	-	-	9,000
Watermains	\$635,000	-	206,000	86,000	110,000	129,000	-	-	-	-	-	-	-	9,000	-	-	-	-	-	95,000
Total Capital Expenditures	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$104,000	\$0								

Table 2-2
Town of Petrolia - Wastewater Service
Capital Budget Forecast
Inflated \$

Description	Total 2011 - 2020	Forecast													
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				
Capital Expenditures															
Plant Expansion															
Class EA Study	\$214,000	214,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Pre-Design	\$245,000	-	245,000	-	-	-	-	-	-	-	-	-	-	-	-
Detail Design and Construction	\$5,140,000	-	-	5,140,000	-	-	-	-	-	-	-	-	-	-	-
Construction	\$15,727,000	-	-	-	15,727,000	-	-	-	-	-	-	-	-	-	-
Pumping Stations Condition Assessment	\$77,000	-	77,000	-	-	-	-	-	-	-	-	-	-	-	-
Studies:															
Water and Wastewater Rate Study (50% Wastewater)	\$13,000	13,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle:	\$0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Facilities	\$2,258,000	-	-	1,163,000	-	-	-	-	-	-	-	1,095,000	-	-	-
Sewer Laterals	\$618,000	-	135,000	53,000	212,000	172,000	-	-	-	-	-	-	16,000	-	30,000
Manholes	\$185,000	-	56,000	7,000	62,000	37,000	-	-	-	-	-	-	9,000	-	14,000
Sewer Mains	\$1,400,000	-	335,000	169,000	309,000	322,000	-	-	-	-	-	-	205,000	-	60,000
Total Capital Expenditures	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$1,095,000	\$230,000	\$0	\$0	\$104,000

3. LIFE CYCLE COSTING

3. LIFE CYCLE COSTING

3.1 Overview of Life Cycle Costing

3.1.1 *Definition*

For many years, life cycle 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, life cycle costs are all the costs which are incurred during the life cycle 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 life cycle 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*

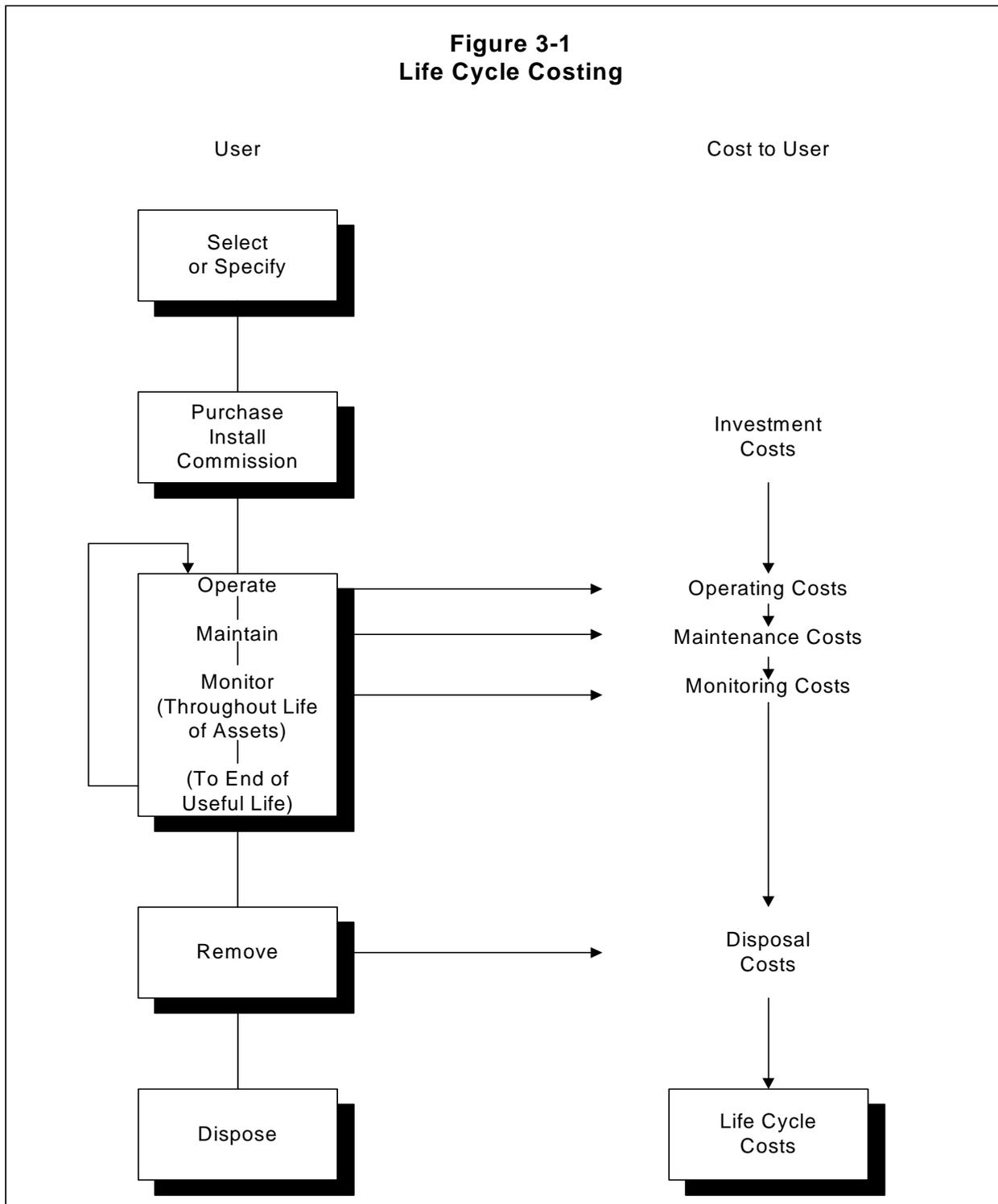
This section will focus on financing mechanisms in place to fund the costs incurred throughout the asset's life.

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; operating budget contributions, development charges, reserves, developer contributions and debentures, being the most common.

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 taxpayers in the future.

**Figure 3-1
Life Cycle Costing**



However, capital construction to replace existing infrastructure 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 referred to earlier, 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; 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 of 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.

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.

**Figure 3-2
Financing Life Cycle Costs**

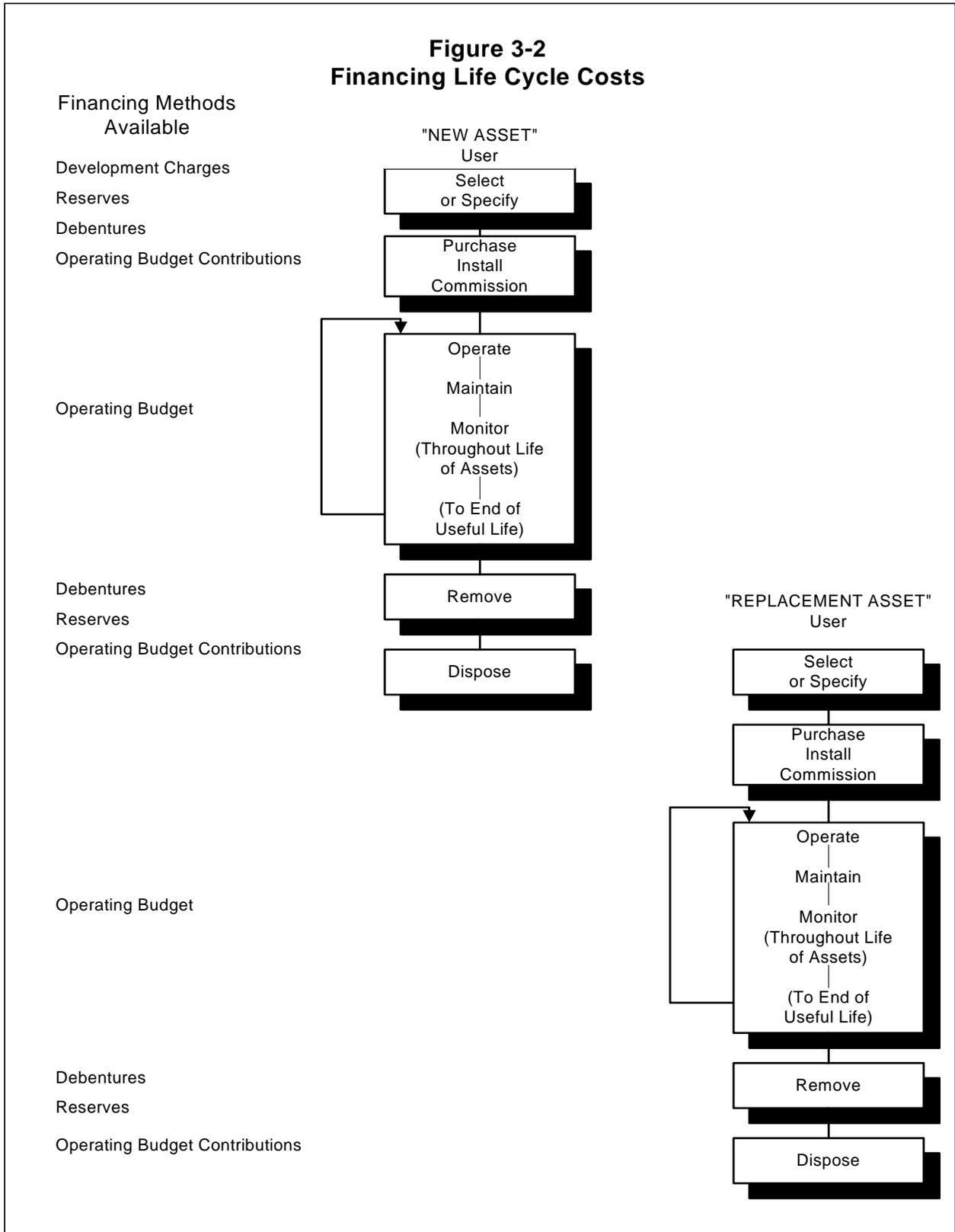
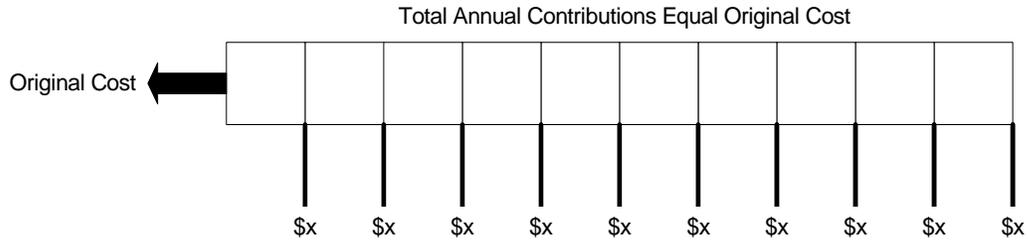


FIGURE 3-3

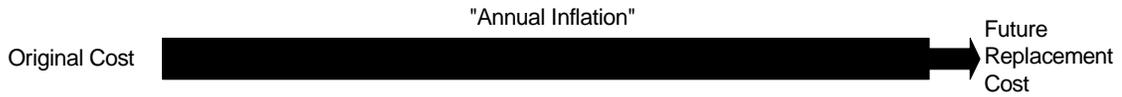
STRAIGHT LINE DEPRECIATION



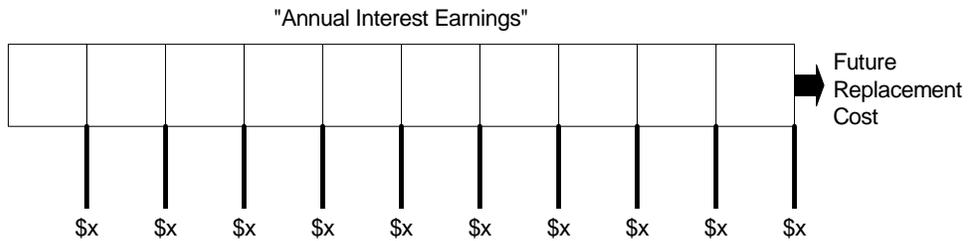
Formula:
$$\frac{\text{Original Cost} - \text{Salvage Cost}}{\text{Number of Years of Useful Life}}$$

SINKING FUND METHOD

1. "Estimate Future Replacement Cost"



2. "Estimate Annual Contribution which will Grow with Interest to Equal Future Replacement Cost"



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 life cycle 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 life cycle costing. It is noted that, within the O.Reg 453/07 report, depreciation of the municipal assets will be undertaken as a requirement of reporting on a full accrual basis.

3.2 Impact on Budgets

Detailed water and wastewater systems inventory information was obtained from the Town. The age of the water and wastewater systems date back to the early to mid 1960's. The total value of existing water infrastructure is \$29.4 million and the value of existing wastewater infrastructure is \$47.4 million.

The detailed water inventory and wastewater inventory 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. This information is summarized in Table 3-1.

Table 3-1
Town of Petrolia
Summary of Water and Wastewater Infrastructure

Area	Total Replacement Value	Amount to be funded in 10 year forecast	Net Replacement for Future Lifecycle	Annual Lifecycle Replacement
Water				
Water Facilities	\$9,080,360	\$2,544,370	\$6,535,990	\$190,480
Water Equipment	\$3,750,210	\$0	\$3,750,210	\$123,425
Hydrants	\$1,514,610	\$91,000	\$1,423,610	\$59,862
Watermains	\$15,095,830	\$595,110	\$14,500,720	\$555,178
Total Water	\$29,441,010	\$3,230,480	\$26,210,530	\$928,945
Wastewater				
Wastewater Facilities	\$14,173,780	\$2,090,840	\$12,082,940	\$735,153
Sewer Laterals	\$9,651,550	\$581,420	\$9,070,130	\$328,493
Manholes	\$2,480,950	\$173,530	\$2,307,420	\$88,744
Sewer Mains	\$21,141,990	\$1,309,100	\$19,832,890	\$776,110
Total Wastewater	\$47,448,270	\$4,154,890	\$43,293,380	\$1,928,500
Total	\$76,889,280	\$7,385,370	\$69,503,910	\$2,857,445

Investment per customer is \$12,211 for water and \$20,054 for wastewater

It is noted that the inventory of the complete water and wastewater systems may be required to be assessed and reported on by a professional engineer as part of the documentation required under the *Water Opportunities Act*. The detailed specifics of the reporting will not be known until the Province has set these standards by regulation. With respect to lifecycle costing contained in the Appendices, the following information was taken under consideration:

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

4. CAPITAL COST FINANCING OPTIONS

4. CAPITAL COST FINANCING OPTIONS

4.1 Summary of Capital Cost Financing Alternatives

Historically, the powers that municipalities have 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 *Development Charges Act*).

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 allows for the *Local Improvement Act* to be deemed to remain in force until April 1, 2003.

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

RECOVERY METHODS	SECTION REFERENCE
<ul style="list-style-type: none"> • <i>Development Charges Act, 1997</i> 	4.2
<ul style="list-style-type: none"> • <i>Municipal Act</i> <ul style="list-style-type: none"> • Fees and Charges • Sewer and Water Area Charges • Connection Fees • Local Improvements 	4.3

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 new Act provided the following changes to the former Act:

- Replace those sections of the 1989 DCA which govern municipal development charges. (Education development charges are not to be significantly altered at this time.)
- 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.

- Set out provisions for appeals and complaints, and transitional rules, including that municipalities will have up to 18 months from the date of proclamation of the new Act to establish new development charge by-laws, otherwise the old by-laws will expire.

The Town of Petrolia presently does not impose development charges.

4.3 Municipal Act

4.3.1 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 OMB.

4.3.2 s.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 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 in 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
- OMB 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 OMB on the grounds that the charges are “unfair or unjust.”

4.3.3 s.222 of the previous *Municipal Act* permitted municipalities to pass a by-law requiring buildings to connect to the Town'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*.

4.3.4 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 OMB, 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.
- 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

Since the early 1980's, the level of Provincial and Federal assistance toward municipal infrastructure has declined significantly. By the mid 1990's, there were very limited funds available from senior levels of government. In mid-2000, initiatives from the Provincial and Federal level were announced; providing for a new program (OSTAR) to assist small cities, towns and rural areas in addressing infrastructure improvements. In November 2004, another program (COMRIF) was introduced which also provided combined assistance from the senior governments until early 2007. Subsequently Federal and Provincial Funding have been made available under the Build Canada Fund and Stimulus Fund Programs. Under the specific requirements of these programs, the projects must be "shovel ready" and are allocated on a case by case basis. At present, no major programs are available.

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 utilized in this analysis and their respective balances at December 31, 2010.

Water Reserve	Dec. 31 2010	Wastewater Reserve	Dec. 31 2010
Capital Reserve	\$1,252,490	Capital Reserve	\$1,919,023

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 Regulations 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). Appendix J provides for the Town of Petrolia's 2012 calculation on Debt Capacity, which is a recently revised Schedule 81 of the Town's 2010 Financial Information Return. As can be seen, in Appendix J, the Town's maximum borrowing levels is in the \$670k range however, it is forecast to be higher over the forecast period thus allowing for the recommended level of debt.

4.7 Infrastructure Renewal Bonds

Infrastructure Ontario (IO) 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 OSIFA into its operations) IO combines the infrastructure renewal needs of municipalities into an infrastructure investment “pool”. IO 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.

IO 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 IO approach, all borrowers receive the same low interest rate. IO will enter into 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 OSIFA's 2004-05 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 OSIFA and IO, 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.

It is noted that the interest rates will vary from time to time. The following interest rates were available to municipalities for the following term, based on a serial repayment schedule as of February 7, 2012:

Term	Serial
5 Year	1.93%
10 Year	2.66%
15 Year	3.12%
20 Year	3.41%
25 Year	3.60%
30 Year	3.72%
35 Year	3.79%
40 Year	3.83%

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.

4.8 Recommended Approach

Of the various alternatives provided in this section, the following are recommended for further consideration of the Town of Petrolia for the capital expenditures provided in Chapter 2:

Capital Funding:	Water	Wastewater
Debenture Requirements	\$12,000,000	\$20,500,000
Reserve Fund	\$4,747,000	\$5,377,000
Total Capital Financing	\$16,747,000	\$25,877,000

Tables 4-1 and 4-2 provide for the full capital expenditure and funding program by year for water and wastewater respectfully. Tables 4-1 and 4-2 provide for funding, assuming that no grant funding is available in the future. However, a sensitivity analysis has been provided, which considers receiving grants at the 33% and 66% funding levels. The detailed calculations for those scenarios are shown in Appendices D, E, G and H.

Table 4-1
Town of Petrolia - Water Service
Capital Budget Forecast
Inflated \$

Description	Total 2011 - 2020	Forecast																		
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020									
Capital Expenditures:																				
New Intake	\$4,871,000	-	-	-	-	4,871,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Tower Rehabilitation - 2012	\$1,020,000	-	1,020,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Tower Inspection - 2011	\$10,000	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mandaamin Reservoir Expansion & PS Upgrade																				
Phase 1	\$2,666,000	-	260,000	1,191,000	1,215,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phase 2	\$7,434,000	-	-	-	-	3,680,000	-	-	-	3,754,000	-	-	-	-	-	-	-	-	-	-
Studies:																				
Water and Wastewater Rate Study (50% Water)	\$13,000	13,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle:																				
Hydrants	\$98,000	-	29,000	7,000	-	45,000	-	-	-	-	-	-	-	8,000	-	-	-	-	-	9,000
Watermains	\$635,000	-	206,000	86,000	110,000	129,000	-	-	-	-	-	-	-	9,000	-	-	-	-	-	95,000
Total Capital Expenditures	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$104,000	\$0	\$17,000	\$0	\$0	\$104,000	\$0	\$104,000	\$0	\$104,000
Capital Funding:																				
Debtenture Requirements	\$12,000,000	-	-	300,000	700,000	8,000,000	3,000,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Reserve	\$4,747,000	23,000	1,515,000	984,000	625,000	725,000	754,000	-	-	-	-	-	-	17,000	-	-	-	-	-	-
Total Capital Financing	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$104,000	\$0	\$17,000	\$0	\$0	\$104,000	\$0	\$104,000	\$0	\$104,000

Table 4-2
Town of Petrolia - Wastewater Service
Capital Budget Forecast
Inflated \$

Description	Total 2011 - 2020	Forecast																		
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020									
Capital Expenditures																				
Plant Expansion																				
Class EA Study	\$214,000	214,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pre-Design	\$245,000	-	245,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Detail Design and Construction	\$5,140,000	-	-	5,140,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	\$15,727,000	-	-	-	15,727,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumping Stations Condition Assessment	\$77,000	-	77,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Studies:																				
Water and Wastewater Rate Study (50% Wastewater)	\$13,000	13,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lifecycle:																				
Wastewater Facilities	\$2,258,000	-	-	1,163,000	-	-	-	-	-	-	-	-	1,095,000	-	-	-	-	-	-	-
Sewer Laterals	\$618,000	-	135,000	53,000	212,000	172,000	-	-	-	-	-	-	-	16,000	-	-	-	-	-	30,000
Manholes	\$185,000	-	56,000	7,000	62,000	37,000	-	-	-	-	-	-	-	9,000	-	-	-	-	-	14,000
Sewer Mains	\$1,400,000	-	335,000	169,000	309,000	322,000	-	-	-	-	-	-	-	205,000	-	-	-	-	-	60,000
Total Capital Expenditures	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000	\$0	\$104,000	\$0	\$0	\$0	\$104,000
Capital Financing																				
Debtenture Requirements	\$20,500,000	-	-	5,000,000	15,000,000	500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Reserve	\$5,377,000	227,000	848,000	1,532,000	1,310,000	31,000	-	-	-	-	-	-	-	230,000	-	-	-	-	-	104,000
Total Capital Financing	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000	\$0	\$104,000	\$0	\$0	\$0	\$104,000

5. OVERVIEW OF EXPENDITURES AND REVENUES

5. OVERVIEW OF EXPENDITURES AND REVENUES

5.1 Water Operating Expenditures

In this report, the forecasted water budget figures (2012-2020) are based on the 2011 Operating Budget. The costs for each component of the operating budget have been reviewed with staff to establish forecast inflationary adjustments (3% annual inflation has been applied) to all expenses as shown on the table below:

Water Operating Costs	Inflation
Analytical Services	3%
Auxiliary Power Fuel	3%
Booster Station	3%
Distribution Mains	3%
Equipment Usage	3%
Legal and Insurance	3%
Office Supplies, Telephone & Fax	3%
Petrolia Distribution	3%
Plant Contractors	3%
Power Purchased	3%
Property Taxes	3%
Radio, Intake, Building Maintenance	3%
Equipment Repair & Maint, Repairs & Maintenance	3%
Salaries & Benefits, Travel & Training	3%
Services, Hydrants & Meter Maintenance	3%
Stand Pipe & Water Tower	3%
Telephone & Fax	3%
Utilities	3%
Water Administration, Billings & Collection	3%
Water Testing MOE	3%
Water Treatment Plant & Supplies	3%

5.2 Water Operating Revenues

The Town has miscellaneous revenue sources to contribute towards operating expenditures. Water services & meters expenditures have been inflated over the period by 3%. Note that the largest revenue item relates to Water - Other Municipalities, which is the revenue for water purchased by Enniskillen. The second large revenue item relates to the Fixed Charges (base charge) which has been calculated to increase by 2% annually. The base charge revenue is discussed further in Chapter 6. Table 5-1 provides for the operating budget for the water system.

Table 5-1
Town of Petrolia - Water Service
Operating Budget Forecast
Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Operating Costs										
Water Administration	43,227	44,500	45,800	47,200	48,600	50,100	51,600	53,100	54,700	56,300
Special Projects	25,000	26,800	27,600	28,400	29,300	30,200	31,100	32,000	33,000	34,000
Water Billing/Collection	61,870	63,700	65,600	67,600	69,600	71,700	73,900	76,100	78,400	80,800
Small Tools Expense	500	500	500	500	500	500	500	500	500	500
Petrolia Distribution										
Salaries	110,000	113,300	116,700	120,200	123,800	127,500	131,300	135,200	139,300	143,500
Benefits	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Insurance	1,149	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Travel & Training	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Line Maint/Bs To Pet	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Water Testing Moe	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Stand Pipe & Water Tower	15,000	15,500	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700
Distribution Mains	25,000	25,800	26,600	27,400	28,200	29,000	29,900	30,800	31,700	32,700
Services Maintenance	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Meter Maintenance	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Utility Hydrant Maint	5,000	5,200	5,400	5,600	5,800	6,000	6,200	6,400	6,600	6,800
Utilities	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900
Water Treatment Plant										
Salaries	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Benefits	250	300	300	300	300	300	300	300	300	300
Plant Contractors	300,000	309,000	318,300	327,800	337,600	347,700	358,100	368,800	379,900	391,300
Telephone & Fax	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000
Equip Repair & Maint	25,000	25,800	26,600	27,400	28,200	29,000	29,900	30,800	31,700	32,700
Insurance	5,183	5,300	5,500	5,700	5,900	6,100	6,300	6,500	6,700	6,900
Water Treatment Supplies	38,000	39,100	40,300	41,500	42,700	44,000	45,300	46,700	48,100	49,500
Analytical Services	6,000	6,200	6,400	6,600	6,800	7,000	7,200	7,400	7,600	7,800
Property Taxes	11,500	11,800	12,200	12,600	13,000	13,400	13,800	14,200	14,600	15,000
Radio Maintenance	136	100	100	100	100	100	100	100	100	100
Intake Maintenance	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Bldg Repair & Maint	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000
Power Purchased	110,000	113,300	116,700	120,200	123,800	127,500	131,300	135,200	139,300	143,500
Auxiliary Power Fuel	800	800	800	800	800	800	800	800	800	800
Booster Station										
Salaries and Benefits	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
Telephone & Fax	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Repairs & Maintenance	2,068	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Insurance	976	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Property Taxes	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300
Power Purchased	38,160	39,300	40,500	41,700	43,000	44,300	45,600	47,000	48,400	49,900
Sub Total Operating	\$902,419	\$930,600	\$958,700	\$987,400	\$1,016,800	\$1,047,000	\$1,078,300	\$1,110,400	\$1,143,700	\$1,177,900

Table 5-1
Town of Petrolia - Water Service
Operating Budget Forecast
Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Capital-Related										
Capital - Water Equipment	37,000	38,100	39,200	40,400	41,600	42,800	44,100	45,400	46,800	48,200
Capital - Distribution	-	-	-	-	-	-	-	-	-	-
Capital - Booster	35,000	36,100	37,200	38,300	39,400	40,600	41,800	43,100	44,400	45,700
WTP Debenture (Principal)	529,018	551,614	575,176	599,744	572,058					
WTP Debenture (Interest)	108,402	85,805	62,244	37,676	12,058					
Water Distribution System Debenture (Principal)	8,012	8,345	8,689	9,047	9,419	9,807	10,211	10,631	11,069	11,525
Water Distribution System Debenture (Interest)	5,826	5,496	5,153	4,795	4,422	4,035	3,631	3,210	2,773	2,317
New Debt (Principal)	-	-	-	13,903	47,037	420,128	580,161	609,169	639,627	671,609
New Debt (Interest)	-	-	-	15,000	49,305	446,953	575,947	546,939	516,480	484,499
Transfer to Capital Reserve	309,636	413,978	574,274	726,493	906,295	716,704	427,597	426,980	425,326	423,035
Sub Total Capital Related	\$1,032,894	\$1,139,439	\$1,301,935	\$1,485,357	\$1,681,596	\$1,681,026	\$1,683,446	\$1,685,429	\$1,686,475	\$1,686,884
Total Expenditures	\$1,935,313	\$2,070,039	\$2,260,635	\$2,472,757	\$2,698,396	\$2,728,026	\$2,761,746	\$2,795,829	\$2,830,175	\$2,864,784
Revenues										
Water-Fixed Charges	242,720	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Water-Other Municipalities	940,000	1,018,823	1,110,936	1,212,260	1,318,144	1,318,144	1,318,144	1,318,144	1,318,144	1,318,144
Water-Services & Meters	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000
Water - Service Charges	-	100	100	100	100	100	100	100	100	100
Total Operating Revenue	1,192,720	1,273,058	1,374,373	1,485,570	1,602,036	1,613,582	1,626,230	1,639,241	1,652,515	1,666,051
Water Billing Recovery - Total	\$742,593	\$796,981	\$886,262	\$987,187	\$1,096,360	\$1,114,444	\$1,135,516	\$1,156,588	\$1,177,660	\$1,198,732

5.3 Wastewater Operating Expenditures

Similar to the budget forecasting approach presented above for water services, the costs for wastewater operating expenditures have been adjusted over the forecast by an annual inflationary factor of 3%, as shown on the table below:

Wastewater Operating Costs	Inflation
Contract Services	3%
Equipment & Supplies	3%
Insurance	3%
Lab	3%
Materials/Supplies	3%
Plant & Equip Maint	3%
Plant Improvements	3%
Property Taxes	3%
Salaries & Benefits	3%
Sewer Billing Uncollectable	3%
Sewer Cleaning	3%
Sewer Monitor/Inspection	3%
Special Projects	3%
Travel & Training	3%
Water Pollution Control Plant	3%

5.4 Wastewater Operating Revenues

The revenue for the wastewater program is in the form of user fees and has been forecasted based on growth.

Tables 5-2 provides the operating budget for the wastewater system.

Table 5-2
Town of Petrolia - Wastewater Service
Operating Budget Forecast
 Inflated \$

Description	Forecast											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
Expenditures												
<u>Operating Costs</u>												
<u>Sanitary Sewers</u>												
Salaries	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500		
Benefits	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100		
Materials/Supplies	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700		
Sewer Cleaning	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500		
Sewer Monitor/Inspection	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500		
Special Projects	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100		
<u>Water Pollution Control Plant</u>												
Salaries	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400		
Benefits	600	600	600	600	600	600	600	600	600	600		
Insurance	13,337	13,700	14,100	14,500	14,900	15,300	15,800	16,300	16,800	17,300		
Property Taxes	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100		
Plant & Equip Maint	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100		
Contract Services	400,445	412,500	424,900	437,600	450,700	464,200	478,100	492,400	507,200	522,400		
Sub Total Operating	\$498,282	\$513,100	\$528,300	\$544,000	\$560,400	\$577,200	\$594,500	\$612,200	\$630,400	\$649,300		
<u>Capital-Related</u>												
Wastewater Debenture - Collection System (Principal)	9,291	9,674	10,072	10,487	10,918	11,368	11,836	12,323	12,831	13,359		
Wastewater Debenture - Collection System (Interest)	6,753	6,371	5,972	5,558	5,126	4,676	4,208	3,721	3,214	2,685		
New Debt (Principal)	-	-	-	151,213	612,412	658,154	691,062	725,615	761,896	799,991		
New Debt (Interest)	-	-	-	250,000	992,439	986,819	953,911	919,358	883,077	844,982		
Transfer To Reserve	335,674	506,547	799,044	780,987	82,352	290,942	499,902	539,552	578,702	617,153		
Sub Total Capital Related	\$351,718	\$522,592	\$815,089	\$1,198,245	\$1,703,248	\$1,951,960	\$2,160,919	\$2,200,570	\$2,239,720	\$2,278,170		
Wastewater Billing Recovery - Total	\$850,000	\$1,035,692	\$1,343,389	\$1,742,245	\$2,263,648	\$2,529,160	\$2,755,419	\$2,812,770	\$2,870,120	\$2,927,470		

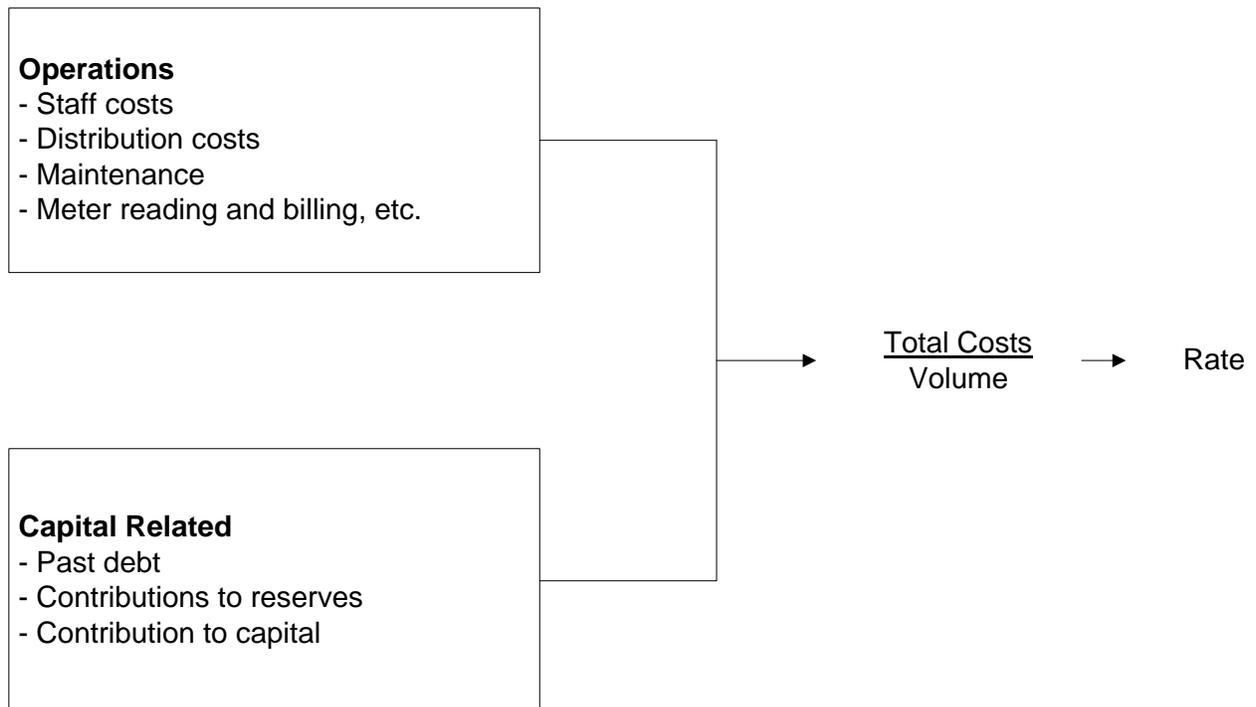
6. PRICING STRUCTURES

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 which will affect the expenditures over time are provided below

Operations

- Inflation;
- Increased maintenance as system ages;
- Changes to Provincial legislation.

Capital Related

- New capital will be built as areas expand;
- Replacement capital needed as system ages;
- 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 four basic rate structures employed:

- Flat Rate;
- Constant Rate;
- Declining Block Rate;
- Increasing (or Inverted) Block Rate.

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 Town. 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 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.

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; 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.

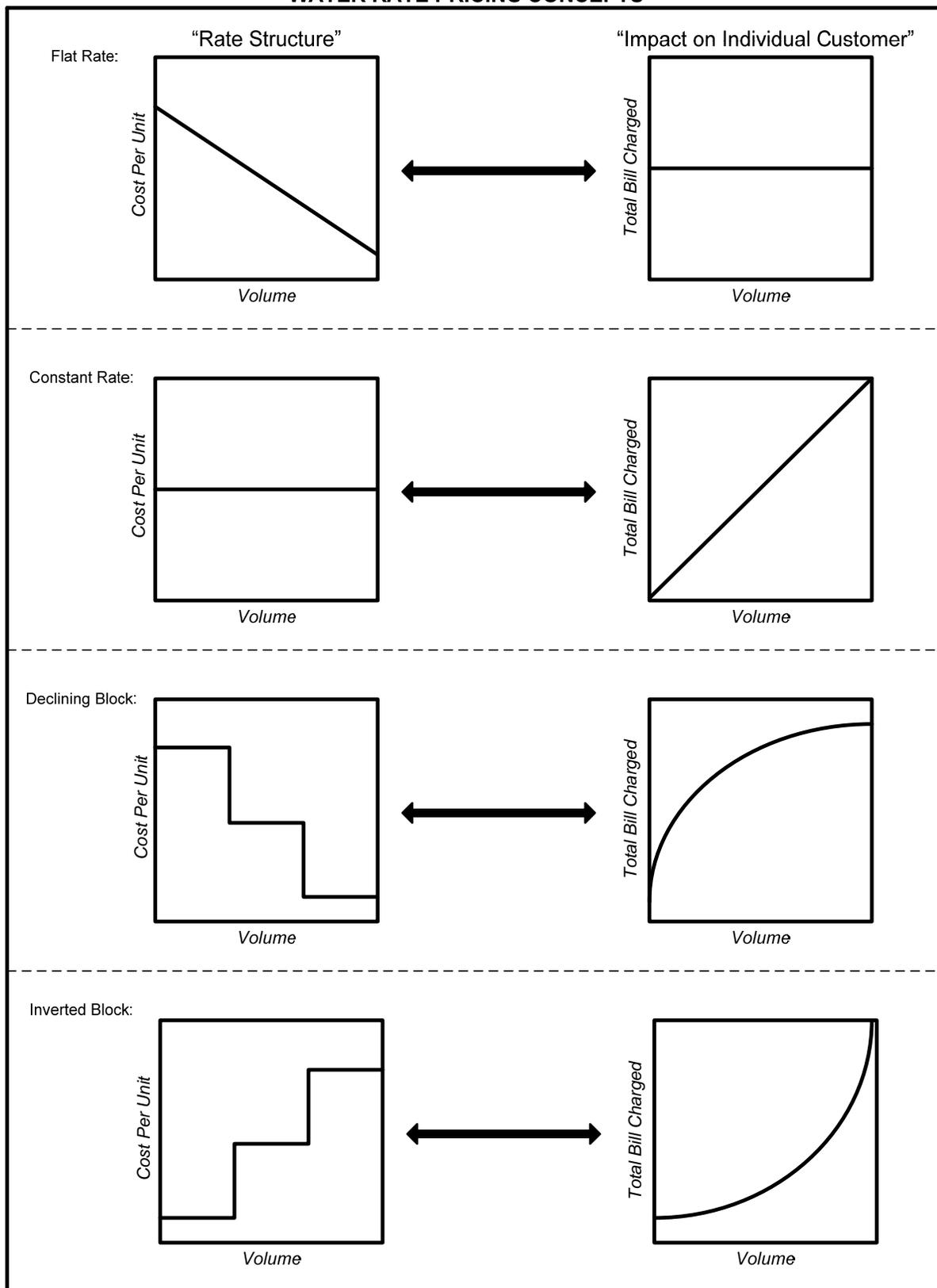
The Declining Block Rate provides a decreasing incentive towards conservation. By creating awareness of volumes consumed, the consumer can reduce his total costs by restricting consumption; however the incentive lessens as more water is consumed, because the marginal cost per unit declines as the consumer enters the next block pricing range. Similarly, those whose consumption level is at the top end of a block have reduced 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. The schematic is summarized below for each rate structure.

**FIGURE 6-1
WATER RATE PRICING CONCEPTS**



RATE STRUCTURE	COST PER UNIT AS VOLUME CONSUMPTION INCREASES	IMPACT ON CUSTOMER BILL AS VOLUME CONSUMPTION 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 increase
Increasing (Inverted) Block	Cost per unit increases as threshold targets are achieved	Bill increases at a faster rate as volumes increase

6.4 Rate Structures in Ontario

In a recent 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

The Town presently uses a monthly base charge along with a volume charge for water and volume charge only for wastewater customers. The present rate structure is provided below:

Rate Code	Meter Size	Water Rates					Sewer Rates						
		Monthly Service Charge	Water Rate per m ³	Monthly Minimum Bill (m ³)	Water Rate per 1,000 imperial gallons	Monthly Minimum Bill (gallons)	Monthly Service Charge	% of Water /m ² rate	Sewer Rate per m ³	Monthly Minimum Bill (m ³)	Sewer Rate per 1,000 imperial gallons	Monthly Minimum Bill (gallons)	
1	100 E	5/8" metric	\$8.25	\$1.20	5 m ³			\$0.00	125%	\$1.50	5 m ³		
2	101 E	3/4" metric	\$8.25	\$1.20	9 m ³			\$0.00	125%	\$1.50	9 m ³		
3	200 E	5/8" imperial	\$8.25			\$5.47	1,100	\$0.00	125%			\$6.84	1,100
4	201 E	3/4" imperial	\$8.25			\$5.47	2,200	\$0.00	125%			\$6.84	2,200
5	300 E			\$2.12			1,100			n/a			1,100
6	700 E	5/8" metric	\$8.25	\$1.20	5 m ³			\$0.00	125%	\$1.50	5 m ³		
7	701 E	5/8" imperial	\$8.25			\$5.47	1,100	\$0.00	125%			\$6.84	1,100
8	702 E - Meadow view & Lambonian		\$8.25	\$1.20	5 m ³			\$0.00	150%	\$1.80	5 m ³		
9	703 E - Bridgeview Park		\$8.25	\$1.20	5 m ³			\$0.00	125%	\$1.50	5 m ³		
10	708 E - Main Line Customers	1" metric	n/a	\$1.34	n/a			n/a		n/a	n/a		
11	709 E - Main Line Customers	1" imperial	n/a			\$6.10	n/a	n/a		n/a			n/a
12	710 E - Main Line Customers	1" metric	n/a	\$1.34	n/a			n/a		n/a	n/a		
13	751 E - Main Line Customers	1" metric	\$8.25	\$1.20	10 m ³			\$0.00	125%	\$1.50	10 m ³		
14	752 E - COMMERCIAL	1" metric	\$8.25	\$1.20	18 m ³			\$0.00	125%	\$1.50	18 m ³		
15	753 E	1 1/2" metric	\$8.25	\$1.20	40 m ³			\$0.00	125%	\$1.50	40 m ³		
16	754 E	2" metric	\$8.25	\$1.20	72 m ³			\$0.00	125%	\$1.50	72 m ³		
17	756 E	4" metric	\$8.25	\$1.20	227 m ³			\$0.00	125%	\$1.50	227 m ³		
18	764 E	2" imperial	\$8.25			\$5.47	16,000	\$0.00	125%			\$6.84	16,000
19	761 E	3/4" imperial	\$8.25			\$5.47	2,000	\$0.00	125%			\$6.84	2,000
20	762 E	1" imperial	\$8.25			\$5.47	4,000	\$0.00	125%			\$6.84	4,000
21	763 E	1 1/2" imperial	\$8.25			\$5.47	9,000	\$0.00	125%			\$6.84	9,000
22	803 E - Enniskillen Township		\$25.00	\$1.34	n/a			\$0.00		n/a	n/a		

The use of the base charge and the volume rate (presently used) is recommended to be continued for water and the volume rate for wastewater services. This rate encourages conservation and provides incentive to maintain water use at reasonable levels.

As noted in Chapter 5 and for use in Chapter 7, Tables 6-1 and 6-2 provide for the calculation of the base charge revenues for water. The base charges have been adjusted by 2% annually for inflation in each year of the forecast, beginning in 2012. The number of customers serviced annually are provided in Tables 1-1 and 1-2.

Table 6-1
Town of Petrolia
Base Charge - Water

All new customers (from growth forecast) are shown in the 5/8" metric meters.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
gallon - 3/4"											
Existing	4	4	4	4	4	4	4	4	4	4	4
New											
Customers - gallon - 3/4"	4	4	4	4	4	4	4	4	4	4	4
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$396	\$396	\$403	\$413	\$422	\$432	\$442	\$451	\$461	\$470	\$480
gallon - 5/8"											
Existing	527	527	527	527	527	527	527	527	527	527	527
New											
Customers - gallon - 5/8"	527	527	527	527	527	527	527	527	527	527	527
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$49,639	\$52,173	\$53,122	\$54,386	\$55,651	\$56,916	\$58,181	\$59,446	\$60,710	\$61,975	\$63,240
gallon - 1"											
Existing	6	6	6	6	6	6	6	6	6	6	6
New											
Customers - gallon - 1"	6	6	6	6	6	6	6	6	6	6	6
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$1,892	\$594	\$605	\$619	\$634	\$648	\$662	\$677	\$691	\$706	\$720
gallon - 1 1/2"											
Existing	1	1	1	1	1	1	1	1	1	1	1
New											
Customers - gallon - 1 1/2"	1	1	1	1	1	1	1	1	1	1	1
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$99	\$99	\$101	\$103	\$106	\$108	\$110	\$113	\$115	\$118	\$120
gallon - 2"											
Existing	8	8	8	8	8	8	8	8	8	8	8
New											
Customers - gallon - 2"	8	8	8	8	8	8	8	8	8	8	8
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$891	\$792	\$806	\$826	\$845	\$864	\$883	\$902	\$922	\$941	\$960
metric - 3/4"											
Existing	37	37	37	37	37	37	37	37	37	37	37
New											
Customers - metric - 3/4"	37	37	37	37	37	37	37	37	37	37	37
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$4,224	\$3,663	\$3,730	\$3,818	\$3,907	\$3,996	\$4,085	\$4,174	\$4,262	\$4,351	\$4,440

Table 6-1
Town of Petrolia
Base Charge - Water

All new customers (from growth forecast) are shown in the 5/8" metric meters.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
metric - 5/8"											
Existing	1,752	1,752	1,752	1,752	1,752	1,752	1,752	1,752	1,752	1,752	1,752
New		15	45	75	110	150	197	252	307	361	416
Customers - metric - 5/8"	1,752	1,767	1,797	1,827	1,862	1,902	1,949	2,004	2,059	2,113	2,168
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$180,126	\$174,933	\$181,138	\$188,546	\$196,627	\$205,416	\$215,170	\$226,025	\$237,143	\$248,524	\$260,168
metric - 1"											
Existing	14	14	14	14	14	14	14	14	14	14	14
New											
Customers - metric - 1"	14										
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$1,813	\$1,386	\$1,411	\$1,445	\$1,478	\$1,512	\$1,546	\$1,579	\$1,613	\$1,646	\$1,680
metric - 1 1/2"											
Existing	3	3	3	3	3	3	3	3	3	3	3
New											
Customers - metric - 1 1/2"	3										
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$1,287	\$297	\$302	\$310	\$317	\$324	\$331	\$338	\$346	\$353	\$360
metric - 2"											
Existing	14	14	14	14	14	14	14	14	14	14	14
New											
Customers - metric - 2"	14										
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$4,356	\$1,386	\$1,411	\$1,445	\$1,478	\$1,512	\$1,546	\$1,579	\$1,613	\$1,646	\$1,680
metric - 4"											
Existing	6	6	6	6	6	6	6	6	6	6	6
New											
Customers - metric - 4"	6										
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$395	\$594	\$605	\$619	\$634	\$648	\$662	\$677	\$691	\$706	\$720
metric - 6"											
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
Customers - metric - 6"	2										
Monthly Base Charge		\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge		\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$99	\$198	\$202	\$206	\$211	\$216	\$221	\$226	\$230	\$235	\$240

Table 6-1
Town of Petrolia
Base Charge - Water

All new customers (from growth forecast) are shown in the 5/8" metric meters.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mainline Customers											
Existing	31	31	31	31	31	31	31	31	31	31	31
New											
Customers - Mainline Customer	31										
Monthly Base Charge	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Base Charge	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Annual Revenue	\$0										
Out-of-boundary Customers	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Existing	6	6	6	6	6	6	6	6	6	6	6
New											
Customers - Out-of-boundary C	6										
Monthly Base Charge	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Annual Base Charge	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Annual Revenue	\$0										
Water	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Existing	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411	2,411
New	45	15	75	110	150	197	252	307	361	416	416
Total Customers - Water	2,411	2,426	2,456	2,486	2,521	2,561	2,608	2,663	2,718	2,772	2,827
Total Annual Revenue	\$245,217	\$236,511	\$243,835	\$252,737	\$262,310	\$272,592	\$283,838	\$296,186	\$308,797	\$321,671	\$334,808

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 lifecycle 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 lifecycle capital replacement reserve contribution. Non-rate revenues (including base charge revenues) to assist in offsetting the charges for volumetric rates were also identified in Chapter 5. This chapter will provide for the calculation of the rates over the next 10-year period. These calculations will be based on the net operating expenditures provided in Chapter 5, divided by the water consumption forecast and wastewater volumes provided in Section 1.7.

Based on the discussion of rate structures provided in section 6.5 and the recommendation to continue with the present structure for water and wastewater services, the water and wastewater volume rates are calculated in Tables 7-1 and 7-2, respectfully.

7.2 Water Rates

Table 7-1 provides for the water rate forecast. This table take the net recoverable amounts from Table 5-1 (the product of total expenditures) and completes the calculation by dividing by the consumption volume into the net expenditures to calculate the volume rates. It is noted that discussions were undertaken with staff regarding the potential rates.

Staff requested three capital funding scenarios for the Maundamin Reservoir Expansion & PS for Council's review and consideration:

- Scenario 1 – Capital fully funded by Town financial resources – 0% Grant Funding
- Scenario 2 – 33% Grants
- Scenario 3 – 66% Grants Detailed calculations are provided in Appendix C.

A summary of the recommended rates (including the base charge rates) are on Table 7-1:

**Table 7-1
Town of Petrolia - Water Rate Summaries
Based on 220 m³ annual volume**

Base Rate Forecast (All Scenarios)

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Monthly Base Rate	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Rate Bill	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
% Increase - Base Rate	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%

Petrolia Water Rate 1 Forecast

0% Grant Funding

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Petrolia Rate - Rate 1	\$1.20	\$1.32	\$1.45	\$1.60	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75
Annual Volume Bill	\$264.00	\$290.40	\$319.44	\$351.38	\$384.77	\$384.77	\$384.77	\$384.77	\$384.77	\$384.77
Total Annual Bill	\$363.00	\$391.20	\$422.64	\$456.98	\$492.77	\$495.17	\$497.57	\$499.97	\$502.37	\$504.77
% Increase - Volume Rate	0%	10%	10%	10%	10%	0%	0%	0%	0%	0%
% Increase - Total Annual Bill	0%	8%	8%	8%	8%	0%	0%	0%	0%	0%

33% Grant Funding

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Petrolia Rate - Rate 1	\$1.20	\$1.30	\$1.41	\$1.52	\$1.65	\$1.65	\$1.65	\$1.65	\$1.65	\$1.65
Annual Volume Bill	\$264.00	\$285.78	\$309.36	\$334.88	\$362.51	\$362.51	\$362.51	\$362.51	\$362.51	\$362.51
Total Annual Bill	\$363.00	\$386.58	\$412.56	\$440.48	\$470.51	\$472.91	\$475.31	\$477.71	\$480.11	\$482.51
% Increase - Volume Rate	0%	8%	8%	8%	8%	0%	0%	0%	0%	0%
% Increase - Total Annual Bill	0%	6%	7%	7%	7%	1%	1%	1%	1%	0%

66% Grant Funding

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Petrolia Rate - Rate 1	\$1.20	\$1.26	\$1.33	\$1.40	\$1.48	\$1.48	\$1.48	\$1.48	\$1.48	\$1.48
Annual Volume Bill	\$264.00	\$277.99	\$292.73	\$308.24	\$324.58	\$324.58	\$324.58	\$324.58	\$324.58	\$324.58
Total Annual Bill	\$363.00	\$378.79	\$395.93	\$413.84	\$432.58	\$434.98	\$437.38	\$439.78	\$442.18	\$444.58
% Increase - Volume Rate	0%	5%	5%	5%	5%	0%	0%	0%	0%	0%
% Increase - Total Annual Bill	0%	4%	5%	5%	5%	1%	1%	1%	1%	1%

**Table 7-1
Town of Petrolia - Water Rate Summaries
Based on 220 m³ annual volume**

Enniskillen Water Rate 2

0% Grant Funding											
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Enniskillen Rate - Rate 2	\$1.34	\$1.46	\$1.59	\$1.74	\$1.89	\$1.89	\$1.89	\$1.89	\$1.89	\$1.89	
Volume	701,493	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	
Total Annual Bill	\$940,000	\$1,018,823	\$1,110,936	\$1,212,260	\$1,318,144	\$1,318,144	\$1,318,144	\$1,318,144	\$1,318,144	\$1,318,144	
% Increase - Volume Rate	0%	9%	9%	9%	9%	0%	0%	0%	0%	0%	
% Increase - Total Annual Bill	1%	8%	9%	9%	9%	0%	0%	0%	0%	0%	
33% Grant Funding											
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Enniskillen Rate - Rate 2	\$1.34	\$1.44	\$1.55	\$1.66	\$1.79	\$1.79	\$1.79	\$1.79	\$1.79	\$1.79	
Volume	701,493	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	
Total Annual Bill	\$940,000	\$1,004,169	\$1,078,953	\$1,159,907	\$1,247,539	\$1,247,539	\$1,247,539	\$1,247,539	\$1,247,539	\$1,247,539	
% Increase - Total Annual Bill	0%	7%	7%	8%	8%	0%	0%	0%	0%	0%	
66% Grant Funding											
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Enniskillen Rate - Rate 2	\$1.34	\$1.40	\$1.47	\$1.54	\$1.62	\$1.62	\$1.62	\$1.62	\$1.62	\$1.62	
Volume	701,493	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	697,824	
Total Annual Bill	\$940,000	\$979,466	\$1,026,200	\$1,075,410	\$1,127,229	\$1,127,229	\$1,127,229	\$1,127,229	\$1,127,229	\$1,127,229	
% Increase - Total Annual Bill	0%	5%	5%	5%	5%	0%	0%	0%	0%	0%	

7.3 Wastewater Rates

The recommended volume rates for wastewater are calculated in Table 7-2.

Similar to water, staff requested three capital funding scenarios for the Wastewater Plant Expansion for Council's review and consideration:

- Scenario 1 – Capital fully funded by Town financial resources – 0% Grant Funding
- Scenario 2 – 33% Grants
- Scenario 3 – 66% Grants

The table takes the net recoverable amounts from Table 5-2 (the product of total expenditures plus lifecycle cost less the non-rate revenues) and completes the calculation by dividing by the volume into the net expenditures to calculate the constant rate. Detailed calculations are provided in Appendix D.

A summary of the recommended volume rates are on Table 7-2:

Staff also requested that a calculation be undertaken for wastewater rates where the forecasts assume that a wastewater "base charge", equivalent to that of the water base charge is collected. This base charge is applied to the same three scenarios noted above. A summary of the those wastewater rates are on Table 7-3:

Table 7-2
Town of Petrolia - Wastewater Rate Summaries
Based on 220 m³ annual volume

0% Grant Funding										
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Constant Rate	\$1.50	\$1.92	\$2.46	\$3.16	\$4.04	\$4.45	\$4.76	\$4.76	\$4.76	\$4.76
Total Annual Bill	\$330.00	\$422.86	\$541.85	\$694.33	\$889.71	\$978.68	\$1,047.19	\$1,047.19	\$1,047.19	\$1,047.19
% Increase - Total Annual Bill	0.0%	28.1%	28.1%	28.1%	28.1%	10.0%	7.0%	0.0%	0.0%	0.0%

33% Grant Funding										
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Constant Rate	\$1.50	\$1.92	\$2.45	\$2.75	\$3.08	\$3.45	\$3.87	\$3.87	\$3.87	\$3.87
Total Annual Bill	\$330.00	\$421.60	\$538.63	\$604.11	\$677.56	\$759.94	\$852.33	\$852.33	\$852.33	\$852.33
% Increase - Total Annual Bill	0.0%	27.8%	27.8%	12.2%	12.2%	12.2%	12.2%	0.0%	0.0%	0.0%

66% Grant Funding										
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Constant Rate	\$1.50	\$1.83	\$2.23	\$2.38	\$2.53	\$2.70	\$2.87	\$2.87	\$2.87	\$2.87
Total Annual Bill	\$330.00	\$402.80	\$491.66	\$523.43	\$557.25	\$593.25	\$631.58	\$631.58	\$631.58	\$631.58
% Increase - Total Annual Bill	0.0%	22.1%	22.1%	6.5%	6.5%	6.5%	6.5%	0.0%	0.0%	0.0%

**Table 7-3
Town of Petrolia - Wastewater Rate Summaries
Based on 220 m³ annual volume**

Calculations of Wastewater Rates - With Base Charge (same as Water Base Charge)											
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Monthly Base Rate		\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00	
Annual Base Rate Bill	\$0.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00	
% Increase - Base Rate			2%	2%	2%	2%	2%	2%	2%	2%	

Wastewater Rate Summary - 0% Grant Funding - With Base Charge (same as Water Base Charge)											
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Constant Rate	\$1.50	\$1.85	\$2.28	\$2.82	\$3.48	\$3.83	\$4.10	\$4.10	\$4.10	\$4.10	
Annual Volume Bill	\$330.00	\$407.26	\$502.61	\$620.29	\$765.52	\$842.07	\$901.02	\$901.02	\$901.02	\$901.02	
Total Annual Bill	\$330.00	\$508.06	\$605.81	\$725.89	\$873.52	\$952.47	\$1,013.82	\$1,016.22	\$1,018.62	\$1,021.02	
% Increase - Total Annual Bill	0.0%	54.0%	19.2%	19.8%	20.3%	9.0%	6.4%	0.2%	0.2%	0.2%	

Wastewater Rate Summary - 33% Grant Funding - With Base Charge (same as Water Base Charge)											
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Constant Rate	\$1.50	\$1.87	\$2.32	\$2.52	\$2.74	\$2.98	\$3.25	\$3.25	\$3.25	\$3.25	
Annual Volume Bill	\$330.00	\$410.38	\$510.33	\$555.02	\$603.63	\$656.49	\$713.98	\$713.98	\$713.98	\$713.98	
Total Annual Bill	\$330.00	\$511.18	\$613.53	\$660.62	\$711.63	\$766.89	\$826.78	\$829.18	\$831.58	\$833.98	
% Increase - Total Annual Bill	0.0%	54.9%	20.0%	7.7%	7.7%	7.8%	7.8%	0.3%	0.3%	0.3%	

Wastewater Rate Summary - 66% Grant Funding - With Base Charge (same as Water Base Charge)											
Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Constant Rate	\$1.50	\$1.77	\$2.08	\$2.12	\$2.17	\$2.21	\$2.26	\$2.26	\$2.26	\$2.26	
Annual Volume Bill	\$330.00	\$388.46	\$457.27	\$466.93	\$476.80	\$486.88	\$497.17	\$497.17	\$497.17	\$497.17	
Total Annual Bill	\$330.00	\$489.26	\$560.47	\$572.53	\$584.80	\$597.28	\$609.97	\$612.37	\$614.77	\$617.17	
% Increase - Total Annual Bill	0.0%	48.3%	14.6%	2.2%	2.1%	2.1%	2.1%	0.4%	0.4%	0.4%	

8. RECOMMENDATIONS

8. RECOMMENDATIONS

As presented within this report, capital and operating expenditures have been identified and forecasted over a ten-year period for water and wastewater services. In addition, a long-term lifecycle plan has been provided consistent with the requirements of Regulation 453/07 and the principles provided in SWSSA.

Based upon the foregoing, the following recommendations were put forth for Council's consideration at the Meeting of Council on February 13, 2012:

1. That Council consider the Capital Plan for water and wastewater as provided in Tables 2-1 and 2-2 and the associated Capital Financing Plan as set out in Tables 4-1 and 4-2.
2. That Council approve the adoption of reserve contributions for the replacement of water and wastewater infrastructure, subject to the requirements of Ontario Regulation 453/07.
3. That Council consider the rates provided in Chapters 6 & 7 for the water and wastewater systems.

APPENDIX A

WATER SYSTEM INVENTORY DATA

Table A-1
Town of Petrolia
Summary of Water Infrastructure

Area	Total Replacement Value	Amount to be funded in 10 year forecast	Net Replacement for Future Lifecycle	Annual Lifecycle Replacement
Water				
Water Facilities	\$9,080,360	\$2,544,370	\$6,535,990	\$190,480
Water Equipment	\$3,750,210	\$0	\$3,750,210	\$123,425
Hydrants	\$1,514,610	\$91,000	\$1,423,610	\$59,862
Watermains	\$15,095,830	\$595,110	\$14,500,720	\$555,178
Total Water	\$29,441,010	\$3,230,480	\$26,210,530	\$928,945

**Table A-4
Town of Petrolia
Hydrants**

Asset ID	Location	Size(mm)	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2374	Albany St	150	1978	55	2033	21,100	22	1,068	-
2375	Andrew St	150	1978	55	2033	14,070	22	712	-
2376	Blanche St	150	1989	55	2044	6,250	33	218	-
2377	Cardinal Cr	150	1973	55	2028	5,940	17	382	-
2378	Catherine St	150	1989	55	2044	24,980	33	872	-
2379	Centre St	150	1979	55	2034	89,130	23	4,331	-
2380	Charlie St	150	1975	55	2030	5,740	19	333	-
2381	Chestnut St	150	1979	55	2034	6,860	23	333	-
2382	Country View Dr	150	1993	55	2048	21,350	37	671	-
2383	Derby St	150	1989	55	2044	12,490	33	436	-
2384	Dufferin Ave	150	1989	55	2044	18,740	33	654	-
2385	Edward St	150	1979	55	2018	6,860	7	repl within 10 years	6,860
2386	Egan Ave	150	1979	55	2012	6,860	1	repl within 10 years	6,860
2387	Emma St	150	1979	55	2034	13,710	23	666	-
2388	England Ave	150	1978	55	2033	14,070	22	712	-
2389	Eureka St	150	1996	55	2051	82,270	40	2,409	-
2390	Fifth Ave	150	1978	55	2033	7,030	22	356	-
2391	First Ave	150	1978	55	2033	98,450	22	4,984	-
2392	Florence Ave	150	1964	55	2012	15,050	1	repl within 10 years	15,050
2393	Fourth St	150	2007	55	2062	10,700	51	251	-
2394	Garden Cr	150	1988	55	2043	31,340	32	1,125	-
2395	Garfield Ave	150	1979	55	2034	20,570	23	1,000	-
2396	*Parkside to Golden Gate		1999	55	2054	13,530	43	371	-
2397	Gem Ave		1998	55	2053	27,150	42	760	-
2398	Glenview Rd	150	1992	55	2047	42,320	36	1,364	-
2399	Greenfield St	150	1979	55	2034	20,570	23	1,000	-
2401	Grove St	150	1978	55	2033	14,070	22	712	-
2402	Hawthorne Pl	150	1976	55	2031	6,330	20	350	-
2403	Henderson Dr	150	1993	55	2048	7,120	37	224	-
2404	Huggard St	150	1983	55	2038	20,600	27	864	-
2405	Ignatiefna St	150	1978	55	2033	14,070	22	712	-
2406	Jacs Ct	150	2000	55	2055	6,480	44	174	-

**Table A-4
Town of Petrolia
Hydrants**

Asset ID	Location	Size(mm)	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2407	James St	150	1979	55	2034	6,860	23	333	-
2408	Joe St	150	1973	55	2028	23,760	17	1,529	-
2409	Juniper Cr	150	1989	55	2044	18,740	33	654	-
2410	Kells St	150	1970	55	2025	6,560	14	507	-
2411	Kentail St	150	1978	55	2033	7,030	22	356	-
2412	Kerby St	150	1979	55	2034	6,860	23	333	-
2413	Kerr St	150	1979	55	2034	20,570	23	1,000	-
2414	King St	150	1979	55	2034	13,710	23	666	-
2415	Lancey St	150	1979	55	2034	6,860	23	333	-
2416	Maple St	150	1976	55	2031	12,670	20	701	-
2417	Maude St	150	1987	55	2042	51,800	31	1,914	-
2418	Mulberry Pl	150	1976	55	2031	6,330	20	350	-
2419	Mutual St	150	1978	55	2033	7,030	22	356	-
2420	North St	150	1978	55	2033	35,160	22	1,780	-
2421	Northridge Pl	150	1993	55	2048	7,120	37	224	-
2422	Oil Heritage Rd	150	1993	55	2048	42,700	37	1,343	-
2423	Oozloffsky St N	150	1979	55	2034	0	23	-	-
2424	Oozloffsky St S	150	2007	55	2062	5,350	51	125	-
2425	Oriole Pk	150	1973	55	2028	5,940	17	382	-
2426	Parkside Dr	150	2002	55	2057	25,660	46	661	-
2427	Petrolia Line	150	1977	55	2032	144,040	21	7,613	-
2428	Pine Cr	150	1989	55	2044	6,250	33	218	-
2429	Portland Ave	150	1965	55	2020	7,370	9	repl within 10 years	7,370
2430	Princess St	150	1979	55	2015	41,140	4	repl within 10 years	41,140
2431	Progress Dr	150	1989	55	2044	62,460	33	2,180	-
2432	Queen St	150	1979	55	2034	34,280	23	1,666	-
2433	Railroad St	150	1979	55	2012	6,860	1	repl within 10 years	6,860
2434	Robert St	150	1979	55	2034	13,400	23	651	-
2435	Sanway Ct	150	1991	55	2046	6,980	35	231	-
2436	Short St	150	1975	55	2030	5,740	19	333	-
2437	Sixth St	150	2005	55	2060	5,860	49	142	-
2438	Tank St	150	2004	55	2059	48,450	48	1,201	-

**Table A-4
Town of Petrolia
Hydrants**

Asset ID	Location	Size(mm)	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2439	Third St	150	1978	55	2033	7,030	22	356	-
2440	Tom St	150	1975	55	2030	5,740	19	333	-
2441	Valentina St N.	150	1979	55	2034	6,860	23	333	-
2442	Valentina St S.	150	1979	55	2034	6,860	23	333	-
2443	Victoria Ave	150	2002	55	2057	12,830	46	331	-
2444	Walnut St W	150	1979	55	2034	6,860	23	333	-
2445	Warren Ave	150	2001	55	2056	12,800	45	337	-
2446	Wellington St	150	1978	55	2033	14,070	22	712	-
2447	West St	150	1979	55	2034	6,860	23	333	-
2448	Wingfield St	150	1979	55	2013	6,860	2	repl within 10 years	6,860
3590	Oozloffsky St N		2010	55	2065	14,260	54	317	-
3603	Oozloffsky St Extension		2010	0	2011	0	0	repl within 10 years	-
3604	Oozloffsky St Extension		2010	55	2065	14,240	54	316	-
Total						1,514,610		59,862	91,000

**Table A-5
Town of Petrolia
Watermains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1527	Albany St	Albany St	168	150	CI	1978	55	2033	47,260	22	2,393	-
1528	Andrew St	Pettibone to Center	149	150	CI	1978	55	2033	41,910	22	2,122	-
1529	Andrew St	Center to east end	130	150	CI	1978	55	2033	36,570	22	1,851	-
1530	Applewood Dr	Parkside to Evergreen	160	200	PVC	2002	55	2057	46,180	46	1,190	-
1531	Applewood Dr	Evergreen to Garfield	84	200	PVC	2006	55	2061	21,170	50	505	-
1532	Applewood Dr	Garfield to corner curve	87	200	PVC	2008	55	2063	19,800	52	456	-
1533	Applewood Dr	Corner curve to Catherine	124	200	PVC	2008	55	2063	28,220	52	649	-
1534	Barrett's Lane	Barrett's Lane	4	25	PVC	1978	55	2033	-	22	-	-
1535	Blanche St	Blanche St	137	150	PVC	1989	55	2044	34,230	33	1,195	-
1536	Bluebird St	Bluebird St	97	150	PVC	2003	55	2058	24,470	47	618	-
1537	Cardinal Cr	Joe to corner	144	150	CI	1973	55	2028	34,220	17	2,202	-
1538	Cardinal Cr	Ozloffsky to corner	174	150	CI	1973	55	2028	41,340	17	2,660	-
1539	Catherine St	Garfield to Pine	11	200	PVC	1999	55	2054	3,350	43	92	-
1540	Catherine St	Garfield to Pine	83	200	PVC	1999	55	2054	25,270	43	693	-
1541	Catherine St	Garfield to Pine	12	200	PVC	1999	55	2054	3,650	43	100	-
1542	Catherine St	Pine to Pine	90	200	PVC	1989	55	2044	25,300	33	883	-
1543	Catherine St	Pine to Juniper	24	200	PVC	1989	55	2044	6,750	33	236	-
1544	Catherine St	Pine to Juniper	66	150	PVC	1989	55	2044	16,490	33	576	-
1545	Catherine St	Juniper to Eureka	150	150	PVC	1996	55	2051	41,130	40	1,204	-
1546	Centre St	Petrolia to Robert	88	300	PVC	1979	55	2034	33,180	23	1,612	-
1547	Centre St	Robert to Andrew	80	300	PVC	1979	55	2034	30,170	23	1,466	-
1548	Centre St	Andrew to James	85	300	PVC	1979	55	2034	32,050	23	1,557	-
1549	Centre St	James to Portland	82	300	PVC	1979	55	2034	30,920	23	1,502	-
1550	Centre St	Portland to Discovery	1,021	300	PVC	1979	55	2034	385,020	23	18,708	-
1551	Charlie St	Tom to Short	78	150	CI	1975	55	2030	17,920	19	1,039	-
1552	Charlie St	Short to Valentina	80	150	CI	1975	55	2030	18,380	19	1,066	-
1553	Chestnut St	Walnut to School	100	150	PVC	1979	55	2034	27,420	23	1,332	-
1554	Chestnut St	School to south end	7	150	CI	2001	55	2056	1,790	45	47	-
1555	Country View Dr	East end to Bluebird	45	150	PVC	1993	55	2048	12,810	37	403	-
1556	Country View Dr	Bluebird to Country View	75	150	PVC	1993	55	2048	21,350	37	671	-
1557	Country View Dr	Country View to Henderson	94	150	PVC	1993	55	2048	26,760	37	841	-
1558	Country View Dr	Henderson to Valentina	246	150	PVC	2002	55	2057	63,110	46	1,626	-
1559	Derby St	Mutual to Holland	80	200	CI	1978	55	2033	25,320	22	1,282	-
1560	Derby St	Holland to Oil Heritage	307	200	CI	1989	55	2044	86,290	33	3,012	-
1561	Discovery Line	West town limit to Stanley	290	150	PVC	1979	55	2034	79,530	23	3,864	-
1562	Discovery Line	Stanley to Eureka	453	300	PVC	1979	55	2034	170,820	23	8,300	-
1563	Discovery Line	Eureka to Center	282	300	PVC	1979	55	2034	106,340	23	5,167	-
1564	Discovery Line	Center to Tank	322	250	PVC	1979	55	2034	110,390	23	5,364	-
1565	Discovery Line	Tank to Oil Heritage	1,642	250	PVC	1979	55	2034	562,900	23	27,352	-
1566	Dufferin Ave	Huggard to Maude	90	200	PVC	1989	55	2044	25,300	33	883	-
1567	Dufferin Ave	Maude to Princess	116	200	PVC	1989	55	2044	32,600	33	1,138	-
1568	Dufferin Ave	Princess to Queen	130	200	PVC	1989	55	2044	36,540	33	1,275	-

**Table A-5
Town of Petrolia
Watermains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1569	Dufferin Ave	Queen to Glenview	160	200	PVC	1989	55	2044	44,970	33	1,569	-
1570	Dufferin Ave	Glenview to Blanche	80	200	PVC	1989	55	2044	22,490	33	785	-
1571	Dufferin Ave	Blanche to Greenfield	110	200	PVC	1989	55	2044	30,920	33	1,079	-
1572	Edward St	Edward St	24	150	PVC	1963	55	2018	7,430	7	repl within 10 years	7,430
1573	Egan Ave	Petrolia to Florence	159	100	CI	1979	55	2012	38,150	1	repl within 10 years	38,150
1574	Egan Ave	Florence to Sanway	108	150	CI	1979	55	2034	29,620	23	1,439	-
1575	Egan Ave	Sanway to Maple	102	150	CI	1979	55	2034	27,970	23	1,359	-
1576	Emma St	Ella to Emmeline	28	150	PVC	1979	55	2034	7,680	23	373	-
1577	Emma St	Emmeline to east end	75	150	PVC	1979	55	2034	20,570	23	1,000	-
1578	England Ave	Petrolia to Pearl	93	150	CI	1978	55	2033	26,160	22	1,324	-
1579	England Ave	Pearl to south end	90	150	CI	1978	55	2033	25,320	22	1,282	-
1580	Ernest St	Eureka to Kells	99	150	CI	1970	55	2025	26,000	14	2,008	-
1581	Ernest St	Kells to west end	46	150	CI	1970	55	2025	12,080	14	933	-
1582	Eureka St	Petrolia to Maple	366	150	PVC	1996	55	2051	100,360	40	2,939	-
1583	Eureka St	Maple to Catherine	271	150	PVC	1996	55	2051	74,310	40	2,176	-
1584	Eureka St	Catherine to Ernest	162	150	PVC	1996	55	2051	44,420	40	1,301	-
1585	Eureka St	Ernest to Discovery	582	150	PVC	1996	55	2051	159,600	40	4,674	-
1586	Evergreen Trl	North end to Rosemount	50	200	PVC	2008	55	2063	11,380	52	262	-
1587	Evergreen Trl	Rosemount to Appplewood	88	200	PVC	2008	55	2063	20,030	52	461	-
1588	Fifth Ave	Fifth Ave	236	150	CI	1978	55	2033	66,380	22	3,361	-
1589	First Ave	Petrolia to Third	116	200	CI	1978	55	2033	36,710	22	1,859	-
1590	First Ave	Third to Fifth	107	200	CI	1978	55	2033	33,860	22	1,714	-
1591	First Ave	Fifth to Sixth	105	200	CI	1978	55	2033	33,230	22	1,662	-
1592	First Ave	Sixth to Garden	415	200	CI	1978	55	2033	131,330	22	6,649	-
1593	First Ave	Garden to Garden	653	200	PVC	2003	55	2058	185,350	47	4,683	-
1594	Florence Ave	Garfield to Egan	214	150	CI	1979	55	2012	58,690	1	repl within 10 years	58,690
1595	Florence Ave	Egan to Kerby	203	150	CI	1964	55	2012	61,110	1	repl within 10 years	61,110
1596	Fourth St	Petrolia to Third	118	150	PVC	2007	55	2062	25,250	51	592	-
1597	Fourth St	Third to Fifth	107	150	PVC	2007	55	2062	22,890	51	536	-
1598	Gables Ave	Eureka to Jacs	86	150	PVC	2000	55	2055	22,280	44	598	-
1599	Gables Ave	Jacs to east end	108	150	PVC	2000	55	2055	27,980	44	751	-
1600	Garden Cr	First to Heritage Heights	629	150	PVC	1988	55	2043	157,710	32	5,661	-
1601	Garden Cr	Heritage Heights to First	255	150	PVC	2003	55	2058	64,340	47	1,625	-
1602	Garfield Ave	Petrolia to Florence	158	150	PVC	1979	55	2034	43,330	23	2,105	-
1603	Garfield Ave	Florence to Maple	210	150	PVC	1968	55	2023	58,690	12	5,245	-
1604	Garfield Ave	Maple to Mulberry	91	150	PVC	1976	55	2031	23,050	20	1,275	-
1605	Garfield Ave	Mulberry to Parkside	27	200	PVC	1999	55	2054	8,220	43	225	-
1606	Garfield Ave	Mulberry to Parkside	100	250	PVC	1999	55	2054	33,830	43	927	-
1607	Garfield Ave	Parkside to Golden Gate	96	250	PVC	1999	55	2054	32,300	43	885	-
1608	Garfield Ave	Golden Gate to Appplewood	117	250	PVC	2006	55	2061	32,770	50	782	-
1609	Gem Ave	Gem Ave	368	150	PVC	1998	55	2053	99,910	42	2,798	-
1610	Glennview Rd	Dufferin to Wellington	335	200	PVC	1992	55	2047	106,340	36	3,428	-

**Table A-5
Town of Petrolia
Watermains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1611	Glenview Rd	Wellington to Kerr	91	200	PVC	1992	55	2047	28,890	36	931	-
1612	Glenview Rd	Kerr to Tile Yard	213	200	PVC	1992	55	2047	67,610	36	2,180	-
1613	Golden Gate Cl	Golden Gate Cl	141	200	PVC	2004	55	2059	38,430	48	952	-
1614	Greenfield St	Petrolia to Walnut W	137	200	CI	1979	55	2034	42,270	23	2,054	-
1615	Greenfield St	Walnut W to Dufferin	208	200	CI	1979	55	2034	64,180	23	3,119	-
1616	Greenfield St	Dufferin to south end	139	150	PVC	1989	55	2044	34,730	33	1,212	-
1617	Grove St	Grove St	274	150	PVC	1994	55	2049	75,990	38	2,332	-
1618	Hawthorne Pl	Hawthorne Pl	122	150	CI	1976	55	2031	30,900	20	1,709	-
1619	Henderson Dr	Henderson Dr	191	150	PVC	1993	55	2048	54,370	37	1,710	-
1620	Henry Ave	Henry Ave	60	150	PVC	2001	55	2056	15,350	45	404	-
1621	Heritage Heights Ln	Heritage Heights Ln	99	50	PVC	2003	55	2058	18,730	47	473	-
1622	Huggard St	Petrolia to Annie	112	200	CI	1983	55	2038	34,610	27	1,451	-
1623	Huggard St	Annie to Jennie/Lorne	111	200	CI	1983	55	2038	34,300	27	1,438	-
1624	Huggard St	Jennie/Lorne to Dufferin	122	200	CI	1983	55	2038	37,700	27	1,581	-
1625	Huggard St	Dufferin south to arena lot	42	150	PVC	1983	55	2038	11,540	27	484	-
1626	Huggard St	Arena lot	52	150	PVC	1983	55	2038	14,280	27	599	-
1627	Huggard St	Arena lot	52	100	PVC	1983	55	2038	12,500	27	524	-
1628	Hunter Ct	Hunter Ct	50	150	PVC	2005	55	2060	11,730	49	285	-
1629	Ignatiefna St	Ignatiefna St	20	150	PVC	1978	55	2033	5,630	22	285	-
1630	Ignatiefna St	From Ignatiefna to Oozloffsky	54	150	CI	1978	55	2033	15,190	22	769	-
1631	Jacs Ct	Jacs Ct	46	150	PVC	2000	55	2055	11,920	44	320	-
1632	James St	James St	277	150	CI	1979	55	2034	75,970	23	3,691	-
1633	Jennie St	West to Huggard	97	150	CI	1978	55	2033	-	22	-	-
1634	Jennie St	Huggard to Maude	90	150	CI	1978	55	2033	-	22	-	-
1635	Joe St	Maude to Tom	93	200	PVC	1973	55	2028	24,860	17	1,600	-
1636	Joe St	Tom to Valentina	163	200	PVC	1973	55	2028	43,570	17	2,803	-
1637	Joe St	Valentina to Bluebird	151	150	CI	1973	55	2028	35,880	17	2,309	-
1638	Joe St	Bluebird to west end	130	150	CI	1973	55	2028	30,890	17	1,988	-
1639	Juniper Cr	Catherine to Juniper South	42	150	PVC	1989	55	2044	10,490	33	366	-
1640	Juniper Cr	Catherine to Juniper South	172	150	CI	1989	55	2044	42,970	33	1,500	-
1641	Juniper Cr	Juniper North to Sycamore	182	150	CI	1989	55	2044	45,470	33	1,587	-
1642	Kells St	Kells St	137	150	CI	1970	55	2025	35,980	14	2,779	-
1643	Kentail St	Third to Petrolia	118	50	Plast	1978	55	2033	24,890	22	1,260	-
1644	Kentail St	Petrolia to North	93	150	PVC	1978	55	2033	26,160	22	1,324	-
1645	Kerby St	Petrolia to Florence	160	150	CI	1979	55	2034	43,880	23	2,132	-
1646	Kerby St	Florence to north end	98	150	CI	1979	55	2034	26,880	23	1,306	-
1647	Kerr St	Kerr St	274	150	PVC	1994	55	2049	75,990	38	2,332	-
1648	King St	King St	343	150	CI	1979	55	2034	94,070	23	4,571	-
1649	Lancey St	Ella to Emmeline	28	150	PVC	1979	55	2034	7,680	23	373	-
1650	Lancey St	Emmeline - east	283	150	PVC	1979	55	2034	77,610	23	3,771	-
1651	Lorne Ave	Maude to Princess	116	150	CI	2002	55	2057	29,760	46	767	-
1652	Lorne Ave	Princess to Queen	130	150	CI	2002	55	2057	33,350	46	859	-

**Table A-5
Town of Petrolia
Watermains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1653	Maple St	Meadowview Villa to Garfield	701	250	CI	1967	55	2022	248,610	11	24,135	-
1654	Maple St	Garfield to Sycamore	445	250	CI	1976	55	2031	140,910	20	7,792	-
1655	Maple St	Sycamore to Eureka	212	250	CI	1976	55	2031	67,130	20	3,712	-
1656	Maple St	Eureka to Centre	130	250	CI	1976	55	2031	41,170	20	2,277	-
1657	Maple St	Eureka to Centre	145	300	CI	1976	55	2031	50,510	20	2,793	-
1658	Maude St	Petrolia to Annie	112	200	PVC	1987	55	2042	32,630	31	1,206	-
1659	Maude St	Annie to Jennie/Lorne	111	200	PVC	1987	55	2042	32,340	31	1,195	-
1660	Maude St	Jennie/Lorne to Dufferin	122	200	PVC	1987	55	2042	35,550	31	1,314	-
1661	Maude St	Dufferin to Joe	526	200	PVC	1987	55	2042	153,250	31	5,663	-
1662	Maude St	Joe to south end (extension)	180	150	CI	1987	55	2042	46,620	31	1,723	-
1663	Mulberry Pl	Mulberry Pl	181	150	CI	1976	55	2031	45,850	20	2,536	-
1664	Mutual St	Mutual St	118	150	CI	1978	55	2033	33,190	22	1,680	-
1665	Nelson St	Nelson St	198	100	CI	1979	55	2034	-	23	-	-
1666	North St	Hartford to Kentail	192	150	PVC	1978	55	2033	54,010	22	2,734	-
1667	North St	Kentail to Wood	172	150	PVC	1978	55	2033	48,380	22	2,449	-
1668	North St	Wood to Oil Heritage	356	150	PVC	1978	55	2033	100,140	22	5,070	-
1669	Northridge Pl	Northridge Pl	99	150	PVC	1993	55	2048	28,180	37	886	-
1670	Oil St	Oil St	91	150	PVC	2001	55	2056	23,290	45	612	-
1671	Oil Heritage Rd	Progress to North	495	200	CI	1988	55	2043	139,620	32	5,012	-
1672	Oil Heritage Rd	North to Petrolia	93	200	CI	1978	55	2033	29,430	22	1,490	-
1673	Oil Heritage Rd	Petrolia to Derby	91	150	PVC	1989	55	2044	22,740	33	794	-
1674	Oil Heritage Rd	Derby to south town limit	1,268	150	PVC	1988	55	2043	317,920	32	11,411	-
1675	Oozloffsky St N.	Oozloffsky St N.	247	150	PVC	1979	55	2034	-	23	-	-
1676	Oozloffsky St S.	Oozloffsky St S.	183	150	CI	2007	55	2062	39,160	51	917	-
1677	Oriole Pk	Oriole Pk	71	150	CI	1973	55	2028	16,870	17	1,085	-
1678	Parkside Ct	Parkside Ct	50	200	PVC	2005	55	2060	13,190	49	321	-
1679	Parkside Dr	North-South portion	284	200	PVC	2002	55	2057	81,900	46	2,110	-
1680	Parkside Dr	North-South portion	46	200	PVC	2001	55	2056	13,310	45	350	-
1681	Parkside Dr	East-West portion	182	200	PVC	2001	55	2056	52,390	45	1,377	-
1682	Parkside Pl	Parkside Pl	64	200	PVC	2001	55	2056	18,350	45	482	-
1683	Pearl St	Pearl St	128	150	CI	1979	55	2034	35,110	23	1,706	-
1684	Petrolia Line	West town limit to Gem	38	150	CI	1977	55	2032	10,430	21	551	-
1685	Petrolia Line	West town limit to Gem	36	250	CI	1977	55	2032	12,350	21	653	-
1686	Petrolia Line	Gem to Garfield	149	250	CI	1977	55	2032	51,100	21	2,701	-
1687	Petrolia Line	Garfield to Egan	215	250	CI	1977	55	2032	73,730	21	3,897	-
1688	Petrolia Line	Egan to Kerby	200	250	CI	1977	55	2032	68,590	21	3,625	-
1689	Petrolia Line	Kerby to Eureka	93	250	CI	1977	55	2032	31,890	21	1,686	-
1690	Petrolia Line	Eureka to Center	291	250	CI	1977	55	2032	99,800	21	5,275	-
1691	Petrolia Line	Center to Tank	303	250	CI	1977	55	2014	103,920	3	repl within 10 years	103,920
1692	Petrolia Line	Tank to Barrett's	492	200	CI	1977	55	2032	151,860	21	8,026	-
1693	Petrolia Line	Barrett's to England	116	200	CI	1977	55	2032	35,810	21	1,893	-
1694	Petrolia Line	England to First	128	200	CI	1977	55	2032	39,510	21	2,088	-

**Table A-5
Town of Petrolia
Watermains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1695	Petrolia Line	First to Fourth	236	200	CI	1977	55	2032	72,840	21	3,850	-
1696	Petrolia Line	Fourth to Kentail	131	200	CI	1977	55	2032	40,440	21	2,137	-
1697	Petrolia Line	Kentail to Mutual	141	200	CI	1977	55	2032	43,520	21	2,300	-
1698	Petrolia Line	Mutual to Holland	80	200	CI	1977	55	2032	24,690	21	1,305	-
1699	Petrolia Line	Holland to Oil Heritage	307	200	CI	1977	55	2032	94,760	21	5,008	-
1700	Pettibone St	Pettibone St	128	50	PVC	1965	55	2020	28,280	9	repl within 10 years	28,280
1701	Pine Cr	Catherine to west corner	91	200	PVC	1989	55	2044	25,580	33	893	-
1702	Pine Cr	Catherine to west corner	16	150	PVC	1989	55	2044	4,000	33	140	-
1703	Pine Cr	West corner to east corner	113	200	PVC	1989	55	2044	31,760	33	1,108	-
1704	Pine Cr	East corner to Catherine	93	200	PVC	1989	55	2044	26,140	33	912	-
1705	Portland Ave	Portland Ave	118	150	CI	1965	55	2020	34,760	9	repl within 10 years	34,760
1706	Princess St	Petrolia to Lorne	223	150	CI	1979	55	2034	61,160	23	2,972	-
1707	Princess St	Lorne to Dufferin	122	150	CI	1979	55	2015	33,460	4	repl within 10 years	33,460
1708	Princess St	Dufferin to Nelson	312	150	CI	1979	55	2015	85,570	4	repl within 10 years	85,570
1709	Princess St	Nelson to Wellington	168	150	PVC	1979	55	2034	-	23	-	-
1710	Princess St	Wellington to Grove	126	150	PVC	1994	55	2049	34,940	38	1,072	-
1711	Princess St	Grove to Kerr	112	150	PVC	1994	55	2049	31,060	38	953	-
1712	Princess St	Btw Princess and Maude	116	150	CI	1979	55	2034	31,810	23	1,546	-
1713	Progress Dr	Oil Heritage to north end	530	250	PVC	1989	55	2044	165,520	33	5,777	-
1714	Progress Dr	North end to Discovery	476	250	PVC	1989	55	2044	148,650	33	5,188	-
1715	Queen St	Petrolia to Lorne	223	200	PVC	2002	55	2057	64,360	46	1,658	-
1716	Queen St	Lorne to Dufferin	122	200	PVC	2002	55	2057	35,210	46	907	-
1717	Queen St	Dufferin to Nelson	168	150	CI	1979	55	2034	-	23	-	-
1718	Railroad St	Btw Fletcher and Station	30	150	CI	1979	55	2012	8,230	1	repl within 10 years	8,230
1719	Railroad St	Station to Tank	131	150	CI	1979	55	2012	35,930	1	repl within 10 years	35,930
1720	Redwood Ct	Redwood Ct	50	200	PVC	2008	55	2063	11,380	52	262	-
1721	Robert St	Eureka to Center	277	150	CI	1979	55	2034	75,970	23	3,691	-
1722	Robert St	Center to Fletcher	130	150	CI	1979	55	2034	35,650	23	1,732	-
1723	Rosemount Dr	Parkside to Redwood	92	200	PVC	2008	55	2063	20,940	52	482	-
1724	Rosemount Dr	Redwood to Evergreen	89	200	PVC	2008	55	2063	20,260	52	466	-
1725	Sanway Ct	Sanway Ct	122	150	PVC	1991	55	2046	34,040	35	1,126	-
1726	School St	Greenfield to Hickory	62	150	Plastic	1985	55	2040	17,150	29	674	-
1727	School St	Hickory to Chestnut	52	150	Plastic	1985	55	2040	14,380	29	565	-
1728	Short St	Short St	107	150	CI	1975	55	2030	24,580	19	1,426	-
1729	Sixth St	Sixth St	262	150	PVC	2005	55	2060	61,440	49	1,494	-
1730	Stanley Ave	Stanley Ave	76	50	PVC	1965	55	2020	16,800	9	repl within 10 years	16,800
1731	Sycamore Dr	Sycamore Dr	134	150	CI	1976	55	2031	33,950	20	1,877	-
1732	Tank St	Petrolia to Railroad	88	150	CI	2004	55	2059	21,320	48	528	-
1733	Tank St	Railroad to Discovery	1,267	200	CI	2004	55	2059	345,320	48	8,556	-
1734	Tank St	Discovery to north town limit	674	150	PVC	2004	55	2059	163,290	48	4,046	-
1735	Third St	First to Fourth	236	200	CI	1978	55	2033	74,680	22	3,781	-
1736	Third St	Fourth to Kentail	131	200	CI	1978	55	2033	41,450	22	2,098	-

**Table A-5
Town of Petrolia
Watermains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1737	Third St	Kentail to Mutual	141	200	CI	1978	55	2033	44,620	22	2,259	-
1738	Tom St	Tom St	99	150	CI	1975	55	2030	22,740	19	1,319	-
1739	Valentina St N	Valentina St N	223	150	PVC	1979	55	2034	61,160	23	2,972	-
1740	Valentina St S	Edward to Joe	36	150	PVC	1979	55	2034	9,870	23	480	-
1741	Valentina St S	Charlie to Henderson	103	150	PVC	1993	55	2048	29,320	37	922	-
1742	Valentina St S	Henderson to Hunter	82	150	PVC	2005	55	2060	19,230	49	468	-
1743	Valentina St S	Hunter to Country View	128	150	PVC	2005	55	2060	30,020	49	730	-
1744	Victoria Ave	Princess to Queen	88	150	CI	2002	55	2057	22,580	46	582	-
1745	Victoria Ave	Queen to King	52	150	CI	2002	55	2057	13,340	46	344	-
1746	Walnut St W	Walnut St W	76	100	CI	1979	55	2034	18,240	23	886	-
1747	Walnut St E	Walnut St E	170	150	PVC	2001	55	2056	43,500	45	1,144	-
1748	Warren Ave	Henry to Lancey	123	150	PVC	2001	55	2056	31,470	45	827	-
1749	Warren Ave	Lancey to Emma	131	150	PVC	2001	55	2056	33,520	45	881	-
1750	Wellington St	Princess to Queen	366	150	PVC	1994	55	2049	101,500	38	3,115	-
1751	Wellington St	Queen to Glenview	52	50	COPP	1994	55	2049	10,820	38	332	-
1752	West St	Petrolia to Annie	112	100	CI	1979	55	2034	26,880	23	1,306	-
1753	West St	Annie to Jennie	111	100	CI	1979	55	2034	26,640	23	1,294	-
1754	Wingfield St	Petrolia to Walnut	137	100	CI	1979	55	2013	32,870	2	repl within 10 years	32,870
1755	Wingfield St	Walnut to Dufferin	208	100	CI	1979	55	2013	49,910	2	repl within 10 years	49,910
1756	Woods St	Petrolia to North	12	150	PVC	1982	55	2037	3,220	26	140	-
3581	Main Line	Main Line				2001	55	2056	3,525,220	45	92,688	-
3591	Oozloffsky St N	Oozloffsky St N				2010	55	2065	70,460	54	1,565	-
3602	Oozloffsky St Extension	Oozloffsky St Extension				2010	60	2070	76,260	59	1,559	-
Total			40,712						15,095,830		555,178	595,110

APPENDIX B

WASTEWATER SYSTEM INVENTORY DATA

Table B-1
Town of Petrolia
Summary of Wastewater Infrastructure

Area	Total Replacement Value	Amount to be funded in 10 year forecast	Net Replacement for Future Lifecycle	Annual Lifecycle Replacement
Wastewater				
Wastewater Facilities	\$14,173,780	\$2,090,840	\$12,082,940	\$735,153
Sewer Laterals	\$9,651,550	\$581,420	\$9,070,130	\$328,493
Manholes	\$2,480,950	\$173,530	\$2,307,420	\$88,744
Sewer Mains	\$21,141,990	\$1,309,100	\$19,832,890	\$776,110
Total Wastewater	\$47,448,270	\$4,154,890	\$43,293,380	\$1,928,500

**Table B-3
Town of Petrolia
Sewer Laterals**

Asset ID	Asset Description	Location	Length (m)	Year Installed	Estimated Life	Replacement Year	Total Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
952	Albany St	Albany St	231	1978	60	2038	104,150	27	4,367	-
953	Andrew St	Andrew St	130	1978	60	2038	58,610	27	2,457	-
954	Annie St	Huggard to Maude	10	1978	60	2038	4,510	27	189	-
955	Applewood Dr	Parkside to Garfield	80	2002	60	2062	31,940	51	748	-
956	Applewood Dr	Garfield to Ernest	50	2008	60	2068	15,170	57	320	-
957	Applewood Dr	Ernest to Catherine	171	2008	60	2068	51,890	57	1,096	-
958	Barrett's Lane	Barrett's Lane	9	1978	60	2038	4,060	27	170	-
959	Blanche St	Dufferin to Pumping Stn	20	1989	60	2049	6,480	38	199	-
960	Blanche St	Pumping Stn to Dufferin	20	1989	60	2049	6,480	38	199	-
961	Cardinal Cr	Joe to corner	171	1973	60	2033	69,590	22	3,523	-
962	Cardinal Cr	Ozloffsky to corner	241	1973	60	2033	98,080	22	4,965	-
963	Catherine St	Garfield to Pine	80	1999	60	2059	30,160	48	747	-
964	Catherine St	Pine to Pine	60	1989	60	2049	19,430	38	596	-
965	Catherine St	Pine to Juniper	70	1989	60	2049	22,670	38	696	-
966	Catherine St	Juniper to Eureka	100	1989	60	2049	32,390	38	994	-
967	Catherine St	Juniper to Eureka	101	1996	60	2056	37,620	45	989	-
968	Centre St	Andrew to James	14	1979	60	2039	6,260	28	254	-
969	Centre St	James to Portland	27	1979	60	2039	12,080	28	490	-
970	Centre St	Portland to Discovery	370	1979	60	2039	165,510	28	6,712	-
971	Charlie St	Tom to Short	91	1975	60	2035	33,920	24	1,585	-
972	Charlie St	Short to Valentina	80	1975	60	2035	29,820	24	1,393	-
973	Chestnut St	Walnut to School	43	1979	60	2039	19,230	28	780	-
974	Chestnut St	School to south end	37	1979	60	2039	16,550	28	671	-
975	Country View Dr W.	East end to Bluebird	81	1993	60	2053	299,750	42	8,395	-
976	Country View Dr W.	Bluebird to Country View	81	1993	60	2053	299,750	42	8,395	-
977	Country View Dr W.	Country View to Henderson	60	1993	60	2053	223,420	42	6,257	-
978	Country View Dr W.	Henderson to Valentina	191	2002	60	2062	678,720	51	15,902	-
979	Derby St	Mutual to Holland	38	1978	60	2038	17,130	27	718	-
980	Derby St	Holland to Oil Heritage	42	1978	60	2038	18,930	27	794	-
981	Derby St	Holland to Oil Heritage	42	1989	60	2049	13,600	38	417	-
982	Dufferin Ave	Huggard to Maude	51	1989	60	2049	16,520	38	507	-
983	Dufferin Ave	Maude to Princess	80	1989	60	2049	25,910	38	795	-
984	Dufferin Ave	Princess to Queen	101	1989	60	2049	32,710	38	1,004	-
985	Dufferin Ave	Queen to Glenview	40	1989	60	2049	12,950	38	397	-
986	Dufferin Ave	Glenview to Blanche	70	1989	60	2049	22,670	38	696	-

**Table B-3
Town of Petrolia
Sewer Laterals**

Asset ID	Asset Description	Location	Length (m)	Year Installed	Estimated Life	Replacement Year	Total Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
987	Dufferin Ave	Blanche to Greenfield	40	1989	60	2049	12,950	38	397	-
988	Edward St	Valentina to Ignatiefna	30	1978	60	2018	13,530	7	repl within 10 years	13,530
989	Egan Ave	Petrolia to Florence	50	1979	60	2012	22,370	1	repl within 10 years	22,370
990	Egan Ave	Florence to Sanway	59	1979	60	2039	26,390	28	1,070	-
991	Ella St	Ella St	30	1979	60	2039	13,420	28	544	-
992	Emma St	Ella to Emmeline	12	1979	60	2039	5,370	28	218	-
993	Emma St	Emmeline to east end	43	1979	60	2039	19,230	28	780	-
994	Emmeline St	Emmeline St	24	1979	60	2039	10,730	28	435	-
995	England Ave	Petrolia to Pearl	24	1978	60	2038	10,820	27	454	-
996	England Ave	Pearl to south end	37	1978	60	2038	16,680	27	699	-
997	Ernest St	Eureka to Kells	30	1970	60	2030	11,370	19	659	-
998	Ernest St	Kells to west end	30	1970	60	2030	11,370	19	659	-
999	Eureka St	Petrolia to Maple	267	1979	60	2039	119,430	28	4,843	-
1000	Eureka St	Maple to Catherine	198	1979	60	2039	88,570	28	3,592	-
1001	Eureka St	Catherine to Ernest	114	1979	60	2039	50,990	28	2,068	-
1002	Eureka St	Ernest to Discovery	358	1979	60	2039	160,140	28	6,494	-
1003	Evergreen Tr	Applewood to Rosemount	80	2008	60	2068	24,280	57	513	-
1004	Evergreen Tr	Rosemount to north end	80	2008	60	2068	24,280	57	513	-
1005	Fifth Ave	Fifth Ave	152	1978	60	2038	68,530	27	2,873	-
1006	First Ave	Petrolia to Third	34	1978	60	2038	15,330	27	643	-
1007	First Ave	Third to Fifth	62	1978	60	2038	27,950	27	1,172	-
1008	First Ave	Fifth to Sixth	62	1978	60	2038	27,950	27	1,172	-
1009	First Ave	Sixth to Garden	103	1978	60	2038	46,440	27	1,947	-
1010	First Ave	Sixth to Garden	103	1988	60	2048	34,800	37	1,094	-
1011	First Ave	Garden to Garden	1,688	2003	60	2063	592,190	52	13,627	-
1012	Fletcher St	Fletcher St	10	1979	60	2039	4,470	28	181	-
1013	Florence Ave	Garfield to Egan	92	1979	60	2012	41,150	1	repl within 10 years	41,150
1014	Florence Ave	Egan to Kerby	137	1964	60	2012	50,110	1	repl within 10 years	50,110
1015	Fourth St	Petrolia to Third	22	1978	60	2038	9,920	27	416	-
1016	Fourth St	Third to Fifth	67	1978	60	2038	30,210	27	1,267	-
1017	Fourth St	Fifth to Sixth	37	1978	60	2038	16,680	27	699	-
1018	Gables Ave	Eureka to Jacs	8	2000	60	2060	2,870	49	70	-
1019	Gables Ave	Jacs to east end	83	2000	60	2060	29,830	49	725	-
1020	Garden Cr	First to Heritage Heights	463	1988	60	2048	156,430	37	4,919	-
1021	Garden Cr	Heritage Heights to First	171	2003	60	2063	59,990	52	1,380	-

**Table B-3
Town of Petrolia
Sewer Laterals**

Asset ID	Asset Description	Location	Length (m)	Year Installed	Estimated Life	Replacement Year	Total Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1022	Garfield Ave	Petrolia to Florence	55	1968	60	2028	20,120	17	1,295	-
1023	Garfield Ave	Petrolia to Florence	55	1979	60	2039	24,600	28	998	-
1024	Garfield Ave	Florence to Maple	207	1968	60	2028	75,730	17	4,873	-
1025	Garfield Ave	Maple to Mulberry	61	1976	60	2036	25,390	25	1,143	-
1026	Garfield Ave	Mulberry to Parkside	98	1999	60	2059	36,950	48	916	-
1027	Garfield Ave	Parkside to Golden Gate	85	1999	60	2059	32,040	48	794	-
1028	Garfield Ave	Golden Gate to Applewood	110	2006	60	2066	37,320	55	815	-
1029	Gem Ave	Gem Ave	293	1978	60	2038	132,100	27	5,539	-
1030	Glenview Rd	Dufferin to Wellington	101	1979	60	2039	45,180	28	1,832	-
1031	Glenview Rd	Wellington to Kerr	50	1979	60	2039	22,370	28	907	-
1032	Glenview Rd	Kerr to Tile Yard	70	1992	60	2052	15,120	41	433	-
1033	Golden Gate Cl	Golden Gate Cl	131	2004	60	2064	45,830	53	1,036	-
1034	Greenfield St	Petrolia to Walnut W	10	1979	60	2039	4,470	28	181	-
1035	Greenfield St	Walnut W to Dufferin	191	1979	60	2039	85,440	28	3,465	-
1036	Greenfield St	Dufferin to south end	30	1979	60	2039	13,420	28	544	-
1037	Grove St	Grove St	80	1978	60	2038	36,070	27	1,512	-
1038	Hawthorne Pl	Hawthorne Pl	101	1976	60	2036	42,040	25	1,892	-
1039	Henderson Dr	Henderson Dr	151	1993	60	2053	56,230	42	1,575	-
1040	Henry Ave	Henry Ave	12	1979	60	2039	5,370	28	218	-
1041	Huggard St	Petrolia to Annie	81	1978	60	2038	36,520	27	1,531	-
1042	Huggard St	Annie to Jennie/Lorne	181	1978	60	2038	81,600	27	3,421	-
1043	Huggard St	Jennie/Lorne to Dufferin	50	1978	60	2038	22,540	27	945	-
1044	Hunter Ct	Hunter Ct	50	2006	60	2066	16,960	55	370	-
1045	Ignatiefna St	Ignatiefna St	292	1978	60	2038	131,650	27	5,520	-
1046	Jacs Ct	Jacs Ct	61	2000	60	2060	21,920	49	533	-
1047	James St	James St	262	1979	60	2039	117,200	28	4,753	-
1048	Joe St	Maude to Tom	71	1973	60	2033	28,900	22	1,463	-
1049	Joe St	Tom to Valentina	131	1973	60	2033	53,310	22	2,699	-
1050	Joe St	Valentina to Bluebird	80	1973	60	2033	32,560	22	1,648	-
1051	Joe St	Bluebird to west end	70	1973	60	2033	28,490	22	1,442	-
1052	Juniper Cr	Catherine to Juniper South	221	1989	60	2049	71,570	38	2,196	-
1053	Juniper Cr	Juniper North to Sycamore	70	1976	60	2036	29,140	25	1,311	-
1054	Juniper Cr	Juniper North to Sycamore	71	1989	60	2049	22,990	38	705	-
1055	Kells St	Kells St	171	1970	60	2030	64,800	19	3,758	-
1056	Kerby St	Petrolia to Florence	99	1979	60	2039	44,290	28	1,796	-

**Table B-3
Town of Petrolia
Sewer Laterals**

Asset ID	Asset Description	Location	Length (m)	Year Installed	Estimated Life	Replacement Year	Total Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1057	Kerby St	Florence to north end	69	1979	60	2039	30,870	28	1,252	-
1058	Kerr St	Kerr St	53	1965	60	2025	19,220	14	1,484	-
1059	Kerr St	Kerr St	54	1978	60	2038	24,350	27	1,021	-
1060	Kerr St	Kerr St	54	1979	60	2039	24,150	28	979	-
1061	King St	King St	221	1979	60	2039	98,860	28	4,009	-
1062	Lancey St	Emmeline to east end	61	1979	60	2039	27,290	28	1,107	-
1063	Lorne Ave	Maude to Princess	60	1979	60	2039	26,840	28	1,088	-
1064	Lorne Ave	Princess to Queen	80	1979	60	2039	35,790	28	1,451	-
1065	Maple St	Garfield to Sycamore	221	1976	60	2036	91,990	25	4,139	-
1066	Maple St	Sycamore to Eureka	61	1976	60	2036	25,390	25	1,143	-
1067	Maude St	Petrolia to Annie	64	1979	60	2039	28,630	28	1,161	-
1068	Maude St	Annie to Jennie/Lorne	117	1979	60	2039	52,340	28	2,123	-
1069	Maude St	Jennie/Lorne to Dufferin	85	1979	60	2039	38,020	28	1,542	-
1070	Maude St	Dufferin to Joe	272	1967	60	2027	97,550	16	6,644	-
1071	Maude St	Dufferin to Joe	272	1978	60	2038	122,630	27	5,142	-
1072	Maude St	Joe to south end (extension)	107	1978	60	2038	48,240	27	2,023	-
1073	Mulberry Pl	Mulberry Pl	161	1976	60	2036	67,020	25	3,016	-
1074	Nelson St	Nelson St	145	1979	60	2039	-	28	-	-
1075	North St	Kentail to Wood	130	1978	60	2038	58,610	27	2,457	-
1076	North St	Wood to Oil Heritage	84	1978	60	2038	37,870	27	1,588	-
1077	North St	Wood to Oil Heritage	84	1981	60	2041	34,460	30	1,312	-
1078	Northridge Pl	Northridge Pl	61	1993	60	2053	22,710	42	636	-
1079	Oil St	Oil St	23	1979	60	2039	10,290	28	417	-
1080	Oozloffsky St N.	Oozloffsky St N.	131	1979	60	2039	-	28	-	-
1081	Oozloffsky St S.	Oozloffsky St S.	191	1973	60	2033	77,730	22	3,935	-
1082	Oriole Pk	Oriole Pk	151	1973	60	2033	61,450	22	3,111	-
1083	Parkside Ct	Parkside Ct	91	2005	60	2065	31,650	54	703	-
1084	Parkside Dr	North-South portion	262	2002	60	2062	93,100	51	2,181	-
1085	Parkside Dr	East-West portion	181	2001	60	2061	63,500	50	1,515	-
1086	Parkside Pl	Parkside Pl	80	2001	60	2061	28,070	50	670	-
1087	Pearl St	Pearl St	32	1978	60	2038	14,430	27	605	-
1088	Petrolia Line	West town limit to Gem	50	1978	60	2038	22,540	27	945	-
1089	Petrolia Line	Gem to Garfield	121	1978	60	2038	54,550	27	2,287	-
1090	Petrolia Line	Garfield to Egan	171	1978	60	2038	77,090	27	3,232	-
1091	Petrolia Line	Egan to Kerby	161	1978	60	2038	72,590	27	3,044	-

**Table B-3
Town of Petrolia
Sewer Laterals**

Asset ID	Asset Description	Location	Length (m)	Year Installed	Estimated Life	Replacement Year	Total Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1092	Petrolia Line	Kerby to Eureka	50	1978	60	2038	22,540	27	945	-
1093	Petrolia Line	Eureka to Center	181	1978	60	2038	81,600	27	3,421	-
1094	Petrolia Line	Center to Tank	443	1978	60	2014	199,720	3	repl within 10 years	199,720
1095	Petrolia Line	Tank to Barrett's	80	1978	60	2038	36,070	27	1,512	-
1096	Petrolia Line	Barrett's to England	101	1978	60	2038	45,540	27	1,909	-
1097	Petrolia Line	England to First	70	1978	60	2038	31,560	27	1,323	-
1098	Petrolia Line	First to Fourth	161	1978	60	2038	72,590	27	3,044	-
1099	Petrolia Line	Fourth to Kentail	70	1978	60	2038	31,560	27	1,323	-
1100	Petrolia Line	Kentail to Mutual	151	1978	60	2038	68,080	27	2,854	-
1101	Petrolia Line	Mutual to Holland	70	1978	60	2038	31,560	27	1,323	-
1102	Petrolia Line	Holland to Oil Heritage	81	1978	60	2038	36,520	27	1,531	-
1103	Pine Cr	Catherine to west corner	50	1989	60	2049	16,190	38	497	-
1104	Pine Cr	West corner to east corner	141	1989	60	2049	45,670	38	1,401	-
1105	Pine Cr	East corner to Catherine	60	1989	60	2049	19,430	38	596	-
1106	Portland Ave	Portland Ave	70	1965	60	2020	25,390	9	repl within 10 years	25,390
1107	Princess St	Petrolia to Lorne	151	1978	60	2038	68,080	27	2,854	-
1108	Princess St	Lorne to Dufferin	91	1978	60	2015	41,030	4	repl within 10 years	41,030
1109	Princess St	Dufferin to Nelson	262	1978	60	2015	118,120	4	repl within 10 years	118,120
1110	Princess St	Nelson to Wellington	131	1978	60	2038	-	27	-	-
1111	Princess St	Wellington to Grove	101	1978	60	2038	45,540	27	1,909	-
1112	Princess St	Grove to Kerr	91	1978	60	2038	41,030	27	1,720	-
1113	Progress Dr	Progress Dr	91	1988	60	2048	30,750	37	967	-
1114	Queen St	Petrolia to Lorne	70	1979	60	2039	12,220	28	496	-
1115	Queen St	Petrolia to Lorne	71	2002	60	2062	4,460	51	104	-
1116	Queen St	Lorne to Dufferin	80	1979	60	2039	13,750	28	558	-
1117	Queen St	Dufferin to Nelson	101	1979	60	2039	-	28	-	-
1118	Railroad St	Railroad St	37	1979	60	2012	16,550	1	repl within 10 years	16,550
1119	Redwood Ct	Redwood Ct	91	2008	60	2068	27,610	57	583	-
1120	Robert St	Eureka to Center	206	1979	60	2039	92,150	28	3,737	-
1121	Robert St	Center to Fletcher	61	1979	60	2039	27,290	28	1,107	-
1122	Rosemount Dr	Parkside to Redwood	30	2008	60	2068	9,100	57	192	-
1123	Rosemount Dr	Redwood to Evergreen	30	2008	60	2068	9,100	57	192	-
1124	Sanway Ct	Sanway Ct	141	1991	60	2051	48,790	40	1,429	-
1125	Short St	Short St	181	1975	60	2035	67,460	24	3,152	-
1126	Sixth St	Sixth St	137	2005	60	2065	9,470	54	210	-

**Table B-3
Town of Petrolia
Sewer Laterals**

Asset ID	Asset Description	Location	Length (m)	Year Installed	Estimated Life	Replacement Year	Total Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1127	Station St	Station St	6	1972	60	2012	2,460	1	repl within 10 years	2,460
1128	Tank St	Petrolia to Railroad	15	1979	60	2039	6,710	28	272	-
1129	Tank St	Railroad to Discovery	61	1979	60	2039	42,830	28	1,737	-
1130	Tank St	Railroad to Discovery	61	2006	60	2066	12,580	55	275	-
1131	Third St	First to Fourth	121	1978	60	2038	54,550	27	2,287	-
1132	Third St	Fourth to Kentail	46	1978	60	2038	20,740	27	870	-
1133	Third St	Kentail to Mutual	46	1978	60	2038	20,740	27	870	-
1134	Tom St	Joe to Charlie	30	1975	60	2035	11,180	24	522	-
1135	Valentina St N	Valentina St N	161	1979	60	2039	72,020	28	2,921	-
1136	Valentina St S	Joe to Charlie	30	1993	60	2053	11,170	42	313	-
1137	Valentina St S	Charlie to Henderson	80	1993	60	2053	29,790	42	834	-
1138	Valentina St S	Henderson to Hunter	130	2005	60	2065	45,210	54	1,004	-
1139	Valentina St S	Hunter to Country View	171	2005	60	2065	59,470	54	1,321	-
1140	Vanderwal Dr	Vanderwal Dr		2008	60	2068	-	57	-	-
1141	Victoria Ave	Princess to Queen	40	1979	60	2039	17,890	28	726	-
1142	Walnut St E	Walnut St E	69	1979	60	2039	30,870	28	1,252	-
1143	Warren Ave	Warren Ave	91	1979	60	2039	40,710	28	1,651	-
1144	Wellington St	Wellington St	221	1978	60	2038	99,640	27	4,178	-
1145	West St	Petrolia to Annie	40	1979	60	2039	-	28	-	-
1146	West St	Annie to Jennie	141	1979	60	2039	-	28	-	-
1147	Wingfield St	Petrolia to Walnut	18	1979	60	2013	8,050	2	repl within 10 years	8,050
1148	Wingfield St	Walnut to Dufferin	98	1979	60	2013	42,940	2	repl within 10 years	42,940
Total			21,504				9,651,550		328,493	581,420

**Table B-4
Town of Petrolia
Manholes**

Asset ID	Asset Description	Location	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2702	Albany St	Albany St	1978	60	2038	14,520	27	609	-
2703	Andrew St	Pettibone to Centre	1978	60	2038	7,260	27	304	-
2704	Annie St	Huggard to Maude	1978	60	2038	7,260	27	304	-
2705	Applewood Dr	Parkside to Garfield	2002	60	2062	5,990	51	140	-
2706	Applewood Dr	Parkside to Garfield	2006	60	2066	5,720	55	125	-
2707	Applewood Dr	Garfield to Ernest	2008	60	2068	4,890	57	103	-
2708	Applewood Dr	Ernest to Catherine	2008	60	2068	5,120	57	108	-
2709	Barrett's Lane	Barrett's Lane	1978	60	2038	9,680	27	406	-
2710	Blanche St	Dufferin to Pumping Stn	1989	60	2049	5,460	38	168	-
2711	Blanche St	Dufferin to Pumping Stn	1989	60	2049	5,210	38	160	-
2712	Cardinal Cr	Joe to corner	1973	60	2033	6,550	22	332	-
2713	Cardinal Cr	Oozloffsky to corner	1973	60	2033	19,660	22	995	-
2714	Catherine St	Garfield to Pine	1999	60	2059	12,430	48	308	-
2715	Catherine St	Pine to Pine	1989	60	2049	5,460	38	168	-
2716	Catherine St	Pine to Juniper	1989	60	2049	5,460	38	168	-
2717	Catherine St	Juniper to Eureka	1989	60	2049	10,930	38	335	-
2718	Catherine St	Juniper to Eureka	1996	60	2056	12,560	45	330	-
2719	Centre St	Petrolia to Robert	1979	60	2039	7,550	28	306	-
2720	Centre St	Robert to Andrew	1979	60	2039	7,550	28	306	-
2721	Centre St	Andrew to James	1979	60	2039	7,550	28	306	-
2722	Centre St	James to Portland	1979	60	2039	15,090	28	612	-
2723	Centre St	Portland to Discovery	1979	60	2039	98,080	28	3,978	-
2724	Charlie St	Tom to Short	1975	60	2035	6,000	24	280	-
2725	Charlie St	Short to Valentina	1975	60	2035	6,000	24	280	-
2726	Chestnut St	Walnut to School	1979	60	2039	7,550	28	306	-
2727	Chestnut St	School to south end	1979	60	2039	7,550	28	306	-
2728	Country View Dr W.	East end to Bluebird	1993	60	2053	7,990	42	224	-
2729	Country View Dr W.	Bluebird to Country View	1993	60	2053	6,280	42	176	-
2730	Country View Dr W.	Country View to Henderson	1993	60	2053	11,990	42	336	-
2731	Country View Dr W.	Henderson to Valentina	2002	60	2062	22,880	51	536	-
2732	Derby St	Mutual to Holland	1978	60	2038	7,260	27	304	-
2733	Derby St	Holland to Oil Heritage	1989	60	2049	5,210	38	160	-
2734	Derby St	Holland to Oil Heritage	1978	60	2038	7,260	27	304	-
2735	Dufferin Ave	Huggard to Maude	1989	60	2049	5,460	38	168	-

**Table B-4
Town of Petrolia
Manholes**

Asset ID	Asset Description	Location	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2736	Dufferin Ave	Maude to Princess	1989	60	2049	6,950	38	213	-
2737	Dufferin Ave	Princess to Queen	1989	60	2049	13,900	38	427	-
2738	Dufferin Ave	Queen to Glenview	1989	60	2049	6,950	38	213	-
2739	Dufferin Ave	Queen to Glenview	1989	60	2049	5,460	38	168	-
2740	Dufferin Ave	Glenview to Blanche	1989	60	2049	10,930	38	335	-
2741	Dufferin Ave	Blanche to Greenfield	1989	60	2049	10,930	38	335	-
2742	Edward St	Valentina to Ignatiefna	1978	60	2018	7,600	7	repl within 10 years	7,600
2743	Egan Ave	Petrolia to Florence	1979	60	2012	7,200	1	repl within 10 years	7,200
2744	Egan Ave	Florence to Sanway	1979	60	2039	7,200	28	292	-
2745	Emma St	Ella to Emmeline	1979	60	2039	14,400	28	584	-
2746	Emma St	Emmeline to east end	1979	60	2039	7,200	28	292	-
2747	England Ave	Petrolia to Pearl	1978	60	2038	7,260	27	304	-
2748	England Ave	Pearl to south end	1978	60	2038	7,260	27	304	-
2749	Ernest St	Eureka to Kells	1970	60	2030	6,100	19	354	-
2750	Ernest St	Kells to west end	1970	60	2030	6,100	19	354	-
2751	Eureka St	Petrolia to Maple	1979	60	2039	9,600	28	389	-
2752	Eureka St	Maple to Catherine	1979	60	2039	19,210	28	779	-
2753	Eureka St	Catherine to Ernest	1979	60	2039	15,090	28	612	-
2754	Eureka St	Ernest to Discovery	1979	60	2039	36,010	28	1,460	-
2755	Evergreen Tr	Applewood to Rosemount	2008	60	2068	4,890	57	103	-
2756	Fifth Ave	Fifth Ave	1978	60	2038	7,260	27	304	-
2757	First Ave	Petrolia to Third	1978	60	2038	19,350	27	811	-
2758	First Ave	Third to Fifth	1978	60	2038	9,680	27	406	-
2759	First Ave	Fifth to Sixth	1978	60	2038	9,680	27	406	-
2760	First Ave	Sixth to Garden	1988	60	2048	5,700	37	179	-
2761	First Ave	Sixth to Garden	1988	60	2048	7,250	37	228	-
2762	First Ave	Garden to Garden	2003	60	2063	52,720	52	1,213	-
2763	First Ave	Garden to Tile Yard	2003	60	2063	22,590	52	520	-
2764	Fletcher St	Fletcher St	1979	60	2039	14,400	28	584	-
2765	Florence Ave	Garfield to Egan	1979	60	2012	14,400	1	repl within 10 years	14,400
2766	Florence Ave	Egan to Kerby	1964	60	2012	5,890	1	repl within 10 years	5,890
2767	Fourth St	Petrolia to Third	1978	60	2038	36,290	27	1,522	-
2768	Fourth St	Fifth to Sixth	1978	60	2038	21,770	27	913	-
2769	Gables Ave	Eureka to Jacs	2000	60	2060	11,570	49	281	-

**Table B-4
Town of Petrolia
Manholes**

Asset ID	Asset Description	Location	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2770	Gables Ave	Jacs to east end	2000	60	2060	5,780	49	141	-
2771	Garden Cr	First to Heritage Heights	1988	60	2048	10,880	37	342	-
2772	Garden Cr	First to Heritage Heights	1988	60	2048	5,700	37	179	-
2773	Garden Cr	First to Heritage Heights	1988	60	2048	10,880	37	342	-
2774	Garden Cr	First to Heritage Heights	1988	60	2048	5,440	37	171	-
2775	*Heritage Heights to First	Heritage Heights to First	2003	60	2063	5,650	52	130	-
2776	Garfield Ave	Petrolia to Florence	1968	60	2028	5,890	17	379	-
2777	Garfield Ave	Florence to Maple	1968	60	2028	11,780	17	758	-
2778	Garfield Ave	Maple to Mulberry	1976	60	2036	7,020	25	316	-
2779	Garfield Ave	Maple to Mulberry	1976	60	2036	6,700	25	301	-
2780	Garfield Ave	Mulberry to Parkside	1999	60	2059	6,070	48	150	-
2781	Garfield Ave	Mulberry to Parkside	1999	60	2059	6,070	48	150	-
2782	Garfield Ave	Mulberry to Parkside	1999	60	2059	6,360	48	158	-
2783	Garfield Ave	Parkside to Golden Gate	1999	60	2059	6,360	48	158	-
2784	Garfield Ave	Parkside to Golden Gate	1999	60	2059	6,070	48	150	-
2785	Garfield Ave	Golden Gate to Applewood	2006	60	2066	5,720	55	125	-
2786	Gem Ave	Gem Ave	1978	60	2038	30,420	27	1,275	-
2787	*Dufferin to Wellington	Dufferin to Wellington	1979	60	2039	14,400	28	584	-
2788	*Wellington to Kerr	Wellington to Kerr	1979	60	2039	14,400	28	584	-
2789	*Kerr to Tile Yard	Kerr to Tile Yard	1992	60	2052	17,320	41	496	-
2790	Golden Gate Ct	Golden Gate Ct	2004	60	2064	11,270	53	255	-
2791	Greenfield St	Petrolia to Walnut W	1979	60	2039	15,090	28	612	-
2792	Greenfield St	Walnut W to Dufferin	1979	60	2039	15,090	28	612	-
2793	Grove St	Grove St	1978	60	2038	7,260	27	304	-
2794	Hawthorne Pl	Hawthorne Pl	1976	60	2036	7,020	25	316	-
2795	Henderson Dr	Henderson Dr	1993	60	2053	5,990	42	168	-
2796	Henry Ave	Henry Ave	1979	60	2039	7,200	28	292	-
2797	Huggard St	Petrolia to Annie	1978	60	2038	15,210	27	638	-
2798	Huggard St	Annie to Jennie/Lorne	1978	60	2038	15,210	27	638	-
2799	Huggard St	Jennie/Lorne to Dufferin	1978	60	2038	22,810	27	956	-
2800	Hunter Ct	Hunter Ct	2006	60	2066	5,460	55	119	-
2801	Ignatiefna St	Ignatiefna St	1978	60	2038	22,810	27	956	-
2802	Jacs Ct	Jacs Ct	2000	60	2060	5,780	49	141	-
2803	James St	James St	1979	60	2039	21,610	28	876	-

**Table B-4
Town of Petrolia
Manholes**

Asset ID	Asset Description	Location	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2804	Joe St	Maude to Tom	1973	60	2033	6,860	22	347	-
2805	Joe St	Tom to Valentina	1973	60	2033	13,730	22	695	-
2806	Joe St	Valentina to Bluebird	1973	60	2033	19,660	22	995	-
2807	Joe St	Bluebird to west end	1973	60	2033	13,100	22	663	-
2808	Juniper Cr	Catherine to Juniper South	1989	60	2049	20,860	38	640	-
2809	Juniper Cr	Juniper North to Sycamore	1976	60	2036	7,020	25	316	-
2810	Juniper Cr	Juniper North to Sycamore	1989	60	2049	5,210	38	160	-
2811	Kells St	Kells St	1970	60	2030	12,200	19	708	-
2812	Kentail St	Petrolia to Third	1978	60	2038	7,260	27	304	-
2813	Kerby St	Petrolia to Florence	1979	60	2039	14,400	28	584	-
2814	Kerby St	Florence to north end	1979	60	2039	14,400	28	584	-
2815	Kerr St	Kerr St	1978	60	2038	7,260	27	304	-
2816	Kerr St	Kerr St	1979	60	2039	7,200	28	292	-
2817	Kerr St	Kerr St	1965	60	2025	5,830	14	450	-
2818	King St	King St	1979	60	2039	14,400	28	584	-
2819	Lancey St	Ella to Emmeline	1979	60	2039	21,610	28	876	-
2820	Lancey St	Emmeline to east end	1979	60	2039	7,200	28	292	-
2821	Lorne Ave	Maude to Princess	1979	60	2039	7,200	28	292	-
2822	Lorne Ave	Princess to Queen	1979	60	2039	14,400	28	584	-
2823	Maple St	Garfield to Sycamore	1976	60	2036	21,060	25	948	-
2824	Maple St	Sycamore to Eureka	1976	60	2036	7,020	25	316	-
2825	Maude St	Petrolia to Annie	1979	60	2039	7,200	28	292	-
2826	Maude St	Annie to Jennie/Lorne	1979	60	2039	7,200	28	292	-
2827	Maude St	Jennie/Lorne to Dufferin	1979	60	2039	14,400	28	584	-
2828	Maude St	Dufferin to Joe	1967	60	2027	17,320	16	1,180	-
2829	Maude St	Dufferin to Joe	1978	60	2038	29,030	27	1,217	-
2830	Maude St	Dufferin to Joe	1967	60	2027	15,400	16	1,049	-
2831	Mulberry Pl	Mulberry Pl	1976	60	2036	14,040	25	632	-
2832	Mutual St	Derby to Petrolia	1978	60	2038	7,260	27	304	-
2833	Nelson St	Nelson St	1979	60	2039	0	28	-	-
2834	North St	Hartford to Kentail	1978	60	2038	7,260	27	304	-
2835	North St	Kentail to Wood	1978	60	2038	21,770	27	913	-
2836	North St	Wood to Oil Heritage	1978	60	2038	14,520	27	609	-
2837	North St	Wood to Oil Heritage	1981	60	2041	13,210	30	503	-

**Table B-4
Town of Petrolia
Manholes**

Asset ID	Asset Description	Location	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2838	Northridge Pl	Northridge Pl	1993	60	2053	17,980	42	504	-
2839	Oil St	Oil St	1979	60	2039	14,400	28	584	-
2840	Oozloffsky St N.	Oozloffsky St N.	1979	60	2039	0	28	-	-
2841	Oozloffsky St S.	Oozloffsky St S.	1973	60	2033	13,100	22	663	-
2842	Oriole Pk	Oriole Pk	1973	60	2033	6,550	22	332	-
2843	Parkside Ct	Parkside Ct	2005	60	2065	5,600	54	124	-
2844	Parkside Dr	North-South portion	2002	60	2062	11,440	51	268	-
2845	Parkside Dr	East-West portion	2001	60	2061	5,650	50	135	-
2846	Parkside Pl	Parkside Pl	2001	60	2061	5,650	50	135	-
2847	Pearl St	Pearl St	1978	60	2038	7,260	27	304	-
2848	Petrolia Line	West town limit to Gem	1978	60	2038	7,600	27	319	-
2849	Petrolia Line	Gem to Garfield	1978	60	2038	7,600	27	319	-
2850	Petrolia Line	Gem to Garfield	1978	60	2038	7,600	27	319	-
2851	Petrolia Line	Garfield to Egan	1978	60	2038	38,020	27	1,594	-
2852	Petrolia Line	Egan to Kerby	1978	60	2038	30,420	27	1,275	-
2853	Petrolia Line	Kerby to Eureka	1978	60	2038	7,260	27	304	-
2854	Petrolia Line	Kerby to Eureka	1978	60	2038	9,680	27	406	-
2855	Petrolia Line	Eureka to Center	1978	60	2014	19,350	3	repl within 10 years	19,350
2856	Petrolia Line	Center to Tank	1978	60	2014	38,710	3	repl within 10 years	38,710
2857	Petrolia Line	Tank to Barrett's	1978	60	2038	7,600	27	319	-
2858	Petrolia Line	Barrett's to England	1978	60	2038	19,350	27	811	-
2859	Petrolia Line	England to First	1978	60	2038	9,680	27	406	-
2860	Petrolia Line	First to Fourth	1978	60	2038	19,350	27	811	-
2861	Petrolia Line	Fourth to Kentail	1978	60	2038	9,680	27	406	-
2862	Petrolia Line	Kentail to Mutual	1978	60	2038	7,600	27	319	-
2863	Petrolia Line	Mutual to Holland	1978	60	2038	15,210	27	638	-
2864	Petrolia Line	Holland to Oil Heritage	1978	60	2038	7,600	27	319	-
2865	Petrolia Line	Holland to Oil Heritage	1978	60	2038	7,600	27	319	-
2866	Portland Ave	Portland Ave	1965	60	2020	11,680	9	repl within 10 years	11,680
2867	Princess St	Petrolia to Lorne	1978	60	2038	29,030	27	1,217	-
2868	Princess St	Lorne to Dufferin	1978	60	2015	19,350	4	repl within 10 years	19,350
2869	Princess St	Dufferin to Nelson	1978	60	2015	14,520	4	repl within 10 years	14,520
2870	Princess St	Nelson to Wellington	1978	60	2038	0	27	-	-
2871	Princess St	Nelson to Wellington	1978	60	2038	0	27	-	-

**Table B-4
Town of Petrolia
Manholes**

Asset ID	Asset Description	Location	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2872	Princess St	Wellington to Grove	1978	60	2038	15,210	27	638	-
2873	Princess St	Grove to Kerr	1978	60	2038	7,600	27	319	-
2874	Progress Dr	Progress Dr	1988	60	2048	5,440	37	171	-
2875	Progress Dr	Progress Dr	1988	60	2048	17,100	37	538	-
2876	Queen St	Petrolia to Lorne	1979	60	2039	14,400	28	584	-
2877	Queen St	Petrolia to Lorne	2002	60	2062	18,610	51	436	-
2878	Queen St	Lorne to Dufferin	1979	60	2039	28,810	28	1,168	-
2879	Queen St	Dufferin to Nelson	1979	60	2039	0	28	-	-
2880	Railroad St	Railroad St	1979	60	2012	14,400	1	repl within 10 years	14,400
2881	Redwood Ct	Redwood Ct	2008	60	2068	4,890	57	103	-
2882	Robert St	Robert St	1979	60	2039	21,610	28	876	-
2883	Rosemount Dr	Rosemount Dr	2008	60	2068	4,890	57	103	-
2884	Sanway Ct	Sanway Ct	1991	60	2051	5,570	40	163	-
2885	Short St	Short St	1975	60	2035	12,000	24	561	-
2886	Sixth St	Sixth St	2005	60	2065	8,540	54	190	-
2887	Station St	Station St	1972	60	2012	13,230	1	repl within 10 years	13,230
2888	Sycamore Dr	Sycamore Dr	1976	60	2036	7,020	25	316	-
2889	Tank St	Petrolia to Railroad	1979	60	2039	7,550	28	306	-
2890	Tank St	Railroad to Discovery	1979	60	2039	7,550	28	306	-
2891	Tank St	Railroad to Discovery	2006	60	2066	16,080	55	351	-
2892	Third St	First to Fourth	1978	60	2038	14,520	27	609	-
2893	Third St	Fourth to Kentail	1978	60	2038	7,260	27	304	-
2894	Third St	Kentail to Mutual	1978	60	2038	14,520	27	609	-
2895	Tom St	Joe to Charlie	1975	60	2035	6,000	24	280	-
2896	Valentina St N	Valentina St N	1979	60	2039	7,200	28	292	-
2897	Valentina St S	Edward to Joe	1978	60	2038	15,210	27	638	-
2898	Valentina St S	Joe to Charlie	1993	60	2053	5,990	42	168	-
2899	Valentina St S	Charlie to Henderson	1993	60	2053	17,990	42	504	-
2900	Valentina St S	Henderson to Hunter	2005	60	2065	5,600	54	124	-
2901	Valentina St S	Henderson to Hunter	2005	60	2065	11,730	54	261	-
2902	Valentina St S	Hunter to Country View	2005	60	2065	17,600	54	391	-
2903	Vanderwal Dr	Vanderwal Dr	2008	60	2068	5,660	57	120	-
2904	Vanderwal Dr	Vanderwal Dr	2008	60	2068	2,830	57	60	-
2905	Victoria Ave	Victoria Ave	1979	60	2039	14,400	28	584	-

**Table B-4
Town of Petrolia
Manholes**

Asset ID	Asset Description	Location	Year Installed	Estimated Life	Replacement Year	Replacement Cost	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2906	Walnut St E	Oil to Chestnut	1979	60	2039	7,200	28	292	-
2907	Walnut St E	Chestnut to Greenfield	1979	60	2039	15,090	28	612	-
2908	Warren Ave	Warren Ave	1979	60	2039	14,400	28	584	-
2909	Wellington St	Wellington St	1978	60	2038	14,520	27	609	-
2910	West St	Petrolia to Annie	1979	60	2039	-	28	-	-
2911	West St	Annie to Jennie	1979	60	2039	-	28	-	-
2912	Wingfield St	Wingfield St	1979	60	2013	7,200	2	repl within 10 years	7,200
Total						2,480,950		88,744	173,530

**Table B-5
Town of Petrolia
Sewer Mains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
1961	Albany St	Albany St	270	200	PVC	1978	60	2038	172,450	27	7,231	-
1962	Andrew St	Andrew St	155	200	PVC	1978	60	2038	99,000	27	4,151	-
1963	Annie St	West to Huggard	105	200	AC	1978	60	2038	67,060	27	2,812	-
1964	Annie St	Huggard to Maude	46	200	AC	1978	60	2038	29,380	27	1,232	-
1965	Applewood Dr	Parkside to Garfield	98	250	PVC	2002	60	2062	51,420	51	1,205	-
1966	Applewood Dr	Parkside to Garfield	91	250	PVC	2006	60	2066	45,590	55	996	-
1967	Applewood Dr	Parkside to Garfield	58	200	PVC	2006	60	2066	27,870	55	609	-
1968	Applewood Dr	Garfield to Ernest	135	200	PVC	2008	60	2068	58,040	57	1,226	-
1969	Applewood Dr	Ernest to Catherine	70	300	PVC	2008	60	2068	33,990	57	718	-
1970	Barrett's Lane	Barrett's Lane	58	350	AC	1978	60	2038	46,720	27	1,959	-
1971	Blanche St	Dufferin to Pumping Stn	160	300	AC	1989	60	2049	82,910	38	2,544	-
1972	Blanche St	Dufferin to Pumping Stn	80	200	AC	1989	60	2049	36,700	38	1,126	-
1973	Blanche St	Pumping Stn to Dufferin	116	100	AC	1989	60	2049	53,220	38	1,633	-
1974	Cardinal Cr	Joe to corner	139	200	AC	1973	60	2033	80,140	22	4,057	-
1975	Cardinal Cr	Ozloffsky to corner	139	200	AC	1973	60	2033	80,140	22	4,057	-
1976	Catherine St	Garfield to Pine	8	200	PVC	1999	60	2059	4,270	48	106	-
1977	Catherine St	Garfield to Pine	13	100	PVC	1999	60	2059	6,680	48	166	-
1978	Catherine St	Garfield to Pine	75	300	PVC	1999	60	2059	45,240	48	1,121	-
1979	Catherine St	Garfield to Pine	6	300	PVC	1999	60	2059	3,620	48	90	-
1980	Catherine St	Pine to Pine	90	300	AC	1989	60	2049	46,640	38	1,431	-
1981	Catherine St	Pine to Juniper	50	300	AC	1989	60	2049	25,910	38	795	-
1982	Catherine St	Juniper to Eureka	67	300	AC	1989	60	2049	34,720	38	1,065	-
1983	Catherine St	Juniper to Eureka	150	300	AC	1996	60	2056	89,390	45	2,350	-
1984	Centre St	Petrolia to Robert	87	250	PVC	1979	60	2039	57,470	28	2,331	-
1985	Centre St	Robert to Andrew	82	250	PVC	1979	60	2039	54,170	28	2,197	-
1986	Centre St	Andrew to James	94	250	PVC	1979	60	2039	62,090	28	2,518	-
1987	Centre St	James to Portland	85	250	PVC	1979	60	2039	56,150	28	2,277	-
1988	Centre St	Portland to Discovery	767	250	PVC	1979	60	2039	506,630	28	20,546	-
1989	Charlie St	Tom to Short	79	200	PVC	1975	60	2035	41,710	24	1,949	-
1990	Charlie St	Short to Valentina	68	200	PVC	1975	60	2035	35,900	24	1,677	-
1991	Chestnut St	Walnut to School	106	250	PVC	1979	60	2039	70,020	28	2,840	-
1992	Chestnut St	School to south end	71	250	PVC	1979	60	2039	46,900	28	1,902	-
1993	Country View Dr W.	East end to Bluebird	62	375	PVC	1993	60	2053	41,250	42	1,155	-
1994	Country View Dr W.	Bluebird to Country View	61	300	PVC	1993	60	2053	36,340	42	1,018	-
1995	Country View Dr W.	Country View to Henderson	104	200	PVC	1993	60	2053	54,860	42	1,536	-
1996	Country View Dr W.	Henderson to Valentina	215	200	PVC	2002	60	2062	108,230	51	2,536	-
1997	Derby St	Mutual to Holland	79	200	PVC	1978	60	2038	50,460	27	2,116	-
1998	Derby St	Holland to Oil Heritage	11	200	PVC	1989	60	2049	5,050	38	155	-
1999	Derby St	Holland to Oil Heritage	319	200	PVC	1978	60	2038	203,740	27	8,542	-
2000	Dufferin Ave	Huggard to Maude	98	300	AC	1989	60	2049	50,780	38	1,558	-
2001	Dufferin Ave	Maude to Princess	134	600	CONC	1989	60	2049	93,450	38	2,868	-
2002	Dufferin Ave	Princess to Queen	143	350	CONC	1989	60	2049	82,750	38	2,539	-
2003	Dufferin Ave	Queen to Glenview	141	350	CONC	1989	60	2049	81,590	38	2,504	-
2004	Dufferin Ave	Queen to Glenview	39	300	AC	1989	60	2049	20,210	38	620	-

**Table B-5
Town of Petrolia
Sewer Mains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2005	Dufferin Ave	Glenview to Blanche	64	300	AC	1989	60	2049	33,160	38	1,018	-
2006	Dufferin Ave	Blanche to Greenfield	131	300	AC	1989	60	2049	67,880	38	2,083	-
2007	Edward St	Valentina to Ignatiefna	132	300	AC	1978	60	2018	95,220	7	repl within 10 years	95,220
2008	Edward St	Ignatiefna to Ozoloffscky	132	200	AC	1979	60	2018	83,650	7	repl within 10 years	83,650
2009	Egan Ave	Petrolia to Florence	161	200	CONC	1979	60	2012	102,030	1	repl within 10 years	102,030
2010	Egan Ave	Florence to Sanway	111	200	CONC	1979	60	2039	70,340	28	2,853	-
2011	Ella St	Ella St	126	200	PVC	1979	60	2039	79,850	28	3,238	-
2012	Emma St	Ella to Emmeline	58	200	PVC	1979	60	2039	36,760	28	1,491	-
2013	Emma St	Emmeline to east end	70	200	PVC	1979	60	2039	44,360	28	1,799	-
2014	Emma St	To Pumping Stn	88	200	PVC	1979	60	2039	55,760	28	2,261	-
2015	Emmeline St	Emmeline St	131	200	PVC	1979	60	2039	83,010	28	3,366	-
2016	England Ave	Petrolia to Pearl	95	200	PVC	1978	60	2038	60,680	27	2,544	-
2017	England Ave	Pearl to south end	78	200	PVC	1978	60	2038	49,820	27	2,089	-
2018	Ernest St	Eureka to Kells	103	200	AC	1970	60	2030	55,290	19	3,207	-
2019	Ernest St	Kells to west end	48	200	AC	1970	60	2030	25,770	19	1,495	-
2020	Eureka St	Petrolia to Maple	377	350	PVC	1979	60	2039	301,300	28	12,219	-
2021	Eureka St	Maple to Catherine	274	350	PVC	1979	60	2039	218,980	28	8,881	-
2022	Eureka St	Catherine to Ernest	161	250	PVC	1979	60	2039	106,350	28	4,313	-
2023	Eureka St	Ernest to Discovery	550	200	PVC	1979	60	2039	348,530	28	14,134	-
2024	Evergreen Tr	Applewood to Rosemount	50	200	PVC	2008	60	2068	21,500	57	454	-
2025	Evergreen Tr	Rosemount to north end	88	200	PVC	2008	60	2068	37,830	57	799	-
2026	Fifth Ave	Fifth Ave	243	200	PVC	1978	60	2038	155,200	27	6,507	-
2027	First Ave	Petrolia to Third	114	350	AC	1978	60	2038	91,830	27	3,850	-
2028	First Ave	Third to Fifth	109	350	AC	1978	60	2038	87,800	27	3,681	-
2029	First Ave	Fifth to Sixth	109	350	AC	1978	60	2038	87,800	27	3,681	-
2030	First Ave	Sixth to Garden	115	250	AC	1988	60	2048	57,370	37	1,804	-
2031	First Ave	Sixth to Garden	26	350	CONC	1988	60	2048	15,690	37	493	-
2032	First Ave	Sixth to Garden	277	350	AC	1978	60	2038	223,120	27	9,355	-
2033	First Ave	Garden to Garden	789	350	PVC	2003	60	2063	498,010	52	11,460	-
2034	Fletcher St	Fletcher St	55	200	PVC	1979	60	2039	34,850	28	1,413	-
2035	Florence Ave	Garfield to Egan	219	200	CONC	1979	60	2012	138,780	1	repl within 10 years	138,780
2036	Florence Ave	Egan to Kerby	14	200	CONC	1964	60	2012	7,260	1	repl within 10 years	7,260
2037	Fourth St	Petrolia to Third	161	200	PVC	1978	60	2038	102,830	27	4,311	-
2038	Fourth St	Fifth to Sixth	116	200	PVC	1978	60	2038	212,610	27	8,914	-
2039	Gables Ave	Eureka to Jacs	86	200	PVC	2000	60	2060	43,780	49	1,064	-
2040	Gables Ave	Jacs to east end	108	200	PVC	2000	60	2060	54,980	49	1,337	-
2041	Garden Cr	First to Heritage Heights	49	200	CONC	1988	60	2048	23,450	37	737	-
2042	Garden Cr	First to Heritage Heights	12	250	AC	1988	60	2048	5,990	37	188	-
2043	Garden Cr	First to Heritage Heights	569	200	AC	1988	60	2048	272,340	37	8,563	-
2044	Garden Cr	First to Heritage Heights	155	100	AC	1988	60	2048	74,190	37	2,333	-
2045	Garden Cr	Heritage Heights to First	236	150	PVC	2003	60	2063	117,290	52	2,699	-
2046	Garfield Ave	Petrolia to Florence	155	200	AC	1968	60	2028	80,330	17	5,169	-
2047	Garfield Ave	Petrolia to Florence	3	250	AC	1979	60	2039	1,980	28	80	-
2048	Garfield Ave	Florence to Maple	212	200	AC	1968	60	2028	109,870	17	7,070	-

**Table B-5
Town of Petrolia
Sewer Mains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2049	Garfield Ave	Maple to Mulberry	161	250	AC	1976	60	2036	98,960	25	4,453	-
2050	Garfield Ave	Maple to Mulberry	31	200	AC	1976	60	2036	18,280	25	823	-
2051	Garfield Ave	Mulberry to Parkside	22	200	PVC	1999	60	2059	11,750	48	291	-
2052	Garfield Ave	Mulberry to Parkside	60	200	PVC	1999	60	2059	32,040	48	794	-
2053	Garfield Ave	Mulberry to Parkside	6	250	PVC	1999	60	2059	3,340	48	83	-
2054	Garfield Ave	Parkside to Golden Gate	88	250	PVC	1999	60	2059	48,990	48	1,214	-
2055	Garfield Ave	Parkside to Golden Gate	53	200	PVC	1999	60	2059	28,040	48	695	-
2056	Garfield Ave	Golden Gate to Applewood	87	250	PVC	2006	60	2066	43,580	55	952	-
2057	Gem Ave	Gem Ave	365	300	AC	1978	60	2038	263,290	27	11,039	-
2058	Glennview Rd	Dufferin to Wellington	161	200	PVC	1979	60	2039	102,030	28	4,138	-
2059	Glennview Rd	Wellington to Kerr	186	200	PVC	1979	60	2039	117,870	28	4,780	-
2060	Glennview Rd	Kerr to Tile Yard	213	200	PVC	1992	60	2052	108,220	41	3,098	-
2061	Golden Gate Cl	Golden Gate Cl	125	200	PVC	2004	60	2064	61,960	53	1,401	-
2062	Greenfield St	Petrolia to Walnut W	106	250	PVC	1979	60	2039	70,020	28	2,840	-
2063	Greenfield St	Walnut W to Dufferin	222	250	PVC	1979	60	2039	146,640	28	5,947	-
2064	Greenfield St	Dufferin to south end	130	250	PVC	1979	60	2039	85,870	28	3,482	-
2065	Greenfield St	To Pumping Stn	99	150	PVC	1979	60	2039	62,740	28	2,544	-
2066	Grove St	Grove St	279	200	AC	1978	60	2038	178,190	27	7,471	-
2067	Hawthorne Pl	Hawthorne Pl	77	250	AC	1976	60	2036	47,330	25	2,130	-
2068	Henderson Dr	Henderson Dr	203	200	PVC	1993	60	2053	107,080	42	2,999	-
2069	Henry Ave	Henry Ave	66	200	PVC	1979	60	2039	41,830	28	1,696	-
2070	Huggard St	Petrolia to Annie	111	250	AC	1978	60	2038	73,900	27	3,099	-
2071	Huggard St	Annie to Jennie/Lorne	101	300	AC	1978	60	2038	72,850	27	3,054	-
2072	Huggard St	Jennie/Lorne to Dufferin	136	300	AC	1978	60	2038	98,100	27	4,113	-
2073	Hunter Ct	Hunter Ct	60	200	PVC	2006	60	2066	28,840	55	630	-
2074	Ignatiefna St	Ignatiefna St	487	300	AC	1978	60	2038	351,290	27	14,729	-
2075	Jacs Ct	Jacs Ct	31	200	PVC	2000	60	2060	15,780	49	384	-
2076	James St	James St	287	200	PVC	1979	60	2039	181,870	28	7,376	-
2077	Joe St	Maude to Tom	253	300	AC	1973	60	2033	164,740	22	8,340	-
2078	Joe St	Valentina to Bluebird	162	200	AC	1973	60	2033	93,400	22	4,729	-
2079	Joe St	Bluebird to west end	176	200	AC	1973	60	2033	101,470	22	5,137	-
2080	Juniper Cr	Catherine to Juniper South	200	200	AC	1989	60	2049	91,760	38	2,816	-
2081	Juniper Cr	Juniper North to Sycamore	88	250	AC	1976	60	2036	54,090	25	2,434	-
2082	Juniper Cr	Juniper North to Sycamore	41	200	AC	1989	60	2049	18,810	38	577	-
2083	Kells St	Kells St	120	200	AC	1970	60	2030	64,420	19	3,736	-
2084	Kentail St	North to Petrolia	96	250	PVC	1978	60	2038	63,910	27	2,680	-
2085	Kentail St	Petrolia to Third	59	200	PVC	1978	60	2038	37,680	27	1,580	-
2086	Kerby St	Petrolia to Florence	158	200	CONC	1979	60	2039	100,130	28	4,061	-
2087	Kerby St	Florence to north end	98	200	CONC	1979	60	2039	62,100	28	2,518	-
2088	Kerr St	Kerr St	89	200	AC	1978	60	2038	56,840	27	2,383	-
2089	Kerr St	Kerr St	19	200	AC	1979	60	2039	12,040	28	488	-
2090	Kerr St	Kerr St	176	200	CONC	1965	60	2025	90,410	14	6,982	-
2091	King St	King St	346	200	PVC	1979	60	2039	219,260	28	8,892	-
2092	Lancey St	Ella to Emmeline	26	200	PVC	1979	60	2039	16,480	28	668	-

**Table B-5
Town of Petrolia
Sewer Mains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2093	Lancey St	Emmeline to east end	166	200	PVC	1979	60	2039	105,200	28	4,266	-
2094	Lorne Ave	Maude to Princess	133	200	AC	1979	60	2039	84,280	28	3,418	-
2095	Lorne Ave	Princess to Queen	97	200	AC	1979	60	2039	61,470	28	2,493	-
2096	Lorne Ave	Queen to King	71	200	AC	1979	60	2039	44,990	28	1,825	-
2097	Maple St	Garfield to Sycamore	298	250	AC	1976	60	2036	183,170	25	8,242	-
2098	Maple St	Sycamore to Eureka	134	250	AC	1976	60	2036	82,370	25	3,707	-
2099	Maude St	Petrolia to Annie	224	200	CONC	1979	60	2039	141,950	28	5,757	-
2100	Maude St	Annie to Jennie/Lorne	116	200	CONC	1979	60	2039	73,510	28	2,981	-
2101	Maude St	Jennie/Lorne to Dufferin	123	200	CONC	1979	60	2039	77,950	28	3,161	-
2102	Maude St	Dufferin to Joe	110	200	AC	1967	60	2027	55,890	16	3,806	-
2103	Maude St	Dufferin to Joe	524	600	CONC	1978	60	2038	508,710	27	21,329	-
2104	Maude St	Dufferin to Joe	124	400	AC	1967	60	2027	84,490	16	5,754	-
2105	Maude St	Joe to south end (extension)	33	750	CONC	1978	60	2038	37,690	27	1,580	-
2106	Mulberry Pl	Mulberry Pl	127	250	AC	1976	60	2036	78,060	25	3,513	-
2107	Mutual St	Third to Derby	30	200	PVC	1978	60	2038	19,160	27	803	-
2108	Mutual St	Derby to Petrolia	87	200	PVC	1978	60	2038	55,570	27	2,330	-
2109	Neilson St	Neilson St	167	200	AC	1979	60	2039	-	28	-	-
2110	North St	Hartford to Kentail	199	200	PVC	1978	60	2038	127,100	27	5,329	-
2111	North St	Kentail to Wood	153	200	PVC	1978	60	2038	97,720	27	4,097	-
2112	North St	Wood to Oil Heritage	129	200	PVC	1978	60	2038	82,390	27	3,454	-
2113	North St	Wood to Oil Heritage	159	200	PVC	1981	60	2041	92,400	30	3,518	-
2114	Northridge Pl	Northridge Pl	118	200	PVC	1993	60	2053	62,350	42	1,746	-
2115	Oil St	Oil St	84	200	PVC	1979	60	2039	53,230	28	2,159	-
2116	Oil Heritage Rd	Progress to North	426	250	PVC	1988	60	2048	212,530	37	6,682	-
2117	Oil Heritage Rd	Progress to North	185	250	PVC	1978	60	2038	123,160	27	5,164	-
2118	Oil Heritage Rd	North to Petrolia	82	250	PVC	1978	60	2038	54,590	27	2,289	-
2119	Oil Heritage Rd	Petrolia to Derby	66	200	Plastic	1989	60	2049	30,280	38	929	-
2120	Oozloffsky St N.	Oozloffsky St N.	360	200	TRANS	1979	60	2039	-	28	-	-
2121	Oozloffsky St S.	Oozloffsky St S.	178	200	AC	1973	60	2033	102,630	22	5,196	-
2122	Oriole Pk	Oriole Pk	67	200	AC	1973	60	2033	38,630	22	1,956	-
2123	Parkside Ct	Parkside Ct	71	200	PVC	2005	60	2065	34,980	54	777	-
2124	Parkside Dr	North-South portion	273	200	PVC	2002	60	2062	137,430	51	3,220	-
2125	Parkside Dr	East-West portion	186	200	PVC	2001	60	2061	92,450	50	2,206	-
2126	Parkside Pl	Parkside Pl	58	200	PVC	2001	60	2061	28,830	50	688	-
2127	Pearl St	Pearl St	133	200	PVC	1978	60	2038	84,950	27	3,562	-
2128	Petrolia Line	West town limit to Gem	46	300	AC	1978	60	2038	33,180	27	1,391	-
2129	Petrolia Line	Gem to Garfield	86	300	AC	1978	60	2038	62,040	27	2,601	-
2130	Petrolia Line	Garfield to Egan	73	250	AC	1978	60	2038	48,600	27	2,038	-
2131	Petrolia Line	Garfield to Egan	209	250	AC	1978	60	2038	139,140	27	5,834	-
2132	Petrolia Line	Egan to Kerby	203	250	AC	1978	60	2038	135,150	27	5,667	-
2133	Petrolia Line	Kerby to Eureka	24	200	AC	1978	60	2038	15,330	27	643	-
2134	Petrolia Line	Kerby to Eureka	73	600	AC	1978	60	2038	70,870	27	2,971	-
2135	Petrolia Line	Eureka to Center	303	500	AC	1978	60	2038	277,760	27	11,646	-
2136	Petrolia Line	Center to Tank	318	500	AC	1978	60	2014	291,510	3	repl within 10 years	291,510

**Table B-5
Town of Petrolia
Sewer Mains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2137	Petrolia Line	Tank to Barrett's	448	300	AC	1978	60	2038	323,160	27	13,550	-
2138	Petrolia Line	Barrett's to England	170	350	AC	1978	60	2038	136,940	27	5,742	-
2139	Petrolia Line	England to First	134	350	AC	1978	60	2038	107,940	27	4,526	-
2140	Petrolia Line	First to Fourth	245	350	AC	1978	60	2038	197,350	27	8,275	-
2141	Petrolia Line	Fourth to Kentail	135	350	AC	1978	60	2038	108,740	27	4,559	-
2142	Petrolia Line	Kentail to Mutual	146	300	PVC	1978	60	2038	105,320	27	4,416	-
2143	Petrolia Line	Mutual to Holland	78	300	PVC	1978	60	2038	56,260	27	2,359	-
2144	Petrolia Line	Holland to Oil Heritage	133	300	PVC	1978	60	2038	95,940	27	4,023	-
2145	Petrolia Line	Holland to Oil Heritage	171	300	PVC	1978	60	2038	123,350	27	5,172	-
2146	Pine Cr	Catherine to west corner	91	200	AC	1989	60	2049	41,750	38	1,281	-
2147	Pine Cr	West corner to east corner	113	200	AC	1989	60	2049	51,850	38	1,591	-
2148	Pine Cr	East corner to Catherine	93	200	AC	1989	60	2049	42,670	38	1,309	-
2149	Portland Ave	Portland Ave	98	200	TRANS	1965	60	2020	50,340	9	repl within 10 years	50,340
2150	Princess St	Petrolia to Lorne	225	600	CONC	1978	60	2038	218,430	27	9,158	-
2151	Princess St	Lorne to Dufferin	123	600	CONC	1978	60	2015	119,410	4	repl within 10 years	119,410
2152	Princess St	Dufferin to Nelson	279	200	CONC	1978	60	2015	178,190	4	repl within 10 years	178,190
2153	Princess St	Nelson to Wellington	88	200	AC	1978	60	2038	-	27	-	-
2154	Princess St	Nelson to Wellington	82	250	AC	1978	60	2038	54,590	27	2,289	-
2155	Princess St	Wellington to Grove	125	250	AC	1978	60	2038	83,220	27	3,489	-
2156	Princess St	Grove to Kerr	110	250	AC	1978	60	2038	73,230	27	3,070	-
2157	Progress Dr		12	100	PVC	1988	60	2048	5,740	37	180	-
2158	Progress Dr		192	250	PVC	1988	60	2048	95,790	37	3,012	-
2159	Queen St		148	200	AC	1979	60	2039	93,790	28	3,804	-
2160	Queen St	Petrolia to Lorne	76	200	PVC	2002	60	2062	36,010	51	844	-
2161	Queen St	Lorne to Dufferin	136	200	AC	1979	60	2039	86,180	28	3,495	-
2162	Queen St	Dufferin to Nelson	159	200	AC	1979	60	2039	-	28	-	-
2163	Queen St	Other	98	200	AC	1978	60	2038	62,590	27	2,624	-
2164	Queen St	Other	94	200	AC	1978	60	2038	60,040	27	2,517	-
2165	Queen St	Other	124	200	AC	1978	60	2038	79,200	27	3,321	-
2166	Railroad St	Railroad St	127	200	PVC	1979	60	2012	80,480	1	repl within 10 years	80,480
2167	Redwood Ct	Redwood Ct	68	200	PVC	2008	60	2068	29,230	57	617	-
2168	Robert St	Eureka to Center	282	200	PVC	1979	60	2039	178,700	28	7,247	-
2169	Robert St	Center to Fletcher	133	200	PVC	1979	60	2039	84,280	28	3,418	-
2170	Rosemount Dr	Parkside to Redwood	92	200	PVC	2008	60	2068	39,550	57	835	-
2171	Rosemount Dr	Redwood to Evergreen	89	200	PVC	2008	60	2068	38,260	57	808	-
2172	Sanway Ct	Sanway Ct	109	200	PVC	1991	60	2051	53,430	40	1,565	-
2173	School St	Hickory to Chestnut	72	150	PVC	1985	60	2045	40,700	34	1,382	-
2174	Short St	Short St	109	200	PVC	1975	60	2035	57,550	24	2,689	-
2175	Sixth St	Sixth St	236	200	PVC	2005	60	2065	11,350	54	252	-
2176	Station St	Station St	150	150	PVC	1972	60	2012	-	1	repl within 10 years	-
2177	Sycamore Dr	Sycamore Dr	81	250	AC	1976	60	2036	49,790	25	2,240	-
2178	Tank St	Petrolia to Railroad	88	300	PVC	1979	60	2039	62,980	28	2,554	-
2179	Tank St	Railroad to Discovery	8	300	PVC	1979	60	2039	5,730	28	232	-
2180	Tank St	Railroad to Discovery	320	300	PVC	2006	60	2066	68,790	55	1,502	-

**Table B-5
Town of Petrolia
Sewer Mains**

Asset ID	Asset Description	Location	Length (m)	Diameter (mm)	Surface Type	Year Installed	Estimated Life	Replacement Year	Total Main Replacement Costs	Years until Replacement	Annual Lifecycle Contribution	Amount to be included in 10 year Forecast
2181	Third St	First to Fourth	236	200	PVC	1978	60	2038	150,730	27	6,320	-
2182	Third St	Fourth to Kentail	131	200	PVC	1978	60	2038	83,670	27	3,508	-
2183	Third St	Kentail to Mutual	141	200	PVC	1978	60	2038	90,050	27	3,776	-
2184	Tom St	Joe to Charlie	46	200	Plastic	1975	60	2035	24,290	24	1,135	-
2185	Tom St	Charlie to RR R.O.W.	38	200	Plastic	1975	60	2035	20,060	24	937	-
2186	Valentina St N	Valentina St N	431	200	AC	1979	60	2039	273,120	28	11,076	-
2187	Valentina St S	Edward to Joe	384	300	AC	1978	60	2038	277,000	27	11,614	-
2188	Valentina St S	Joe to Charlie	49	200	PVC	1993	60	2053	25,850	42	724	-
2189	Valentina St S	Charlie to Henderson	103	200	PVC	1993	60	2053	54,330	42	1,522	-
2190	Valentina St S	Henderson to Hunter	23	200	PVC	2005	60	2065	11,330	54	252	-
2191	Valentina St S	Henderson to Hunter	111	250	PVC	2005	60	2065	57,000	54	1,266	-
2192	Valentina St S	Hunter to Country View	153	250	PVC	2005	60	2065	78,570	54	1,746	-
2193	Vanderwal Dr	Vanderwal Dr	200	200	PVC	2008	60	2068	13,860	57	293	-
2194	Vanderwal Dr	Vanderwal Dr	41	150	PVC	2008	60	2068	3,650	57	77	-
2195	Victoria Ave	Princess to Queen	87	200	AC	1979	60	2039	55,130	28	2,236	-
2196	Victoria Ave	Queen to King	144	200	AC	1979	60	2039	91,250	28	3,701	-
2197	Walnut St E	Oil to Chestnut	57	200	PVC	1979	60	2039	36,120	28	1,465	-
2198	Walnut St E	Chestnut to Greenfield	111	250	PVC	1979	60	2039	73,320	28	2,973	-
2199	Warren Ave	Warren Ave	118	200	PVC	1979	60	2039	74,780	28	3,033	-
2200	Wellington St	Wellington St	410	200	AC	1978	60	2038	261,860	27	10,979	-
2201	West St	Petrolia to Annie	81	200	AC	1979	60	2039	-	28	-	-
2202	West St	Annie to Jennie	111	200	AC	1979	60	2039	-	28	-	-
2203	Wingfield St	Wingfield St	256	200	PVC	1979	60	2013	162,230	2	repl within 10 years	162,230
3207	Ella St	First Ave				2000	45	2045	156,130	34	5,303	-
3553	Ella St	Ella St				1979	60	2039	14,400	28	584	-
3554	Ermeline St	Ermeline St				1979	60	2039	7,200	28	292	-
3555	North St	Hartford to Kentail St				1978	50	2028	61,310	17	3,945	-
3566	4247 & 4228 Oil Heritage Rd	Oil Heritage Road				2010	60	2070	4,780	59	98	-
3587	Oozloffsky St N	Oozloffsky St N				2010	60	2070	23,140	59	473	-
3588	Oozloffsky St N	Oozloffsky St N				2010	60	2070	1,460	59	30	-
3589	oozloffsky st n	oozloffsky st n				2010	60	2070	5,950	59	122	-
3601	Oozloffsky St Extension	Oozloffsky St Extension				2010	60	2070	32,400	59	662	-
Total			34,271						21,141,990		776,110	1,309,100

APPENDIX C

DETAILED WATER RATE CALCULATIONS

SCENARIO 1

**CAPITAL FULLY FUNDED BY TOWN FINANCIAL
RESOURCES - 0% GRANT FUNDING**

Table C-1
Town of Petrolia - Water Service
Capital Budget Forecast
Uninflated \$

Description	Total	Forecast																		
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020									
Capital Expenditures																				
New Intake	\$4,500,000									4,500,000										
Water Tower Rehabilitation - 2012	\$1,000,000		1,000,000																	
Water Tower Inspection - 2011	\$10,000	10,000																		
Mandamin Reservoir Expansion & PS Upgrade																				
Phase 1	\$2,544,370		254,437	1,144,967	1,144,967															
Phase 2	\$6,800,000									3,400,000	3,400,000									
Phase 3 (2025) - \$6,000,000	\$0																			
Studies:																				
Water and Wastewater Rate Study (50% Water)	\$0																			
	\$12,500	12,500																		
Lifecycle:																				
Water Equipment	\$0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydrants	\$91,000	0	28,770	6,860	0	41,140	0	6,860	0	0	0	0	6,860	0	0	0	0	0	0	7,370
Watermains	\$595,110	0	202,110	82,780	103,920	119,030	0	7,430	0	0	0	0	7,430	0	0	0	0	0	0	79,840
Total Capital Expenditures	\$15,552,980	\$22,500	\$1,485,317	\$1,234,607	\$1,248,887	\$8,060,170	\$3,400,000	\$0	\$14,290	\$0	\$14,290	\$0	\$0	\$14,290	\$0	\$0	\$0	\$0	\$0	\$87,210

Table C-2
Town of Petrolia - Water Service
Capital Budget Forecast
0% - Grant Funding
 Inflated \$

Description	Total	Forecast													
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				
Capital Expenditures:															
New Intake	\$4,871,000	0	0	0	0	4,871,000	0	0	0	0	0	0	0	0	0
Water Tower Rehabilitation - 2012	\$1,020,000	0	1,020,000	0	0	0	0	0	0	0	0	0	0	0	0
Water Tower Inspection - 2011	\$10,000	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Mandaamin Reservoir Expansion & PS Upgrade															
Phase 1	\$2,666,000	0	260,000	1,191,000	1,215,000	0	0	0	0	0	0	0	0	0	0
Phase 2	\$7,434,000	0	0	0	0	3,680,000	3,754,000	0	0	0	0	0	0	0	0
Phase 3 (2025) - \$6,000,000	\$0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Studies:															
Water and Wastewater Rate Study (50% Water)	\$13,000	13,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Lifecycle:															
Hydrants	\$98,000	0	29,000	7,000	0	45,000	0	0	0	8,000	0	0	0	0	9,000
Watermains	\$635,000	0	206,000	86,000	110,000	129,000	0	0	0	9,000	0	0	0	0	95,000
Total Capital Expenditures	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$104,000	\$0	\$0	\$0	\$104,000
Capital Funding:															
Provincial/Federal Grants	\$0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debtenture Requirements	\$12,000,000	-	-	300,000	700,000	8,000,000	3,000,000	-	-	-	-	-	-	-	-
Water Reserve	\$4,747,000	23,000	1,515,000	984,000	625,000	725,000	754,000	-	17,000	-	-	-	-	-	104,000
Total Capital Financing	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$104,000	\$0	\$0	\$0	\$104,000

Table C-3
Town of Petrolia - Water Service
0% - Grant Funding
Schedule of Debenture Repayments
 Inflated \$

Debenture Year	Principal (Inflated)	Forecast											
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
2011	\$0		0	0	0	0	0	0	0	0	0	0	0
2012	\$0		0	0	0	0	0	0	0	0	0	0	0
2013	\$300,000				28,903	28,903	28,903	28,903	28,903	28,903	28,903	28,903	28,903
2014	\$700,000					67,440	67,440	67,440	67,440	67,440	67,440	67,440	67,440
2015	\$8,000,000						770,738	770,738	770,738	770,738	770,738	770,738	770,738
2016	\$3,000,000							289,027	289,027	289,027	289,027	289,027	289,027
2017	\$0												
2018	\$0												
2019	\$0												
2020	\$0												
Total Annual Debt Charges	\$12,000,000	\$0	\$0	\$0	\$28,903	\$96,342	\$867,081	\$1,156,107	\$1,156,107	\$1,156,107	\$1,156,107	\$1,156,107	\$1,156,107

Financing Rate 5%
 Borrowing Term-Water 15

Table C-3
Town of Petrolia - Water Service
0% - Grant Funding
Water Reserves/ Reserve Funds Continuity
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Opening Balance	\$1,252,490	\$1,539,126	\$438,104	\$28,377	\$129,871	\$311,166	\$273,870	\$701,467	\$1,111,448	\$1,536,774
Transfer from Operating	\$309,636	\$413,978	\$574,274	\$726,493	\$906,295	\$716,704	\$427,597	\$426,980	\$425,326	\$423,035
Transfer to Capital	\$23,000	\$1,515,000	\$984,000	\$625,000	\$725,000	\$754,000		\$17,000		\$104,000
Transfer to Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Closing Balance	\$1,539,126	\$438,104	\$28,377	\$129,871	\$311,166	\$273,870	\$701,467	\$1,111,448	\$1,536,774	\$1,855,808
Interest	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Table C-4
Town of Petrolia - Water Service
Operating Budget Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Operating Costs										
Water Administration	43,227	44,500	45,800	47,200	48,600	50,100	51,600	53,100	54,700	56,300
Special Projects	25,000	26,800	27,600	28,400	29,300	30,200	31,100	32,000	33,000	34,000
Water Billing/Collection	61,870	63,700	65,600	67,600	69,600	71,700	73,900	76,100	78,400	80,800
Small Tools Expense	500	500	500	500	500	500	500	500	500	500
Petrolia Distribution										
Salaries	110,000	113,300	116,700	120,200	123,800	127,500	131,300	135,200	139,300	143,500
Benefits	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Insurance	1,149	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Travel & Training	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Line Maint/Bs To Pet	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Water Testing Moe	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Stand Pipe & Water Tower	15,000	15,500	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700
Distribution Mains	25,000	25,800	26,600	27,400	28,200	29,000	29,900	30,800	31,700	32,700
Services Maintenance	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Meter Maintenance	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Utility Hydrant Maint	5,000	5,200	5,400	5,600	5,800	6,000	6,200	6,400	6,600	6,800
Utilities	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900
Water Treatment Plant										
Salaries	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Benefits	250	300	300	300	300	300	300	300	300	300
Plant Contractors	300,000	309,000	318,300	327,800	337,600	347,700	358,100	368,800	379,900	391,300
Telephone & Fax	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000
Equip Repair & Maint	25,000	25,800	26,600	27,400	28,200	29,000	29,900	30,800	31,700	32,700
Insurance	5,183	5,300	5,500	5,700	5,900	6,100	6,300	6,500	6,700	6,900
Water Treatment Supplies	38,000	39,100	40,300	41,500	42,700	44,000	45,300	46,700	48,100	49,500
Analytical Services	6,000	6,200	6,400	6,600	6,800	7,000	7,200	7,400	7,600	7,800
Property Taxes	11,500	11,800	12,200	12,600	13,000	13,400	13,800	14,200	14,600	15,000
Radio Maintenance	136	100	100	100	100	100	100	100	100	100
Intake Maintenance	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Bldg Repair & Maint	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000
Power Purchased	110,000	113,300	116,700	120,200	123,800	127,500	131,300	135,200	139,300	143,500
Auxiliary Power Fuel	800	800	800	800	800	800	800	800	800	800
Booster Station										
Salaries and Benefits	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
Telephone & Fax	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Repairs & Maintenance	2,068	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Insurance	976	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Property Taxes	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300
Power Purchased	38,160	39,300	40,500	41,700	43,000	44,300	45,600	47,000	48,400	49,900
Sub Total Operating	\$902,419	\$930,600	\$958,700	\$987,400	\$1,016,800	\$1,047,000	\$1,078,300	\$1,110,400	\$1,143,700	\$1,177,900

Table C-4
Town of Petrolia - Water Service
Operating Budget Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Capital-Related										
Capital - Water Equipment	37,000	38,100	39,200	40,400	41,600	42,800	44,100	45,400	46,800	48,200
Capital - Booster	35,000	36,100	37,200	38,300	39,400	40,600	41,800	43,100	44,400	45,700
WTP Debenture (Principal)	529,018	551,614	575,176	599,744	572,058					
WTP Debenture (Interest)	108,402	85,805	62,244	37,676	12,058					
Water Distribution System Debenture (Principal)	8,012	8,345	8,689	9,047	9,419	9,807	10,211	10,631	11,069	11,525
Water Distribution System Debenture (Interest)	5,826	5,496	5,153	4,795	4,422	4,035	3,631	3,210	2,773	2,317
New Debt (Principal)	-	-	-	13,903	47,037	420,128	580,161	609,169	639,627	671,609
New Debt (Interest)	-	-	-	15,000	49,305	446,953	575,947	546,939	516,480	484,499
Transfer to Capital Reserve	309,636	413,978	574,274	726,493	906,295	716,704	427,597	426,980	425,326	423,035
Sub Total Capital Related	\$1,032,894	\$1,139,439	\$1,301,935	\$1,485,357	\$1,681,596	\$1,681,026	\$1,683,446	\$1,685,429	\$1,686,475	\$1,686,884
Total Expenditures	\$1,935,313	\$2,070,039	\$2,260,635	\$2,472,757	\$2,698,396	\$2,728,026	\$2,761,746	\$2,795,829	\$2,830,175	\$2,864,784
Revenues										
Water-Fixed Charges	242,720	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Water-Other Municipalities	940,000	1,018,823	1,110,936	1,212,260	1,318,144	1,318,144	1,318,144	1,318,144	1,318,144	1,318,144
Water-Services & Meters	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000
Water - Service Charges	-	100	100	100	100	100	100	100	100	100
Total Operating Revenue	1,192,720	1,273,058	1,374,373	1,485,570	1,602,036	1,613,582	1,626,230	1,639,241	1,652,515	1,666,051
Water Billing Recovery - Total	\$742,593	\$796,981	\$886,262	\$987,187	\$1,096,360	\$1,114,444	\$1,135,516	\$1,156,588	\$1,177,660	\$1,198,732

Table C-5
 Town of Petrolia - Water Service
 0% - Grant Funding
 Water Rate Forecast
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Water Billing Recovery	742,593	796,981	886,262	987,187	1,096,360	1,114,444	1,135,516	1,156,588	1,177,660	1,198,732
Total Volume (m3)	618,828	603,773	610,373	618,073	626,873	637,213	649,262	661,310	673,359	685,407
Petrolia Rate	\$1.20	\$1.32	\$1.45	\$1.60	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75
Enniskillen Rate	\$1.34	\$1.46	\$1.59	\$1.74	\$1.89	\$1.89	\$1.89	\$1.89	\$1.89	\$1.89

APPENDIX D

DETAILED WATER RATE CALCULATIONS

SCENARIO 2
33% GRANTS

Table D-1
Town of Petrolia - Water Service
Capital Budget Forecast
Uninflated \$

Description	Total	Forecast													
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				
Capital Expenditures															
New Intake	\$4,500,000									4,500,000					
Water Tower Rehabilitation - 2012	\$1,000,000		1,000,000												
Water Tower Inspection - 2011	\$10,000	10,000													
Mandamin Reservoir Expansion & PS Upgrade															
Phase 1	\$2,544,370		254,437	1,144,967	1,144,967										
Phase 2	\$6,800,000					3,400,000					3,400,000				
Phase 3 (2025) - \$6,000,000	\$0														
Studies:															
Water and Wastewater Rate Study (50% Water)	\$0														
	\$12,500	12,500													
Lifecycle:															
Water Equipment	\$0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydrants	\$91,000	0	28,770	6,860	0	41,140	0	0	6,860	0	0	0	6,860	0	7,370
Watermains	\$595,110	0	202,110	82,780	103,920	119,030	0	0	7,430	0	0	0	7,430	0	79,840
Total Capital Expenditures	\$15,552,980	\$22,500	\$1,485,317	\$1,234,607	\$1,248,887	\$8,060,170	\$3,400,000	\$0	\$14,290	\$0	\$14,290	\$0	\$0	\$0	\$87,210

Table D-2
Town of Petrolia - Water Service
Capital Budget Forecast
33% - Grant Funding
Inflated \$

Description	Total	Forecast																		
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020									
Capital Expenditures:																				
New Intake	\$4,871,000	0	0	0	0	4,871,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Tower Rehabilitation - 2012	\$1,020,000	0	1,020,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Tower Inspection - 2011	\$10,000	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mandaamin Reservoir Expansion & PS Upgrade																				
Phase 1	\$2,666,000	0	260,000	1,191,000	1,215,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase 2	\$7,434,000	0	0	0	0	3,680,000	3,754,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Phase 3 (2025) - \$6,000,000	\$0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Studies:																				
Water and Wastewater Rate Study (50% Water)	\$13,000	13,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lifecycle:																				
Hydrants	\$98,000	0	29,000	7,000	0	45,000	0	0	0	8,000	0	0	0	0	0	0	0	0	0	9,000
Watermains	\$635,000	0	206,000	86,000	110,000	129,000	0	0	0	9,000	0	0	0	0	0	0	0	0	0	95,000
Total Capital Expenditures	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$17,000	\$0	\$104,000							
Capital Funding:																				
Provincial/Federal Grants	\$3,333,000	-	85,800	393,030	400,950	1,214,400	1,238,820	-	-	-	-	-	-	-	-	-	-	-	-	-
Debtenture Requirements	\$8,700,000	-	-	-	200,000	7,000,000	1,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Reserve	\$4,714,000	23,000	1,429,200	890,970	724,050	510,600	1,015,180	-	17,000	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$17,000	\$0	\$104,000							

Table D-3
Town of Petrolia - Water Service
33% - Grant Funding
Schedule of Debenture Repayments
 Inflated \$

Debenture Year	Principal (Inflated)	Forecast											
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
2011	\$0		0	0	0	0	0	0	0	0	0	0	0
2012	\$0		0										
2013	\$0												
2014	\$200,000					19,268							
2015	\$7,000,000						19,268						
2016	\$1,500,000						674,396						
2017	\$0							144,513					
2018	\$0								0				
2019	\$0									0			
2020	\$0										0		
Total Annual Debt Charges	\$8,700,000	\$0	\$0	\$0	\$0	\$0	\$0	\$19,268	\$838,178	\$693,664	\$838,178	\$838,178	\$838,178

Financing Rate 5%
 Borrowing Term-Water 15

Table D-4
Town of Petrolia - Water Service
33% - Grant Funding
Water Reserves/ Reserve Funds Continuity
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Opening Balance	\$1,252,490	\$1,539,126	\$496,570	\$119,916	\$52,538	\$391,277	\$131,141	\$740,372	\$1,330,767	\$1,935,289
Transfer from Operating	\$309,636	\$386,644	\$514,316	\$656,673	\$849,339	\$755,044	\$609,231	\$607,395	\$604,522	\$601,011
Transfer to Capital	\$23,000	\$1,429,200	\$890,970	\$724,050	\$510,600	\$1,015,180		\$17,000		\$104,000
Transfer to Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Closing Balance	\$1,539,126	\$496,570	\$119,916	\$52,538	\$391,277	\$131,141	\$740,372	\$1,330,767	\$1,935,289	\$2,432,300
Interest	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Table D-5
Town of Petrolia - Water Service
33% - Grant Funding
Operating Budget Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Operating Costs										
Water Administration	43,227	44,500	45,800	47,200	48,600	50,100	51,600	53,100	54,700	56,300
Special Projects	25,000	26,800	27,600	28,400	29,300	30,200	31,100	32,000	33,000	34,000
Water Billing/Collection	61,870	63,700	65,600	67,600	69,600	71,700	73,900	76,100	78,400	80,800
Small Tools Expense	500	500	500	500	500	500	500	500	500	500
<u>Petrolia Distribution</u>										
Salaries	110,000	113,300	116,700	120,200	123,800	127,500	131,300	135,200	139,300	143,500
Benefits	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Equip Usage	-	-	-	-	-	-	-	-	-	-
Insurance	1,149	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Travel & Training	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Line Maint/Bs To Pet	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Water Testing Moe	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Stand Pipe & Water Tower	15,000	15,500	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700
Distribution Mains	25,000	25,800	26,600	27,400	28,200	29,000	29,800	30,800	31,700	32,700
Services Maintenance	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Meter Maintenance	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Utility Hydrant Maint	5,000	5,200	5,400	5,600	5,800	6,000	6,200	6,400	6,600	6,800
Utilities	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900
<u>Water Treatment Plant</u>										
Salaries	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Benefits	250	300	300	300	300	300	300	300	300	300
Plant Contractors	300,000	309,000	318,300	327,800	337,600	347,700	358,100	368,800	379,900	391,300
Office Supplies	-	-	-	-	-	-	-	-	-	-
Telephone & Fax	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000
Equip Repair & Maint	25,000	25,800	26,600	27,400	28,200	29,000	29,900	30,800	31,700	32,700
Insurance	5,183	5,300	5,500	5,700	5,900	6,100	6,300	6,500	6,700	6,900
Water Treatment Supplies	38,000	39,100	40,300	41,500	42,700	44,000	45,300	46,700	48,100	49,500
Analytical Services	6,000	6,200	6,400	6,600	6,800	7,000	7,200	7,400	7,600	7,800
Property Taxes	11,500	11,800	12,200	12,600	13,000	13,400	13,800	14,200	14,600	15,000
Radio Maintenance	136	100	100	100	100	100	100	100	100	100
Intake Maintenance	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Bldg Repair & Maint	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000
Power Purchased	110,000	113,300	116,700	120,200	123,800	127,500	131,300	135,200	139,300	143,500
Auxiliary Power Fuel	800	800	800	800	800	800	800	800	800	800
<u>Booster Station</u>										
Salaries and Benefits	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
Telephone & Fax	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Repairs & Maintenance	2,068	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Insurance	976	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Property Taxes	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300
Power Purchased	38,160	39,300	40,500	41,700	43,000	44,300	45,600	47,000	48,400	49,900
Sub Total Operating	\$902,419	\$930,600	\$958,700	\$987,400	\$1,016,800	\$1,047,000	\$1,078,300	\$1,110,400	\$1,143,700	\$1,177,900

Table D-5
Town of Petrolia - Water Service
33% - Grant Funding
Operating Budget Forecast
 Inflated \$

Description	Forecast										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Capital-Related											
Capital - Water Equipment	37,000	38,100	39,200	40,400	41,600	42,800	44,100	45,400	46,800	48,200	
Capital - Distribution	-	-	-	-	-	-	-	-	-	-	
Capital - Booster	35,000	36,100	37,200	38,300	39,400	40,600	41,800	43,100	44,400	45,700	
WTP Debenture (Principal)	529,018	551,614	575,176	599,744	572,058						
WTP Debenture (Interest)	108,402	85,805	62,244	37,676	12,058						
Water Distribution System Debenture (Principal)	8,012	8,345	8,689	9,047	9,419	9,807	10,211	10,631	11,069	11,525	
Water Distribution System Debenture (Interest)	5,826	5,496	5,153	4,795	4,422	4,035	3,631	3,210	2,773	2,317	
New Debt (Principal)	-	-	-	-	9,268	334,128	420,348	441,365	463,433	486,605	
New Debt (Interest)	-	-	-	-	10,000	359,537	417,830	396,813	374,745	351,573	
Transfer to Capital Reserve	309,636	386,644	514,316	656,673	849,339	755,044	609,231	607,395	604,522	601,011	
Sub Total Capital Related	\$1,032,894	\$1,112,106	\$1,241,977	\$1,386,634	\$1,547,565	\$1,545,950	\$1,547,151	\$1,547,914	\$1,547,741	\$1,546,931	
Total Expenditures	\$1,935,313	\$2,042,706	\$2,200,677	\$2,374,034	\$2,564,365	\$2,592,950	\$2,625,451	\$2,658,314	\$2,691,441	\$2,724,831	
Revenues											
Water-Fixed Charges	242,720	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808	
Water-Other Municipalities	940,000	1,004,169	1,078,953	1,159,907	1,247,539	1,247,539	1,247,539	1,247,539	1,247,539	1,247,539	
Water-Services & Meters	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000	
Water - Service Charges	-	100	100	100	100	100	100	100	100	100	
Total Operating Revenue	1,192,720	1,258,404	1,342,390	1,433,217	1,531,431	1,542,977	1,555,625	1,568,636	1,581,910	1,595,447	
Water Billing Recovery - Total	\$742,593	\$784,302	\$858,287	\$940,817	\$1,032,934	\$1,049,972	\$1,069,825	\$1,089,678	\$1,109,531	\$1,129,384	

Table D-6
Town of Petrolia - Water Service
33% - Grant Funding
Water Rate Forecast
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Water Billing Recovery	742,593	784,302	858,287	940,817	1,032,934	1,049,972	1,069,825	1,089,678	1,109,531	1,129,384
Total Volume (m3)	618,828	603,773	610,373	618,073	626,873	637,213	649,262	661,310	673,359	685,407
Petrolia Rate	\$1.20	\$1.30	\$1.41	\$1.52	\$1.65	\$1.65	\$1.65	\$1.65	\$1.65	\$1.65
Enniskillen Rate	\$1.34	\$1.44	\$1.55	\$1.66	\$1.79	\$1.79	\$1.79	\$1.79	\$1.79	\$1.79

APPENDIX E

DETAILED WATER RATE CALCULATIONS

SCENARIO 3
66% GRANTS

Table E-1
Town of Petrolia - Water Service
Capital Budget Forecast
Uninflated \$

Description	Total	Forecast																		
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020									
Capital Expenditures																				
New Intake	\$4,500,000									4,500,000										
Water Tower Rehabilitation - 2012	\$1,000,000		1,000,000																	
Water Tower Inspection - 2011	\$10,000	10,000																		
Mandamin Reservoir Expansion & PS Upgrade																				
Phase 1	\$2,544,370		254,437	1,144,967	1,144,967															
Phase 2	\$6,800,000									3,400,000	3,400,000									
Phase 3 (2025) - \$6,000,000	\$0																			
Studies:																				
Water and Wastewater Rate Study (50% Water)	\$0																			
	\$12,500	12,500																		
Lifecycle:																				
Water Equipment	\$0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydrants	\$91,000	0	28,770	6,860	0	41,140	0	6,860	0	0	0	0	6,860	0	0	0	0	0	0	7,370
Watermains	\$595,110	0	202,110	82,780	103,920	119,030	0	7,430	0	0	0	0	7,430	0	0	0	0	0	0	79,840
Total Capital Expenditures	\$15,552,980	\$22,500	\$1,485,317	\$1,234,607	\$1,248,887	\$8,060,170	\$3,400,000	\$0	\$14,290	\$0	\$14,290	\$0	\$0	\$14,290	\$0	\$0	\$0	\$0	\$0	\$87,210

Table E-2
Town of Petrolia - Water Service
Capital Budget Forecast
66% - Grant Funding
 Inflated \$

Description	Total	Forecast													
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				
Capital Expenditures:															
New Intake	\$4,871,000	0	0	0	0	4,871,000	0	0	0	0	0	0	0	0	0
Water Tower Rehabilitation - 2012	\$1,020,000	0	1,020,000	0	0	0	0	0	0	0	0	0	0	0	0
Water Tower Inspection - 2011	\$10,000	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Mandaamin Reservoir Expansion & PS Upgrade															
Phase 1	\$2,666,000	0	260,000	1,191,000	1,215,000	0	0	0	0	0	0	0	0	0	0
Phase 2	\$7,434,000	0	0	0	0	3,680,000	3,754,000	0	0	0	0	0	0	0	0
Phase 3 (2025) - \$6,000,000	\$0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Studies:															
Water and Wastewater Rate Study (50% Water)	\$13,000	13,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Lifecycle:															
Hydrants	\$98,000	0	29,000	7,000	0	45,000	0	0	0	8,000	0	0	0	0	9,000
Watermains	\$635,000	0	206,000	86,000	110,000	129,000	0	0	0	9,000	0	0	0	0	95,000
Total Capital Expenditures	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$104,000				
Capital Funding:															
Provincial/Federal Grants	\$6,666,000	-	171,600	786,060	801,900	2,428,800	2,477,640	-	-	-	-	-	-	-	-
Debtenture Requirements	\$5,900,000	-	-	-	-	5,300,000	600,000	-	-	-	-	-	-	-	-
Water Reserve	\$4,181,000	23,000	1,343,400	497,940	523,100	996,200	676,360	-	17,000	-	-	-	-	-	104,000
Total Capital Financing	\$16,747,000	\$23,000	\$1,515,000	\$1,284,000	\$1,325,000	\$8,725,000	\$3,754,000	\$0	\$17,000	\$0	\$104,000				

Table E-3
Town of Petrolia - Water Service
66% - Grant Funding
Schedule of Debenture Repayments
 Inflated \$

Debenture Year	Principal (Inflated)	Forecast												
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020			
2011	\$0		0	0	0	0	0	0	0	0	0	0	0	0
2012	\$0			0	0	0	0	0	0	0	0	0	0	0
2013	\$0				0	0	0	0	0	0	0	0	0	0
2014	\$0					0	0	0	0	0	0	0	0	0
2015	\$5,300,000							510,614	510,614	510,614	510,614	510,614	510,614	510,614
2016	\$600,000									57,805	57,805	57,805	57,805	57,805
2017	\$0													0
2018	\$0													0
2019	\$0													0
2020	\$0													0
Total Annual Debt Charges	\$5,900,000	\$0	\$510,614	\$568,419	\$568,419	\$568,419								

Financing Rate 5%
 Borrowing Term-Water 15

Table E-4
Town of Petrolia - Water Service
66% - Grant Funding
Water Reserves/ Reserve Funds Continuity
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Opening Balance	\$1,252,490	\$1,539,126	\$536,294	\$453,774	\$428,011	\$72,031	\$103,595	\$750,338	\$1,376,167	\$2,014,045
Transfer from Operating	\$309,636	\$340,568	\$415,420	\$497,337	\$640,220	\$707,924	\$646,743	\$642,829	\$637,879	\$632,291
Transfer to Capital	\$23,000	\$1,343,400	\$497,940	\$523,100	\$996,200	\$676,360		\$17,000		\$104,000
Transfer to Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Closing Balance	\$1,539,126	\$536,294	\$453,774	\$428,011	\$72,031	\$103,595	\$750,338	\$1,376,167	\$2,014,045	\$2,542,336
Interest	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Table E-5
Town of Petrolia - Water Service
66% - Grant Funding
Operating Budget Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Operating Costs										
Water Administration	43,227	44,500	45,800	47,200	48,600	50,100	51,600	53,100	54,700	56,300
Special Projects	25,000	26,800	27,600	28,400	29,300	30,200	31,100	32,000	33,000	34,000
Water Billing/Collection	61,870	63,700	65,600	67,600	69,600	71,700	73,900	76,100	78,400	80,800
Small Tools Expense	500	500	500	500	500	500	500	500	500	500
<u>Petrolia Distribution</u>										
Salaries	110,000	113,300	116,700	120,200	123,800	127,500	131,300	135,200	139,300	143,500
Benefits	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Insurance	1,149	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Travel & Training	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Line Maint/Bs To Pet	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Water Testing Moe	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Stand Pipe & Water Tower	15,000	15,500	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700
Distribution Mains	25,000	25,800	26,600	27,400	28,200	29,000	29,900	30,800	31,700	32,700
Services Maintenance	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Meter Maintenance	16,000	16,500	17,000	17,500	18,000	18,500	19,100	19,700	20,300	20,900
Utility Hydrant Maint	5,000	5,200	5,400	5,600	5,800	6,000	6,200	6,400	6,600	6,800
Utilities	4,000	4,100	4,200	4,300	4,400	4,500	4,600	4,700	4,800	4,900
<u>Water Treatment Plant</u>										
Salaries	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Benefits	250	300	300	300	300	300	300	300	300	300
Plant Contractors	300,000	309,000	318,300	327,600	337,600	347,700	358,100	368,800	379,900	391,300
Telephone & Fax	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000
Equip Repair & Maint	25,000	25,800	26,600	27,400	28,200	29,000	29,900	30,800	31,700	32,700
Insurance	5,183	5,300	5,500	5,700	5,900	6,100	6,300	6,500	6,700	6,900
Water Treatment Supplies	38,000	39,100	40,300	41,500	42,700	44,000	45,300	46,700	48,100	49,500
Analytical Services	6,000	6,200	6,400	6,600	6,800	7,000	7,200	7,400	7,600	7,800
Property Taxes	11,500	11,800	12,200	12,600	13,000	13,400	13,800	14,200	14,600	15,000
Radio Maintenance	136	100	100	100	100	100	100	100	100	100
Intake Maintenance	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Bldg Repair & Maint	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000
Power Purchased	110,000	113,300	116,700	120,200	123,800	127,500	131,300	135,200	139,300	143,500
Auxiliary Power Fuel	800	800	800	800	800	800	800	800	800	800
<u>Booster Station</u>										
Salaries and Benefits	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
Telephone & Fax	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Repairs & Maintenance	2,068	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900
Insurance	976	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Property Taxes	2,400	2,500	2,600	2,700	2,800	2,900	3,000	3,100	3,200	3,300
Power Purchased	38,160	39,300	40,500	41,700	43,000	44,300	45,600	47,000	48,400	49,900
Sub Total Operating	\$902,419	\$930,600	\$958,700	\$987,400	\$1,016,800	\$1,047,000	\$1,078,300	\$1,110,400	\$1,143,700	\$1,177,900

Table E-5
Town of Petrolia - Water Service
66% - Grant Funding
Operating Budget Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Capital-Related										
Capital - Water Equipment	37,000	38,100	39,200	40,400	41,600	42,800	44,100	45,400	46,800	48,200
Capital - Booster	35,000	36,100	37,200	38,300	39,400	40,600	41,800	43,100	44,400	45,700
WTP Debenture (Principal)	529,018	551,614	575,176	599,744	572,058					
WTP Debenture (Interest)	108,402	85,805	62,244	37,676	12,058					
Water Distribution System Debenture (Principal)	8,012	8,345	8,689	9,047	9,419	9,807	10,211	10,631	11,069	11,525
Water Distribution System Debenture (Interest)	5,826	5,496	5,153	4,795	4,422	4,035	3,631	3,210	2,773	2,317
New Debt (Principal)	-	-	-	-	-	-	-	-	-	-
New Debt (Interest)	-	-	-	-	-	-	-	-	-	-
Transfer to Capital Reserve	309,636	340,568	415,420	497,337	640,220	707,924	646,743	642,829	637,879	632,291
Sub Total Capital Related	\$1,032,894	\$1,066,029	\$1,143,082	\$1,227,298	\$1,319,178	\$1,315,780	\$1,314,904	\$1,313,590	\$1,311,340	\$1,308,452
Total Expenditures	\$1,935,313	\$1,996,629	\$2,101,782	\$2,214,698	\$2,335,978	\$2,362,780	\$2,393,204	\$2,423,990	\$2,455,040	\$2,486,352
Revenues										
Water-Fixed Charges	242,720	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Water-Other Municipalities	940,000	979,466	1,026,200	1,075,410	1,127,229	1,127,229	1,127,229	1,127,229	1,127,229	1,127,229
Water-Services & Meters	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000
Water - Service Charges	-	100	100	100	100	100	100	100	100	100
Total Operating Revenue	1,192,720	1,233,701	1,289,636	1,348,721	1,411,121	1,422,668	1,435,316	1,448,327	1,461,600	1,475,137
Water Billing Recovery - Total	\$742,593	\$762,928	\$812,145	\$865,977	\$924,857	\$940,112	\$957,888	\$975,664	\$993,439	\$1,011,215

Table E-6
 Town of Petrolia - Water Service
 66% - Grant Funding
 Water Rate Forecast
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Water Billing Recovery	742,593	762,928	812,145	865,977	924,857	940,112	957,888	975,664	993,439	1,011,215
Total Volume (m3)	618,828	603,773	610,373	618,073	626,873	637,213	649,262	661,310	673,359	685,407
Petrolia Rate	\$1.20	\$1.26	\$1.33	\$1.40	\$1.48	\$1.48	\$1.48	\$1.48	\$1.48	\$1.48
Enniskillen Rate	\$1.34	\$1.40	\$1.47	\$1.54	\$1.62	\$1.62	\$1.62	\$1.62	\$1.62	\$1.62

APPENDIX F

DETAILED WASTEWATER RATE CALCULATIONS

SCENARIO 1

**CAPITAL FULLY FUNDED BY TOWN FINANCIAL
RESOURCES - 0% GRANT FUNDING**

Table F-1
Town of Petrolia
Wastewater Service
Capital Budget Forecast
 Uninflated \$

Description	Total	Forecast																			
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020										
Capital Expenditures																					
Plant Expansion																					
Class EA Study	\$214,000	214,000																			
Pre-Design	\$240,000		240,000																		
Detail Design and Construction	\$4,940,000			4,940,000																	
Construction	\$14,820,000				14,820,000																
Pumping Stations Condition Assessment	\$75,000		75,000																		
Studies:																					
Water and Wastewater Rate Study (50% Wastewater)	\$12,500	12,500																			
	-																				
Lifecycle:																					
Wastewater Facilities	\$2,090,840	0	0	1,118,230	0	0	972,610	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sewer Laterals	\$581,420	0	132,640	50,990	199,720	159,150	0	13,530	0	0	0	0	0	0	0	0	0	0	0	0	
Manholes	\$173,530	0	55,120	7,200	58,060	33,870	0	7,600	0	0	0	0	0	0	0	0	0	0	0	0	
Sewer Mains	\$1,309,100	0	328,550	162,230	291,510	297,600	0	178,870	0	0	0	0	0	0	0	0	0	0	0	0	
Total Capital Expenditures	\$24,456,390	\$226,500	\$831,310	\$6,278,650	\$15,369,290	\$490,620	\$0	\$972,610	\$200,000	\$0	\$87,410										

Table F-2
Town of Petrolia - Wastewater Service
Capital Budget Forecast
0% Grant Funding
Inflated \$

Description	Total	Forecast													
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				
Capital Expenditures															
Plant Expansion															
Class EA Study	\$214,000	214,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre-Design	\$245,000	0	245,000	0	0	0	0	0	0	0	0	0	0	0	0
Detail Design and Construction	\$5,140,000	0	0	5,140,000	0	0	0	0	0	0	0	0	0	0	0
Construction	\$15,727,000	0	0	0	15,727,000	0	0	0	0	0	0	0	0	0	0
Pumping Stations Condition Assessment	\$77,000	0	77,000	0	0	0	0	0	0	0	0	0	0	0	0
Studies:															
Water and Wastewater Rate Study (50% Wastewater)	\$13,000	13,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Lifecycle:															
Wastewater Facilities	\$2,258,000	0	0	1,163,000	0	0	0	0	0	1,095,000	0	0	0	0	0
Sewer Laterals	\$618,000	0	135,000	53,000	212,000	172,000	0	0	0	0	16,000	0	0	0	30,000
Manholes	\$185,000	0	56,000	7,000	62,000	37,000	0	0	0	0	9,000	0	0	0	14,000
Sewer Mains	\$1,400,000	0	335,000	169,000	309,000	322,000	0	0	0	0	205,000	0	0	0	60,000
Total Capital Expenditures	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000	\$0	\$0	\$0	\$104,000
Capital Financing															
Provincial/Federal Grants	\$0														
Debtenture Requirements	\$20,500,000			5,000,000	15,000,000	500,000									
Wastewater Reserve	\$5,377,000	227,000	848,000	1,532,000	1,310,000	31,000					1,095,000				104,000
Total Capital Financing	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000	\$0	\$0	\$0	\$104,000

Table F-3
 Town of Petrolia - Wastewater Service
 0% Grant Funding
 Schedule of Debenture Repayments
 Inflated \$

Debenture Year	Principal (Inflated)	Forecast												
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020			
2011	\$0		0	0	0	0	0	0	0	0	0	0	0	0
2012	\$0		0	0	0	0	0	0	0	0	0	0	0	0
2013	\$5,000,000				401,213	401,213	401,213	401,213	401,213	401,213	401,213	401,213	401,213	401,213
2014	\$15,000,000					1,203,639	1,203,639	1,203,639	1,203,639	1,203,639	1,203,639	1,203,639	1,203,639	1,203,639
2015	\$500,000						40,121	40,121	40,121	40,121	40,121	40,121	40,121	40,121
2016	\$0							0	0	0	0	0	0	0
2017	\$0								0	0	0	0	0	0
2018	\$0									0	0	0	0	0
2019	\$0										0	0	0	0
2020	\$0											0	0	0
Total Annual Debt Charges	\$20,500,000	\$0	\$0	\$0	\$401,213	\$1,604,852	\$1,644,973	\$1,644,973	\$1,644,973	\$1,644,973	\$1,644,973	\$1,644,973	\$1,644,973	\$1,644,973

Financing Rate 5%
 Borrowing Term-Water 20

Table F-4
Town of Petrolia - Wastewater Service
0% Grant Funding
Wastewater Reserves/ Reserve Funds Continuity
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Opening Balance	\$1,919,023	\$2,027,696	\$1,686,244	\$953,288	\$424,275	\$475,627	\$766,569	\$171,471	\$481,023	\$1,059,725
Transfer from Operating	\$335,674	\$506,547	\$799,044	\$780,987	\$82,352	\$290,942	\$499,902	\$539,552	\$578,702	\$617,153
Transfer to Capital	\$227,000	\$848,000	\$1,532,000	\$1,310,000	\$31,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000
Transfer to Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Closing Balance	\$2,027,696	\$1,686,244	\$953,288	\$424,275	\$475,627	\$766,569	\$171,471	\$481,023	\$1,059,725	\$1,572,878
Interest	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Table F-5
Town of Petrolia - Wastewater Service
Operating Budget Forecast
Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Expenditures										
Operating Costs										
Sanitary Sewers										
Salaries	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Benefits	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Materials/Supplies	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
Sewer Cleaning	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Sewer Monitor/Inspection	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Special Projects	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Water Pollution Control Plant										
Salaries	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400
Benefits	600	600	600	600	600	600	600	600	600	600
Insurance	13,337	13,700	14,100	14,500	14,900	15,300	15,800	16,300	16,800	17,300
Property Taxes	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Plant & Equip Maint	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Contract Services	400,445	412,500	424,900	437,600	450,700	464,200	478,100	492,400	507,200	522,400
Sub Total Operating	\$498,282	\$513,100	\$528,300	\$544,000	\$560,400	\$577,200	\$594,500	\$612,200	\$630,400	\$649,300
Capital-Related										
Wastewater Debenture - Collection System (Principal)	9,291	9,674	10,072	10,487	10,918	11,368	11,836	12,323	12,831	13,359
Wastewater Debenture - Collection System (Interest)	6,753	6,371	5,972	5,558	5,126	4,676	4,208	3,721	3,214	2,685
New Debt (Principal)	-	-	-	151,213	612,412	658,154	691,062	725,615	761,896	799,991
New Debt (Interest)	-	-	-	250,000	992,439	986,819	953,911	919,358	883,077	844,982
Transfer To Reserve	335,674	506,547	799,044	780,987	82,352	290,942	499,902	539,552	578,702	617,153
Sub Total Capital Related	\$351,718	\$522,592	\$815,089	\$1,198,245	\$1,703,248	\$1,951,960	\$2,160,919	\$2,200,570	\$2,239,720	\$2,278,170
Total Expenditures	\$850,000	\$1,035,692	\$1,343,389	\$1,742,245	\$2,263,648	\$2,529,160	\$2,755,419	\$2,812,770	\$2,870,120	\$2,927,470
Revenues										
Base Charge	-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	-	-	-	-	-	-	-	-	-	-
Wastewater Billing Recovery - Total	\$850,000	\$1,035,692	\$1,343,389	\$1,742,245	\$2,263,648	\$2,529,160	\$2,755,419	\$2,812,770	\$2,870,120	\$2,927,470

Table F-6
 Town of Petrolia - Wastewater Service
 0% Grant Funding
 Wastewater Rate Forecast
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Wastewater Billing Recovery	850,000	1,035,692	1,343,389	1,742,245	2,263,648	2,529,160	2,755,419	2,812,770	2,870,120	2,927,470
Total Consumption (m ³)	566,667	538,835	545,435	552,035	559,735	568,535	578,875	590,923	602,972	615,020
Constant Rate	\$1.50	\$1.92	\$2.46	\$3.16	\$4.04	\$4.45	\$4.76	\$4.76	\$4.76	\$4.76

APPENDIX G

DETAILED WASTEWATER RATE CALCULATIONS

SCENARIO 2
33% GRANTS

Table G-1
Town of Petrolia
Wastewater Service
Capital Budget Forecast
 Uninflated \$

Description	Total	Forecast													
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				
Capital Expenditures															
Plant Expansion															
Class EA Study	\$214,000	214,000													
Pre-Design	\$240,000		240,000												
Detail Design and Construction	\$4,940,000			4,940,000											
Construction	\$14,820,000				14,820,000										
Pumping Stations Condition Assessment	\$75,000		75,000												
Studies:															
Water and Wastewater Rate Study (50% Wastewater)	\$12,500	12,500													
Lifecycle:															
Wastewater Facilities	\$2,090,840	0	0	1,118,230	0	0	972,610	0	0	0	0	0	0	0	0
Sewer Laterals	\$581,420	0	132,640	50,990	199,720	159,150	0	13,530	0	0	0	0	0	0	25,390
Manholes	\$173,530	0	55,120	7,200	58,060	33,870	0	7,600	0	0	0	0	0	0	11,680
Sewer Mains	\$1,309,100	0	328,550	162,230	291,510	297,600	0	178,870	0	0	0	0	0	0	50,340
Total Capital Expenditures	\$24,456,390	\$226,500	\$831,310	\$6,278,650	\$15,369,290	\$490,620	\$0	\$972,610	\$200,000	\$0	\$0	\$0	\$0	\$0	\$87,410

Table G-2
Town of Petrolia - Wastewater Service
Capital Budget Forecast
33% Grant Funding
 Inflated \$

Description	Total	Forecast													
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020				
Capital Expenditures															
Plant Expansion															
Class EA Study	\$214,000	214,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre-Design	\$245,000	0	245,000	0	0	0	0	0	0	0	0	0	0	0	0
Detail Design and Construction	\$5,140,000	0	0	5,140,000	0	0	0	0	0	0	0	0	0	0	0
Construction	\$15,727,000	0	0	0	15,727,000	0	0	0	0	0	0	0	0	0	0
Pumping Stations Condition Assessment	\$77,000	0	77,000	0	0	0	0	0	0	0	0	0	0	0	0
Studies:															
Water and Wastewater Rate Study (50% Wastewater)	\$13,000	13,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Lifecycle:															
Wastewater Facilities	\$2,258,000	0	0	1,163,000	0	0	0	0	0	0	1,095,000	0	0	0	0
Sewer Laterals	\$618,000	0	135,000	53,000	212,000	172,000	0	0	0	0	16,000	0	0	0	30,000
Manholes	\$185,000	0	56,000	7,000	62,000	37,000	0	0	0	0	9,000	0	0	0	14,000
Sewer Mains	\$1,400,000	0	335,000	169,000	309,000	322,000	0	0	0	0	205,000	0	0	0	60,000
Total Capital Expenditures	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000	\$0	\$0	\$0	\$104,000
Capital Financing															
Provincial/Federal Grants	\$6,966,960		80,850	1,696,200	5,189,910										
Debtenture Requirements	\$13,500,000			3,000,000	10,500,000										
Wastewater Reserve	\$5,410,040	227,000	767,150	1,835,800	620,090	531,000		1,095,000	230,000						104,000
Total Capital Financing	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000	\$0	\$0	\$0	\$104,000

Table G-3
 Town of Petrolia - Wastewater Service
 33% Grant Funding
 Schedule of Debenture Repayments
 Inflated \$

Debenture Year	Principal (Inflated)	Forecast																			
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020										
2011	\$0		0		0		0		0		0		0		0		0		0		0
2012	\$0		0		0		0		0		0		0		0		0		0		0
2013	\$3,000,000						240,728		240,728		240,728		240,728		240,728		240,728		240,728		240,728
2014	\$10,500,000								842,547		842,547		842,547		842,547		842,547		842,547		842,547
2015	\$0								0		0		0		0		0		0		0
2016	\$0										0		0		0		0		0		0
2017	\$0												0		0		0		0		0
2018	\$0														0		0		0		0
2019	\$0																0		0		0
2020	\$0																		0		0
Total Annual Debt Charges	\$13,500,000	\$0	\$0	\$0	\$240,728	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275	\$1,083,275

Financing Rate 5%
 Borrowing Term-Water 20

Table G-4
Town of Petrolia - Wastewater Service
33% Grant Funding
Wastewater Reserves/ Reserve Funds Continuity
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Opening Balance	\$1,919,023	\$2,027,696	\$1,764,006	\$719,253	\$814,259	\$347,418	\$634,759	\$88,621	\$436,462	\$1,042,781
Transfer from Operating	\$335,674	\$503,460	\$791,046	\$715,096	\$64,159	\$287,341	\$548,862	\$577,841	\$606,319	\$634,097
Transfer to Capital	\$227,000	\$767,150	\$1,835,800	\$620,090	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000
Transfer to Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Closing Balance	\$2,027,696	\$1,764,006	\$719,253	\$814,259	\$347,418	\$634,759	\$88,621	\$436,462	\$1,042,781	\$1,572,878
Interest	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Table G-5
Town of Petrolia - Wastewater Service
33% Grant Funding
Operating Budget Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Expenditures										
Operating Costs										
Sanitary Sewers										
Salaries	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Benefits	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Materials/Supplies	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
Sewer Cleaning	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Special Proj Planning	-	-	-	-	-	-	-	-	-	-
Sewer Monitor/Inspection	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Special Projects	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Water Pollution Control Plant										
Salaries	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400
Benefits	600	600	600	600	600	600	600	600	600	600
Insurance	13,337	13,700	14,100	14,500	14,900	15,300	15,800	16,300	16,800	17,300
Property Taxes	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Plant & Equip Maint	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Contract Services	400,445	412,500	424,900	437,600	450,700	464,200	478,100	492,400	507,200	522,400
Sub Total Operating	\$498,282	\$513,100	\$528,300	\$544,000	\$560,400	\$577,200	\$594,500	\$612,200	\$630,400	\$649,300
Capital-Related										
Wastewater Debeniture - Collection System (Principal)	9,291	9,674	10,072	10,487	10,918	11,368	11,836	12,323	12,831	13,359
Wastewater Debeniture - Collection System (Interest)	6,753	6,371	5,972	5,558	5,126	4,676	4,208	3,721	3,214	2,685
New Debt (Principal)	-	-	-	90,728	412,811	433,452	455,124	477,881	501,775	526,863
New Debt (Interest)	-	-	-	150,000	670,464	649,823	628,150	605,394	581,500	556,411
Transfer To Reserve	335,674	503,460	791,046	715,096	64,159	287,341	548,862	577,841	606,319	634,097
Sub Total Capital Related	\$351,718	\$519,504	\$807,091	\$971,868	\$1,163,478	\$1,386,661	\$1,648,181	\$1,677,160	\$1,705,638	\$1,733,417
Total Expenditures	\$850,000	\$1,032,604	\$1,335,391	\$1,515,868	\$1,723,878	\$1,963,861	\$2,242,681	\$2,289,360	\$2,336,038	\$2,382,717
Revenues										
Base Charge	-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	-	-	-	-	-	-	-	-	-	-
Wastewater Billing Recovery - Total	\$850,000	\$1,032,604	\$1,335,391	\$1,515,868	\$1,723,878	\$1,963,861	\$2,242,681	\$2,289,360	\$2,336,038	\$2,382,717

Table G-6
 Town of Petrolia - Wastewater Service
 33% Grant Funding
 Wastewater Rate Forecast
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Wastewater Billing Recovery	850,000	1,032,604	1,335,391	1,515,868	1,723,878	1,963,861	2,242,681	2,289,360	2,336,038	2,382,717
Total Consumption (m ³)	566,667	538,835	545,435	552,035	559,735	568,535	578,875	590,923	602,972	615,020
Constant Rate	\$1.50	\$1.92	\$2.45	\$2.75	\$3.08	\$3.45	\$3.87	\$3.87	\$3.87	\$3.87

APPENDIX H

DETAILED WASTEWATER RATE CALCULATIONS

SCENARIO 3
66% GRANTS

Table H-2
Town of Petrolia - Wastewater Service
Capital Budget Forecast
66% Grant Funding
Inflated \$

Description	Total	Forecast																		
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020									
Capital Expenditures																				
Plant Expansion																				
Class EA Study	\$214,000	214,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pre-Design	\$245,000	0	245,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detail Design and Construction	\$5,140,000	0	0	5,140,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Construction	\$15,727,000	0	0	0	15,727,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pumping Stations Condition Assessment	\$77,000	0	77,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Studies:																				
Water and Wastewater Rate Study (50% Wastewater)	\$13,000	13,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lifecycle:																				
Wastewater Facilities	\$2,258,000	0	0	1,163,000	0	0	0	0	0	0	0	1,095,000	0	0	0	0	0	0	0	0
Sewer Laterals	\$618,000	0	135,000	53,000	212,000	172,000	0	0	0	0	16,000	0	0	0	0	0	0	0	0	30,000
Manholes	\$185,000	0	56,000	7,000	62,000	37,000	0	0	0	0	9,000	0	0	0	0	0	0	0	0	14,000
Sewer Mains	\$1,400,000	0	335,000	169,000	309,000	322,000	0	0	0	0	205,000	0	0	0	0	0	0	0	0	60,000
Total Capital Expenditures	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000	\$0	\$0	\$0	\$0	\$0	\$104,000
Capital Financing																				
Provincial/Federal Grants	\$13,933,920		161,700	3,392,400	10,379,820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debtenture Requirements	\$6,500,000		-	1,000,000	5,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Reserve	\$5,443,080	227,000	686,300	2,139,600	430,180	531,000	-	1,095,000	230,000	-	1,095,000	230,000	-	-	-	-	-	-	-	104,000
Total Capital Financing	\$25,877,000	\$227,000	\$848,000	\$6,532,000	\$16,310,000	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000	\$0	\$0	\$0	\$0	\$0	\$104,000

Table H-3
 Town of Petrolia - Wastewater Service
 66% Grant Funding
 Schedule of Debenture Repayments
 Inflated \$

Debenture Year	Principal (Inflated)	Forecast									
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
2011	\$0	0	0	0	0	0	0	0	0	0	0
2012	\$0	0	0	0	0	0	0	0	0	0	0
2013	\$1,000,000				80,243	80,243	80,243	80,243	80,243	80,243	80,243
2014	\$5,500,000				441,334	441,334	441,334	441,334	441,334	441,334	441,334
2015	\$0				0	0	0	0	0	0	0
2016	\$0										
2017	\$0										
2018	\$0										
2019	\$0										
2020	\$0										
Total Annual Debt Charges	\$6,500,000	\$0	\$0	\$0	\$80,243	\$521,577	\$521,577	\$521,577	\$521,577	\$521,577	\$521,577

Financing Rate 5%
 Borrowing Term-Water 20

Table H-4
Town of Petrolia - Wastewater Service
66% Grant Funding
Wastewater Reserves/ Reserve Funds Continuity
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Opening Balance	\$1,919,023	\$2,027,696	\$1,798,812	\$333,824	\$576,772	\$365,530	\$783,821	\$218,552	\$535,171	\$1,098,180
Transfer from Operating	\$335,674	\$457,416	\$674,611	\$673,129	\$319,758	\$418,291	\$529,730	\$546,620	\$563,009	\$578,698
Transfer to Capital	\$227,000	\$686,300	\$2,139,600	\$430,180	\$531,000	\$0	\$1,095,000	\$230,000	\$0	\$104,000
Transfer to Operating	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Closing Balance	\$2,027,696	\$1,798,812	\$333,824	\$576,772	\$365,530	\$783,821	\$218,552	\$535,171	\$1,098,180	\$1,572,878
Interest	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Table H-5
Town of Petrolia - Wastewater Service
66% Grant Funding
Operating Budget Forecast
Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Expenditures										
Operating Costs										
Sanitary Sewers										
Salaries	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Benefits	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Materials/Supplies	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
Sewer Cleaning	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Sewer Monitor/Inspection	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Special Projects	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Water Pollution Control Plant										
Salaries	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400
Benefits	600	600	600	600	600	600	600	600	600	600
Insurance	13,337	13,700	14,100	14,500	14,900	15,300	15,800	16,300	16,800	17,300
Property Taxes	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Plant & Equip Maint	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Contract Services	400,445	412,500	424,900	437,600	450,700	464,200	478,100	492,400	507,200	522,400
Sub Total Operating	\$498,282	\$513,100	\$528,300	\$544,000	\$560,400	\$577,200	\$594,500	\$612,200	\$630,400	\$649,300
Capital-Related										
Wastewater Debeniture - Collection System (Principal)	9,291	9,674	10,072	10,487	10,918	11,368	11,836	12,323	12,831	13,359
Wastewater Debeniture - Collection System (Interest)	6,753	6,371	5,972	5,558	5,126	4,676	4,208	3,721	3,214	2,685
New Debt (Principal)	-	-	-	30,243	198,089	207,993	218,393	229,313	240,778	252,817
New Debt (Interest)	-	-	-	50,000	323,488	313,583	303,184	292,264	280,798	268,760
Transfer To Reserve	335,674	457,416	674,611	673,129	319,758	418,291	529,730	546,620	563,009	578,698
Sub Total Capital Related	\$351,718	\$473,461	\$690,656	\$769,416	\$857,379	\$955,912	\$1,067,352	\$1,084,241	\$1,100,630	\$1,116,319
Total Expenditures	\$850,000	\$986,561	\$1,218,956	\$1,313,416	\$1,417,779	\$1,533,112	\$1,661,852	\$1,696,441	\$1,731,030	\$1,765,619
Revenues										
Base Charge	-	-	-	-	-	-	-	-	-	-
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	-	-	-	-	-	-	-	-	-	-
Wastewater Billing Recovery - Total	\$850,000	\$986,561	\$1,218,956	\$1,313,416	\$1,417,779	\$1,533,112	\$1,661,852	\$1,696,441	\$1,731,030	\$1,765,619

Table H-6
 Town of Petrolia - Wastewater Service
 66% Grant Funding
 Wastewater Rate Forecast
 Inflated \$

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Wastewater Billing Recovery	850,000	986,561	1,218,956	1,313,416	1,417,779	1,533,112	1,661,852	1,696,441	1,731,030	1,765,619
Total Consumption (m ³)	566,667	538,835	545,435	552,035	559,735	568,535	578,875	590,923	602,972	615,020
Constant Rate	\$1.50	\$1.83	\$2.23	\$2.38	\$2.53	\$2.70	\$2.87	\$2.87	\$2.87	\$2.87

APPENDIX I

WASTEWATER RATE CALCULATIONS WITH BASE CHARGE
- ALL SCENARIOS

**Table I-1
Town of Petrolia - Wastewater Rate Summaries
Based on 220 m³ annual volume**

Calculations of Wastewater Rates - With Base Charge (same as Water Base Charge)

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Monthly Base Rate		\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Rate Bill	\$0.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
% Increase - Base Rate			2%	2%	2%	2%	2%	2%	2%	2%

Wastewater Rate Summary - 0% Grant Funding - With Base Charge (same as Water Base Charge)

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Constant Rate	\$1.50	\$1.85	\$2.28	\$2.82	\$3.48	\$3.83	\$4.10	\$4.10	\$4.10	\$4.10
Annual Volume Bill	\$330.00	\$407.26	\$502.61	\$620.29	\$765.52	\$842.07	\$901.02	\$901.02	\$901.02	\$901.02
Total Annual Bill	\$330.00	\$508.06	\$605.81	\$725.89	\$873.52	\$952.47	\$1,013.82	\$1,016.22	\$1,018.62	\$1,021.02
% Increase - Total Annual Bill	0.0%	54.0%	19.2%	19.8%	20.3%	9.0%	6.4%	0.2%	0.2%	0.2%

Wastewater Rate Summary - 33% Grant Funding - With Base Charge (same as Water Base Charge)

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Constant Rate	\$1.50	\$1.87	\$2.32	\$2.52	\$2.74	\$2.98	\$3.25	\$3.25	\$3.25	\$3.25
Annual Volume Bill	\$330.00	\$410.38	\$510.33	\$555.02	\$603.63	\$656.49	\$713.98	\$713.98	\$713.98	\$713.98
Total Annual Bill	\$330.00	\$511.18	\$613.53	\$660.62	\$711.63	\$766.89	\$826.78	\$829.18	\$831.58	\$833.98
% Increase - Total Annual Bill	0.0%	54.9%	20.0%	7.7%	7.7%	7.8%	7.8%	0.3%	0.3%	0.3%

Wastewater Rate Summary - 66% Grant Funding - With Base Charge (same as Water Base Charge)

Description	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Constant Rate	\$1.50	\$1.77	\$2.08	\$2.12	\$2.17	\$2.21	\$2.26	\$2.26	\$2.26	\$2.26
Annual Volume Bill	\$330.00	\$388.46	\$457.27	\$466.93	\$476.80	\$486.88	\$497.17	\$497.17	\$497.17	\$497.17
Total Annual Bill	\$330.00	\$489.26	\$560.47	\$572.53	\$584.80	\$597.28	\$609.97	\$612.37	\$614.77	\$617.17
% Increase - Total Annual Bill	0.0%	48.3%	14.6%	2.2%	2.1%	2.1%	2.1%	0.4%	0.4%	0.4%

Table I-1
Town of Petrolia
Base Charge - Wastewater (same as Water Base Charge)

All new customers (from growth forecast) are shown in the 5/8" metric meters.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
gallon - 3/4"											
Existing	4	4	4	4	4	4	4	4	4	4	4
New											
Subtotal Customers	4	4	4	4	4	4	4	4	4	4	4
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$396	\$403	\$413	\$422	\$432	\$442	\$451	\$461	\$470	\$480
gallon - 5/8"											
Existing	525	527	527	527	527	527	527	527	527	527	527
New											
Subtotal Customers	525	527									
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$52,173	\$53,122	\$54,386	\$55,651	\$56,916	\$58,181	\$59,446	\$60,710	\$61,975	\$63,240
gallon - 1"											
Existing	6	6	6	6	6	6	6	6	6	6	6
New											
Subtotal Customers	6	6	6	6	6	6	6	6	6	6	6
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$594	\$605	\$619	\$634	\$648	\$662	\$677	\$691	\$706	\$720
gallon - 1 1/2"											
Existing	1	1	1	1	1	1	1	1	1	1	1
New											
Subtotal Customers	1	1	1	1	1	1	1	1	1	1	1
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$99	\$101	\$103	\$106	\$108	\$110	\$113	\$115	\$118	\$120
gallon - 2"											
Existing	8	8	8	8	8	8	8	8	8	8	8
New											
Subtotal Customers	8	8	8	8	8	8	8	8	8	8	8
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$792	\$806	\$826	\$845	\$864	\$883	\$902	\$922	\$941	\$960
metric - 3/4"											
Existing	37	37	37	37	37	37	37	37	37	37	37
New											
Subtotal Customers	37	37	37	37	37	37	37	37	37	37	37
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$3,663	\$3,730	\$3,818	\$3,907	\$3,996	\$4,085	\$4,174	\$4,262	\$4,351	\$4,440
metric - 5/8"											
Existing	1,744	1,752	1,752	1,752	1,752	1,752	1,752	1,752	1,752	1,752	1,752
New		15	45	75	110	150	197	252	307	361	416
Subtotal Customers	1,744	1,767	1,797	1,827	1,862	1,902	1,949	2,004	2,059	2,113	2,168
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$174,933	\$181,138	\$188,546	\$196,627	\$205,416	\$215,170	\$226,025	\$237,143	\$248,524	\$260,168
metric - 1"											
Existing	14	14	14	14	14	14	14	14	14	14	14

Table I-1
Town of Petrolia
Base Charge - Wastewater (same as Water Base Charge)

All new customers (from growth forecast) are shown in the 5/8" metric meters.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
New											
Subtotal Customers	14	14	14	14	14	14	14	14	14	14	14
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$1,386	\$1,411	\$1,445	\$1,478	\$1,512	\$1,546	\$1,579	\$1,613	\$1,646	\$1,680
metric - 1 1/2"											
Existing	3	3	3	3	3	3	3	3	3	3	3
New											
Subtotal Customers	3	3	3	3	3	3	3	3	3	3	3
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$297	\$302	\$310	\$317	\$324	\$331	\$338	\$346	\$353	\$360
metric - 2"											
Existing	14	14	14	14	14	14	14	14	14	14	14
New											
Subtotal Customers	14	14	14	14	14	14	14	14	14	14	14
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$1,386	\$1,411	\$1,445	\$1,478	\$1,512	\$1,546	\$1,579	\$1,613	\$1,646	\$1,680
metric - 4"											
Existing	6	6	6	6	6	6	6	6	6	6	6
New											
Subtotal Customers	6	6	6	6	6	6	6	6	6	6	6
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$594	\$605	\$619	\$634	\$648	\$662	\$677	\$691	\$706	\$720
metric - 6"											
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
Subtotal Customers	2	2	2	2	2	2	2	2	2	2	2
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$198	\$202	\$206	\$211	\$216	\$221	\$226	\$230	\$235	\$240
Out-of-boundary Customers											
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
Subtotal Customers	2	2	2	2	2	2	2	2	2	2	2
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$198	\$202	\$206	\$211	\$216	\$221	\$226	\$230	\$235	\$240
Out-of-boundary Customers											
Existing	2	2	2	2	2	2	2	2	2	2	2
New											
Subtotal Customers	2	2	2	2	2	2	2	2	2	2	2
Monthly Base Charge	\$0.00	\$8.25	\$8.40	\$8.60	\$8.80	\$9.00	\$9.20	\$9.40	\$9.60	\$9.80	\$10.00
Annual Base Charge	\$0.00	\$99.00	\$100.80	\$103.20	\$105.60	\$108.00	\$110.40	\$112.80	\$115.20	\$117.60	\$120.00
Total Annual Revenue	\$0	\$198	\$202	\$206	\$211	\$216	\$221	\$226	\$230	\$235	\$240
Wastewater											
Existing	2,366	2,376	2,376	2,376	2,376	2,376	2,376	2,376	2,376	2,376	2,376
New	-	23	45	75	110	150	197	252	307	361	416
Subtotal Customers	2,366	2,399	2,421	2,451	2,486	2,526	2,573	2,628	2,683	2,737	2,792
Total Annual Revenue	\$0	\$236,511	\$243,835	\$252,737	\$262,310	\$272,592	\$283,838	\$296,186	\$308,797	\$321,671	\$334,808

**Table I-3
Town of Petrolia - Wastewater Service
0% Grant Funding - With Base Charge (same as Water Base Charge)
Operating Budget Forecast
Inflated \$**

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Expenditures										
Operating Costs										
Sanitary Sewers										
Salaries	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Benefits	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Materials/Supplies	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
Sewer Cleaning	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Sewer Monitor/Inspection	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Special Projects	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Water Pollution Control Plant										
Salaries	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400
Benefits	600	600	600	600	600	600	600	600	600	600
Insurance	13,337	13,700	14,100	14,500	14,900	15,300	15,800	16,300	16,800	17,300
Property Taxes	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Plant & Equip Maint	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Contract Services	400,445	412,500	424,900	437,600	450,700	464,200	478,100	492,400	507,200	522,400
Sub Total Operating	\$498,282	\$513,100	\$528,300	\$544,000	\$560,400	\$577,200	\$594,500	\$612,200	\$630,400	\$649,300
Capital-Related										
Wastewater Debenture - Collection System (Principal)	9,291	9,674	10,072	10,487	10,918	11,368	11,836	12,323	12,831	13,359
Wastewater Debenture - Collection System (Interest)	6,753	6,371	5,972	5,558	5,126	4,676	4,208	3,721	3,214	2,685
New Debt (Principal)	-	-	-	151,213	612,412	658,154	691,062	725,615	761,896	799,991
New Debt (Interest)	-	-	-	250,000	992,439	986,819	953,911	919,358	883,077	844,982
Transfer To Reserve	335,674	712,178	954,500	857,519	38,970	221,746	411,470	455,726	499,745	543,327
Sub Total Capital Related	\$351,718	\$728,223	\$970,544	\$1,274,777	\$1,659,866	\$1,882,763	\$2,072,488	\$2,116,744	\$2,160,763	\$2,204,344
Total Expenditures	\$850,000	\$1,241,323	\$1,498,844	\$1,818,777	\$2,220,266	\$2,459,963	\$2,666,988	\$2,728,944	\$2,791,163	\$2,853,644
Revenues										
Base Charge	-	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	-	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Wastewater Billing Recovery - Total	\$850,000	\$997,488	\$1,246,107	\$1,556,467	\$1,947,674	\$2,176,125	\$2,370,801	\$2,420,146	\$2,469,492	\$2,518,837

**Table I-4
Town of Petrolia - Wastewater Service
0% Grant Funding - With Base Charge (same as Water Base Charge)
Wastewater Rate Forecast
Inflated \$**

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Wastewater Billing Recovery	850,000	997,488	1,246,107	1,556,467	1,947,674	2,176,125	2,370,801	2,420,146	2,469,492	2,518,837
Total Consumption (m³)	566,667	538,835	545,435	552,035	559,735	568,535	578,875	590,923	602,972	615,020
Constant Rate	\$1.50	\$1.85	\$2.28	\$2.82	\$3.48	\$3.83	\$4.10	\$4.10	\$4.10	\$4.10

Table I-5
 Town of Petrolia - Wastewater Service
 33% Grant Funding - With Base Charge (same as Water Base Charge)
 Operating Budget Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Expenditures										
Operating Costs										
Sanitary Sewers										
Salaries	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Benefits	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Materials/Supplies	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
Sewer Cleaning	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Special Proj Planning	-	-	-	-	-	-	-	-	-	-
Sewer Monitor/Inspection	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Special Projects	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Water Pollution Control Plant										
Salaries	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400
Benefits	600	600	600	600	600	600	600	600	600	600
Insurance	13,337	13,700	14,100	14,500	14,900	15,300	15,800	16,300	16,800	17,300
Property Taxes	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Plant & Equip Maint	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Contract Services	400,445	412,500	424,900	437,600	450,700	464,200	478,100	492,400	507,200	522,400
Sub Total Operating	\$498,282	\$513,100	\$528,300	\$544,000	\$560,400	\$577,200	\$594,500	\$612,200	\$630,400	\$649,300
Capital-Related										
Wastewater Debuture - Collection System (Principal)	9,291	9,674	10,072	10,487	10,918	11,368	11,836	12,323	12,831	13,359
Wastewater Debuture - Collection System (Interest)	6,753	6,371	5,972	5,558	5,126	4,676	4,208	3,721	3,214	2,685
New Debt (Principal)	-	-	-	90,728	412,811	433,452	455,124	477,881	501,775	526,863
New Debt (Interest)	-	-	-	150,000	670,464	649,823	628,150	605,394	581,500	556,411
Transfer To Reserve	335,674	719,809	973,637	854,231	148,651	303,845	481,015	515,028	548,803	582,141
Sub Total Capital Related	\$351,718	\$735,853	\$989,682	\$1,111,004	\$1,247,971	\$1,403,165	\$1,580,335	\$1,614,347	\$1,648,123	\$1,681,461
Total Expenditures	\$850,000	\$1,248,953	\$1,517,982	\$1,655,004	\$1,808,371	\$1,980,365	\$2,174,835	\$2,226,547	\$2,278,523	\$2,330,761
Revenues										
Base Charge	-	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	-	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Wastewater Billing Recovery - Total	\$850,000	\$1,005,118	\$1,265,245	\$1,392,693	\$1,535,779	\$1,696,526	\$1,878,648	\$1,917,750	\$1,956,852	\$1,995,953

Table I-6
 Town of Petrolia - Wastewater Service
 33% Grant Funding - With Base Charge (same as Water Base Charge)
 Wastewater Rate Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Wastewater Billing Recovery	850,000	1,005,118	1,265,245	1,392,693	1,535,779	1,696,526	1,878,648	1,917,750	1,956,852	1,995,953
Total Consumption (m ³)	566,667	538,835	545,435	552,035	559,735	568,535	578,875	590,923	602,972	615,020
Constant Rate	\$1.50	\$1.87	\$2.32	\$2.52	\$2.74	\$2.98	\$3.25	\$3.25	\$3.25	\$3.25

Table I-7
Town of Petrolia - Wastewater Service
66% Grant Funding - With Base Charge (same as Water Base Charge)
Operating Budget Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Expenditures										
Operating Costs										
Sanitary Sewers										
Salaries	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Benefits	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Materials/Supplies	1,800	1,900	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700
Sewer Cleaning	8,000	8,200	8,400	8,700	9,000	9,300	9,600	9,900	10,200	10,500
Special Proj Planning	-	-	-	-	-	-	-	-	-	-
Sewer Monitor/Inspection	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Special Projects	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Water Pollution Control Plant										
Salaries	3,500	3,600	3,700	3,800	3,900	4,000	4,100	4,200	4,300	4,400
Benefits	600	600	600	600	600	600	600	600	600	600
Insurance	13,337	13,700	14,100	14,500	14,900	15,300	15,800	16,300	16,800	17,300
Property Taxes	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Plant & Equip Maint	20,000	20,600	21,200	21,800	22,500	23,200	23,900	24,600	25,300	26,100
Contract Services	400,445	412,500	424,900	437,600	450,700	464,200	478,100	492,400	507,200	522,400
Sub Total Operating	\$498,282	\$513,100	\$528,300	\$544,000	\$560,400	\$577,200	\$594,500	\$612,200	\$630,400	\$649,300
Capital-Related										
Wastewater Debenture - Collection System (Principal)	9,291	9,674	10,072	10,487	10,918	11,368	11,836	12,323	12,831	13,359
Wastewater Debenture - Collection System (Interest)	6,753	6,371	5,972	5,558	5,126	4,676	4,208	3,721	3,214	2,685
New Debt (Principal)	-	-	-	30,243	198,089	207,993	218,393	229,313	240,778	252,817
New Debt (Interest)	-	-	-	50,000	323,488	313,583	303,184	292,264	280,798	268,760
Transfer To Reserve	335,674	666,114	842,067	793,669	387,670	427,234	472,244	494,383	516,285	537,750
Sub Total Capital Related	\$351,718	\$682,159	\$858,111	\$889,956	\$925,291	\$964,855	\$1,009,866	\$1,032,004	\$1,053,906	\$1,075,371
Total Expenditures	\$850,000	\$1,195,259	\$1,386,411	\$1,433,956	\$1,485,691	\$1,542,055	\$1,604,366	\$1,644,204	\$1,684,306	\$1,724,671
Revenues										
Base Charge	-	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Contributions from Reserves / Reserve Funds	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	-	243,835	252,737	262,310	272,592	283,838	296,186	308,797	321,671	334,808
Wastewater Billing Recovery - Total	\$850,000	\$951,424	\$1,133,675	\$1,171,646	\$1,213,099	\$1,258,216	\$1,308,179	\$1,335,407	\$1,362,635	\$1,389,863

Table I-8
Town of Petrolia - Wastewater Service
66% Grant Funding - With Base Charge (same as Water Base Charge)
Wastewater Rate Forecast
 Inflated \$

Description	Forecast									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Wastewater Billing Recovery	850,000	951,424	1,133,675	1,171,646	1,213,099	1,258,216	1,308,179	1,335,407	1,362,635	1,389,863
Total Consumption (m ³)	566,667	538,835	545,435	552,035	559,735	568,535	578,875	590,923	602,972	615,020
Constant Rate	\$1.50	\$1.77	\$2.08	\$2.12	\$2.17	\$2.21	\$2.26	\$2.26	\$2.26	\$2.26

APPENDIX J

2012 DEBT CAPACITY CALCULATIONS



Ministry of Municipal Affairs and Housing
 777 Bay Street,
 Toronto, Ontario M5G 2E5

Ministère des affaires municipales et du logement
 777 rue Bay,
 Toronto (Ontario) M5G 2E5

2012 ANNUAL REPAYMENT LIMIT
 (UNDER ONTARIO REGULATION 403/02)

MMAH CODE: 54402 **FIR CLEAN FLAG:** C
MUNID: 38019
MUNICIPALITY: Petrolia T
UPPER TIER: Lambton Co
REPAYMENT LIMIT: \$ 669,036

The repayment limit has been calculated based on data contained in the 2010 Financial Information Return, as submitted to the Ministry. This limit represents the maximum amount which the municipality had available as of December 31, 2010 to commit to payments relating to debt and financial obligation. Prior to the authorization by Council of a long term debt or financial obligation, this limit must be adjusted by the Treasurer in the prescribed manner. The limit is effective January 01, 2012.

FOR ILLUSTRATION PURPOSES ONLY,

The additional long-term borrowing which a municipality could undertake over a 5-year, a 10-year, a 15-year and a 20-year period is show.

If the municipalities could borrow at 5% or 7% annually, the annual repayment limits shown above would allow it to undertake additional long-term borrowing as follows:

5% Interest Rate	
(a) 20 years @ 5% p.a.	\$ 8,337,667
(a) 15 years @ 5% p.a.	\$ 6,944,365
(a) 10 years @ 5% p.a.	\$ 5,166,119
(a) 5 years @ 5% p.a.	\$ 2,896,576
7% Interest Rate	
(a) 20 years @ 7% p.a.	\$ 7,087,777
(a) 15 years @ 7% p.a.	\$ 6,093,522
(a) 10 years @ 7% p.a.	\$ 4,699,029
(a) 5 years @ 7% p.a.	\$ 2,743,180

DETERMINATION OF ANNUAL DEBT REPAYMENT LIMIT

(UNDER ONTARIO REGULATION 403/02)

MUNICIPALITY:

Petrolia T

MMAH CODE:

54402

Debt Charges for the Current Year

0210	Principal (SLC 74 3099 01)	2,061,989
0220	Interest (SLC 74 3099 02)	310,584
0299	Subtotal	2,372,573

Ontario Clean Water Agency Provincial Projects

0410	Water projects - For this Municipality only (SLC 74 2810 03)	0
0420	Water projects - Share of integrated project(s) (SLC 74 2820 03)	0
0430	Wastewater projects - For this Municipality only (SLC 74 2830 03)	0
0440	Wastewater projects - Share of integrated project(s) (SLC 74 2840 03)	0
0499	Subtotal	0

0610	Payments for Long Term Commitments and Liabilities financed from the consolidated statement of operations (SLC 42 6010 01)	0
0810	Debt Charges for Lease Purchase Agreements (Tangible Capital Leases) (SLC 74 3140 03)	0
9910	Total Debt Charges	2,372,573

Amounts Recovered from Unconsolidated Entities

1010	Electricity - Principal (SLC 74 3030 01)	0
1020	Electricity - Interest (SLC 74 3030 02)	0
1030	Gas - Principal (SLC 74 3040 01)	0
1040	Gas - Interest (SLC 74 3040 02)	0
1050	Telephone - Principal (SLC 74 3050 01)	0
1060	Telephone - Interest (SLC 74 3050 02)	0
1099	Subtotal	0

1410	Debt Charges for Tile Drainage/Shoreline Assistance (SLC 74 3015 01 + SLC 74 3015 02)	0
1411	Provincial Grant funding for repayment of long term debt (SLC 74 3120 01 + SLC 74 3120 02)	0
1420	Total Debt Charges to be Excluded	0
9920	Net Debt Charges	1,259,523

1610	Total Revenues (Sale of Hydro Utilities Removed) (SLC 10 9910 01)	11,924,885
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Excluded Revenue Amounts

2010	Fees for Tile Drainage / Shoreline Assistance (SLC 12 1850 04)	0
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Grants from Government of Ontario, Canada and Other Municipalities

2210	Ontario Grants, including Grants for Tangible Capital Assets (SLC 10 0699 01 + SLC 10 0810 01 + SLC 10 0815 01)	1,658,019
2220	Canada Grants, including Grants for Tangible Capital Assets (SLC 10 0820 01 + SLC 10 0825 01)	1,345,906
2230	Revenue from other municipalities (SLC 10 1099 01)	1,200,524
2240	Gain/Loss on sale of land & capital assets (SLC 10 1811 01)	6,200
2250	Deferred revenue earned (Development Charges) (SLC 10 1812 01)	0
2251	Deferred revenue earned (Recreation Land (The Planning Act)) (SLC 10 1813 01)	0
2252	Donated Tangible Capital Assets (SLC 53 0610 01)	0
2299	Subtotal	4,210,649

2410	Fees and Revenue for Joint Local Boards for Homes for the Aged	0
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	Net Revenues	7,714,236
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	25% of Net Revenues	1,928,559
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9930	ESTIMATED ANNUAL REPAYMENT LIMIT	669,036
	<small>(25% of Net Revenues less Net Debt Charges)</small>	

* SLC denotes Schedule, Line Column.