

**Town of Petawawa**

**Water and Wastewater  
Rate Study Update**

January 14, 2016



Plaza Three  
101-2000 Argentia Rd.  
Mississauga, Ontario  
Canada L5N 1V9

Phone: (905) 272-3600

Fax: (905) 272-3602

e-mail: [info@watson-econ.ca](mailto:info@watson-econ.ca)

[www.watson-econ.ca](http://www.watson-econ.ca)

 **Planning for growth**

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# 1. Introduction

## 1.1 Background

The Town of Petawawa has a present population of approximately 16,000 people and serves approximately 4,243 water users and 2,892 wastewater users. There are customers who are connected to Town water services but are not connected to Town wastewater services (i.e. they have private septic systems). Moreover, the Town provides both water and wastewater services to Garrison Petawawa, which is considered one metered customer for both water and wastewater purposes.

The treatment of water and wastewater, as well as storage and distribution of water and collection of wastewater is the responsibility of the Town; however a minor portion of water demand is currently being supplied by the City of Pembroke. The water and wastewater systems are largely unmetered with a minimal number of users on metered rate systems. For the metered customers, rates are imposed on a consumptive basis (i.e. \$ per cubic meter) with a minimum bill imposed. Unmetered customers are charged an annual flat rate based on customer type. The water and wastewater rates currently imposed are summarized below.

**Table 1-1  
2015 Water and Wastewater Rates**

| 2015                   | Water                              | Wastewater |
|------------------------|------------------------------------|------------|
|                        | <b>Annual Flat Rate (per Unit)</b> |            |
| Residential            | \$ 268.33                          | \$ 316.54  |
| Commercial             | \$ 311.56                          | \$ 373.40  |
| Commercial High Volume | \$ 453.17                          | \$ 541.80  |
| School (per classroom) | \$ 198.26                          | \$ 283.40  |
|                        | <b>Volume Charge</b>               |            |
| per m <sup>3</sup>     | \$ 0.8600                          | \$ 0.7371  |
| Minimum Quarterly Bill | \$ 77.89                           | \$ 93.35   |

## 1.2 Study Process

Watson & Associates Economists Ltd. was retained by the Town of Petawawa to undertake a water and wastewater rate study. The objectives of the study and the steps involved in carrying out this assignment are summarized below:

- Estimate future customer/user levels by applying demand assumptions to forecast growth identified by the Town's 2014 Development Charges Background Study;

- Build a capital program that blends lifecycle needs arising from the Town's Asset Management Plan with specific needs identified by Town staff, OCWA and the Town's 2014 Development Charges Background Study;
- Identify potential methods of cost recovery from the capital needs listing, as an offset to recovery through the water and wastewater rates;
- Forecast annual operating costs and rate-based funding requirements;
- Assess adequacy of forecast water and wastewater rates within the Town's by-law in addressing long-term financial plan needs; and
- Develop long-term water and wastewater rate forecasts and present findings to Town staff and Council for their consideration.

In approaching this study, the following analysis is provided herein:

- Chapter 1 – Introduction
- Chapter 2 – Forecast Growth and Service Demands
- Chapter 3 – Capital Infrastructure Needs
- Chapter 4 – Capital Cost Financing Options
- Chapter 5 – Operating Expenditure Forecast
- Chapter 6 – Forecast Water and Wastewater Rates

### **1.3 Regulatory Changes in Ontario**

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

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

The following sections describe significant applicable regulatory areas.

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## 1.4 Sustainable Water and Sewage Systems Act

The Sustainable Water and Sewage Systems Act was passed on December 13, 2002. The intent of the Act was to introduce the requirement for municipalities to undertake an assessment of the “full cost” of providing their water and the wastewater services. In total, there were 40 areas within the Act to which the Minister may make Regulations, however regulations were never issued. On December 31, 2012, the Sustainable Water and Sewage Systems Act was repealed.

## 1.5 Safe Drinking Water Act

The Safe Drinking Water Act was passed in December, 2002. The Safe Drinking Water Act provides for 50 of the 93 Walkerton Part II recommendations. It focuses on the administrative and operational aspects of the provision of water. The Safe Drinking Water Act is being implemented in stages.

“The purpose of the Safe Drinking Water Act is to protect human health through the control and regulation of drinking-water systems and drinking-water testing. Building on existing policy and practice in Ontario's treatment and distribution of drinking water, the Safe Drinking Water Act requires that all municipal drinking water systems obtain an approval from the Director of the Ministry of the Environment in order to operate. Operators are required to be trained and certified to provincial standards. The act also provides legally binding standards for testing of drinking water and requires that testing be done in licensed and accredited laboratories.”<sup>1</sup>

The following is a brief summary of the key elements included in the Safe Drinking Water Act:

- Mandatory licensing and accreditation of testing laboratories;
- New standards for treatment, distribution quality and testing;
- Mandatory operator training and certification;
- Mandatory licensing of municipal water providers;
- Stronger enforcement and compliance provisions; and
- “Standard of care” requirements for municipalities.

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<sup>1</sup> The Ministry of Environment

[http://www.ene.gov.on.ca/environment/en/legislation/safe\\_drinking\\_water\\_act/index.html](http://www.ene.gov.on.ca/environment/en/legislation/safe_drinking_water_act/index.html)

This legislation impacts the costs of operating a water system with the need for higher skilled operators including increased training costs, increased reporting protocols and requirements, continuing enhancements to quality standards and the costs to licence each water system.

## **1.6 Financial Plans Regulation**

On August 16, 2007, the Ministry of Environment introduced Ontario Regulation 453/07 which requires the preparation of financial plans for water systems (and municipalities are encouraged to prepare plans for wastewater systems). The Ministry of Environment has also provided a Financial Plan Guideline to assist municipalities with preparing the plans. A brief summary of the key elements of the regulation is provided below:

- The financial plan will represent one of the key elements to obtain a Drinking Water License.
- The plan is to be completed, approved by Council Resolution and submitted to the Ministry of Municipal Affairs and Housing as part of the application for receiving approval of a water license.
- The financial plans shall be for a period of at least six years but longer planning horizons are encouraged.
- As the regulation is under the Safe Drinking Water Act, the preparation of the plan is mandatory for water services and encouraged for wastewater services.
- The plan is considered a living document (i.e. can be updated if there are significant changes to budgets) 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, and providing detailed capital inventories. In addition, Public Sector Accounting Board full accrual 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, net debt, etc.).
- The financial plans must be made available to the public (at no charge) upon request and be available on the municipality's web site. The availability of this information must also be advertised.

In general, the financial principles of this regulation follow the intent of the Sustainable Water and Sewage Systems Act, 2002 to move municipalities towards financial sustainability for water services. 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: Lifecycle planning with mid-course corrections is preferable to planning over the short-term, or not planning at all.
- Principle #5: An asset management plan is a key input to the development of a financial plan.
- Principle #6: A sustainable level of revenue allows for reliable service that meets or exceeds environmental protection standards, while providing sufficient resources for future rehabilitation and replacement needs.
- Principle #7: Ensuring users pay for the services they are provided leads to equitable outcomes and can improve conservation. In general, metering and the use of rates can help ensure users pay for services received.
- Principle #8: Financial Plans are “living” documents that require continuous improvement. Comparing the accuracy of financial projections with actual results can lead to improved planning in the future.

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

## **1.7 Water Opportunities Act**

The Water Opportunities Act received Royal Assent on November 29, 2010. 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 Bill extends from the water financial plan and requires a more detailed review of the water financial plan and requires a full plan for wastewater and stormwater services;
- Regulations (when issued) 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 Sustainability 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:



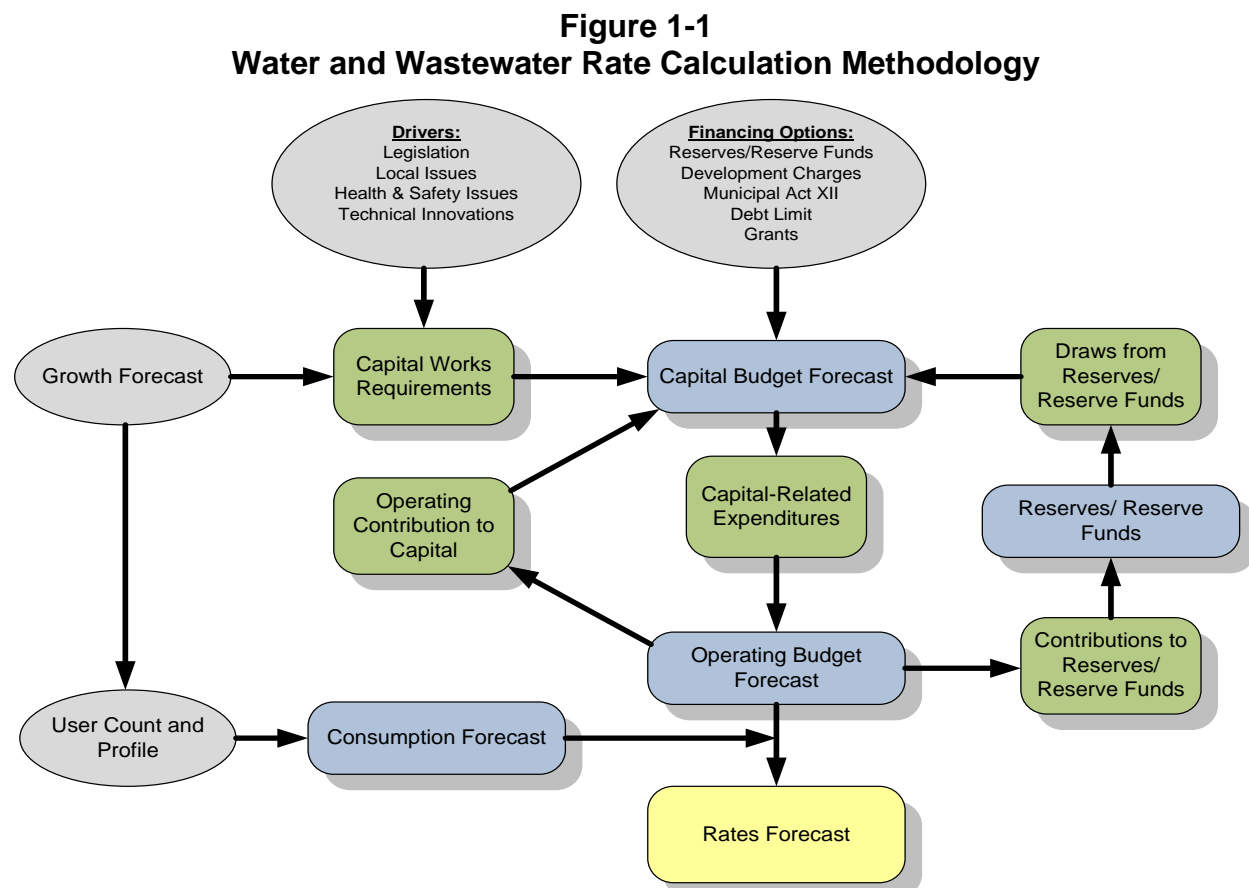
- May relate to the financing, operation or maintenance of a municipal service or to any other matter in respect of which information may be required to be included in a plan;
- May be different for different municipal service providers or for municipal services in different areas of the Province.

Regulations will prescribe:

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

## 1.8 Water and Wastewater Rate Calculation Methodology

Figure 1-1 illustrates the general methodology used in determining the full cost recovery water and wastewater rate forecast.



The methodology employed generally consists of 5 major elements:

1. Customer Demands and Consumption Forecast

This first step in the analysis is important as it produces the current base revenue by source and assumptions for forecasting purposes. The customer profile forecast is modeled based on the Town's anticipated growth forecast, by type. Moreover, the customer forecast is modelled for the water and wastewater systems independently to identify differences in service demands, if any.

The water consumption forecast for metered customers is prepared by applying annual consumption estimates to the forecast period. The forecast may adjust the base consumption levels for anticipated water conservation based on historic trends and industry witnessed practices. Consumption estimates are based on average consumption levels by customer type drawn from Town records, and adjusted accordingly based on discussions with Town staff.

2. Capital Needs Forecast

The capital needs forecast is developed to measure program/service level adjustments, lifecycle requirements and growth-related needs. The Town's capital budget, Development Charge Background Study, Asset Management Plan as well as the OCWA prepared capital forecast provided the base capital forecast with adjustments made by Town staff for specific projects and annual provisions. Capital expenditures are forecast with inflationary adjustments based on capital costs indices.

3. Capital Funding Plan

The capital funding plan considers the potential funding sources available to address the capital needs forecast. The sources of capital funding include rate-based support, reserves/reserve funds, debt and development charges for growth related projects. The use of rate-based funding is measured against the revenue projections and affordability impacts. The reserve/reserve fund sources are measured against the sustainability of these funds, relative to lifecycle demands, revenue projections and affordability impacts. Debt financing is considered for significant capital expenditures, where funding is required beyond long-term lifecycle needs or to facilitate rate transition policies. Debt financing is measured in against the Town's debt policies and annual repayment limits to ensure a practical and sustainable funding mix.

4. Operating Budget Forecast

The operating budget forecast considers adjustments to the Town's base budget reflecting program/service level changes, operating fund impacts associated with infrastructure and financing for capital needs. The operating expenditures are forecast with inflationary adjustments and growth in service demand, based on fixed and variable cost characteristics. The operating budget forecast ties the capital funding plan and reserve/reserve fund continuity forecast to the rate-based revenue projections. This ensures sufficient funding for both the ongoing annual operation and maintenance of water and wastewater services, as well as the capital cost requirements to ensure service sustainability.

5. Rate Forecast and Structure

The rate forecast and structure component of the analysis considers the various rate structures to recover the forecast rate-based revenue from the projected customer demands. At this stage in the analysis the full costs of service are measured against the customer growth and consumption demands to determine full cost recovery rates. The analysis may consider alternative structures for various components of the rates, consistent with municipal policies/strategies, industry practice and customer affordability. Providing context to the rate forecast, the results are quantified to measure the impacts on customers and in relation to other municipalities.

## 2. Forecast Growth and Service Demands

### 2.1 Current Service Demands

In preparing the demands forecast for water and wastewater services, the Town provided historical water consumption for all metered water and wastewater users. In addition, Town staff provided estimates for Garrison Petawawa's water consumption and wastewater flows for the forecast period (i.e. 2016 to 2025). It is noted that in 2016, Garrison Petawawa is anticipated to transition from wastewater billings based on water consumption to wastewater billings based on wastewater flows, as a wastewater meter was installed for this purpose.

### 2.2 Forecast Service Demands

Flat rate customer levels were adjusted over the forecast period based on the Town's growth projections to forecast future service demands. The growth forecast was extracted from the Town's 2014 Development Charges Background Study.

Table 2-1, 2-2 and 2-3 summarizes the water and wastewater new user forecast, water "residential equivalent" customer forecast, and wastewater "residential equivalent" customer forecast respectively, for the period 2016 to 2025. Residential-equivalent multiples per customer type are based on the current flat fees for each customer type, as a multiple of the residential flat fee. A summary of the residential-equivalent multiples is as follows:

|                          | <u>Water</u> | <u>Wastewater</u> |
|--------------------------|--------------|-------------------|
| • Residential            | 1.00         | 1.00              |
| • Commercial             | 1.16         | 1.18              |
| • Commercial High Volume | 1.69         | 1.71              |
| • Industrial             | 1.69         | 1.71              |
| • School (per Classroom) | 0.25         | 0.25              |

The school (per classroom) multiple was reviewed with Town staff as part of this update. In 2015 and prior years, this multiple was 0.74 for water and 0.90 for wastewater, representing a school's "residential equivalency" with respect to water consumption. With the intent of aligning current flat rate school customers with existing metered schools from a billing perspective, these multiples were reduced to 0.25 for the forecast period, reflecting a multiple that approximates metered school water usage.

As shown in Table 2-1, water and wastewater residential-equivalent customers are anticipated to increase by approximately 840 customers by 2025. Water and wastewater consumption by metered users are forecast to remain at 2016 projected levels over the forecast period. Tables 2-2 and 2-3 illustrate the estimated annual water consumption and wastewater flows of Garrison Petawawa of 1,100,000 m<sup>3</sup> and 800,000 m<sup>3</sup> respectively, representing the more significant metered customer on the systems.

**Table 2-1  
Town of Petawawa  
Water and Wastewater New User Forecast (Residential Equivalent)**

*Water/Wastewater New Users Forecast*

| Year  | Total New Users<br>(Residential<br>Equivalent) | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|-------|--|------|------|------|------|------|------|------|------|------|------|
| 2016  | 84   | 42   | 84   | 84   | 84   | 84   | 84   | 84   | 84   | 84   | 84   |
| 2017  | 84   |      | 42   | 84   | 84   | 84   | 84   | 84   | 84   | 84   | 84   |
| 2018  | 84   |      |      | 42   | 84   | 84   | 84   | 84   | 84   | 84   | 84   |
| 2019  | 84   |      |      |      | 42   | 84   | 84   | 84   | 84   | 84   | 84   |
| 2020  | 84   |      |      |      |      | 42   | 84   | 84   | 84   | 84   | 84   |
| 2021  | 84   |      |      |      |      |      | 42   | 84   | 84   | 84   | 84   |
| 2022  | 84   |      |      |      |      |      |      | 42   | 84   | 84   | 84   |
| 2023  | 84   |      |      |      |      |      |      |      | 42   | 84   | 84   |
| 2024  | 84   |      |      |      |      |      |      |      |      | 42   | 84   |
| 2025  | 84   |      |      |      |      |      |      |      |      |      | 42   |
| Total | 840  | 42   | 126  | 210  | 294  | 378  | 462  | 546  | 630  | 714  | 798  |

**Table 2-2**  
**Town of Petawawa**  
**Water Customer and Consumption Forecast**

| <b>Water Customer Forecast (Residential Equivalent)</b> | <b>2016</b> | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023</b> | <b>2024</b> | <b>2025</b> |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Existing Non-Metered                                    | 4,255       | 4,255       | 4,255       | 4,255       | 4,255       | 4,255       | 4,255       | 4,255       | 4,255       | 4,255       |
| New - Growth  | 42          | 126         | 210         | 294         | 378         | 462         | 546         | 630         | 714         | 798         |
| Total Non-Metered                                       | 4,297       | 4,381       | 4,465       | 4,549       | 4,633       | 4,717       | 4,801       | 4,885       | 4,969       | 5,053       |
| Metered   | 26          | 26          | 26          | 26          | 26          | 26          | 26          | 26          | 26          | 26          |
| Total   | 4,323       | 4,407       | 4,491       | 4,575       | 4,659       | 4,743       | 4,827       | 4,911       | 4,995       | 5,079       |

| <b>Water Consumption Forecast (m³)</b> | <b>2016</b> | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023</b> | <b>2024</b> | <b>2025</b> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Metered Users                          | 52,611      | 52,611      | 52,611      | 52,611      | 52,611      | 52,611      | 52,611      | 52,611      | 52,611      | 52,611      |
| Garrison (estimate)                    | 1,100,000   | 1,100,000   | 1,100,000   | 1,100,000   | 1,100,000   | 1,100,000   | 1,100,000   | 1,100,000   | 1,100,000   | 1,100,000   |
| Total                                  | 1,152,611   | 1,152,611   | 1,152,611   | 1,152,611   | 1,152,611   | 1,152,611   | 1,152,611   | 1,152,611   | 1,152,611   | 1,152,611   |

**Table 2-3**  
**Town of Petawawa**  
**Wastewater Customer and Consumption/Flow Forecast**

| <b>Wastewater Customer Forecast<br/>(Residential Equivalent)</b> | <b>2016</b> | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023</b> | <b>2024</b> | <b>2025</b> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Existing Non-Metered   | 2,896       | 2,896       | 2,896       | 2,896       | 2,896       | 2,896       | 2,896       | 2,896       | 2,896       | 2,896       |
| New - Growth   | 42          | 126         | 210         | 294         | 378         | 462         | 546         | 630         | 714         | 798         |
| Total Non-Metered  | 2,938       | 3,022       | 3,106       | 3,190       | 3,274       | 3,358       | 3,442       | 3,526       | 3,610       | 3,694       |
| Metered  | 20          | 20          | 20          | 20          | 20          | 20          | 20          | 20          | 20          | 20          |
| Total  | 2,958       | 3,042       | 3,126       | 3,210       | 3,294       | 3,378       | 3,462       | 3,546       | 3,630       | 3,714       |

| <b>Wastewater Flow Forecast (m<sup>3</sup>)</b> | <b>2016</b> | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> | <b>2023</b> | <b>2024</b> | <b>2025</b> |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Metered Users                                   | 16,794      | 16,794      | 16,794      | 16,794      | 16,794      | 16,794      | 16,794      | 16,794      | 16,794      | 16,794      |
| Garrison (estimate)                             | 800,000     | 800,000     | 800,000     | 800,000     | 800,000     | 800,000     | 800,000     | 800,000     | 800,000     | 800,000     |
| Total   | 816,794     | 816,794     | 816,794     | 816,794     | 816,794     | 816,794     | 816,794     | 816,794     | 816,794     | 816,794     |



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## 3. Capital Infrastructure Needs

### 3.1 Overview of Lifecycle Costing

#### 3.1.1 Definition

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

By definition, lifecycle costs are all the costs which are incurred during the lifecycle of a physical asset, from the time its acquisition is first considered, to the time it is taken out of service for disposal or redeployment. The stages which the asset goes through in its lifecycle are specification, design, manufacture (or build), installation, commissioning, operation, maintenance 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.

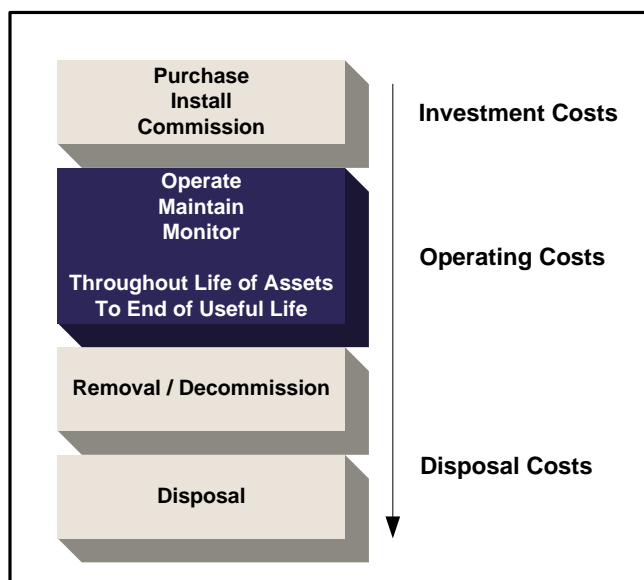
In a municipal context, services are provided to benefit tax/rate payers. Acquisition of assets is normally timed in relation to direct needs within the community. At times, economies of scale or technical efficiencies will lead to oversizing an asset to accommodate future growth within the municipality. 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, the most common being operating budget contributions, development charges, reserves, developer contributions and debentures.

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 municipality 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  
Lifecycle Costing**



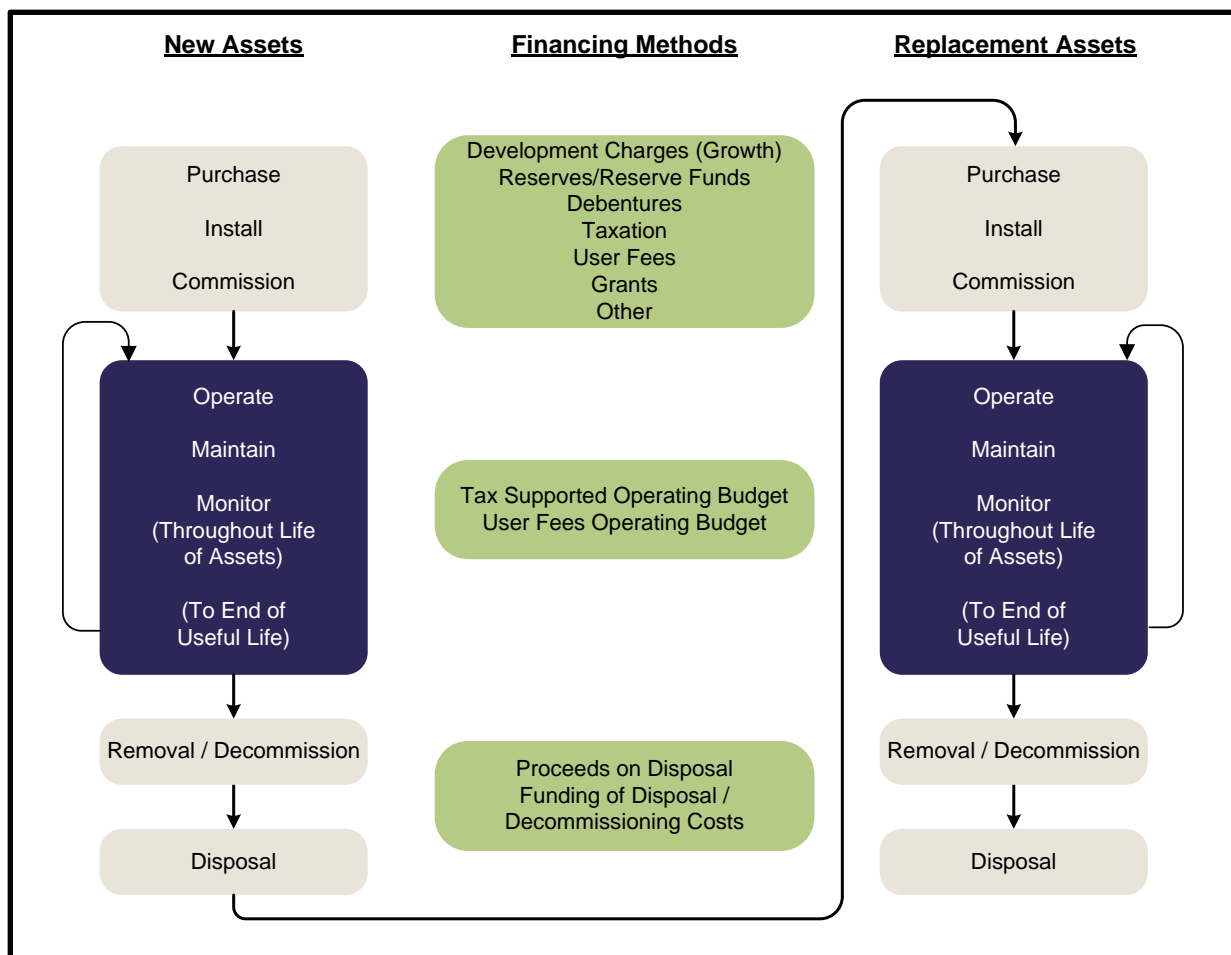
However, capital construction to replace existing infrastructure is largely not growth-related and will therefore not yield development charges or developer contributions to assist in financing these works. Hence, a municipality will be dependent upon debentures, reserves and contributions from the operating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

**Figure 3-2  
Financing Lifecycle Costs**



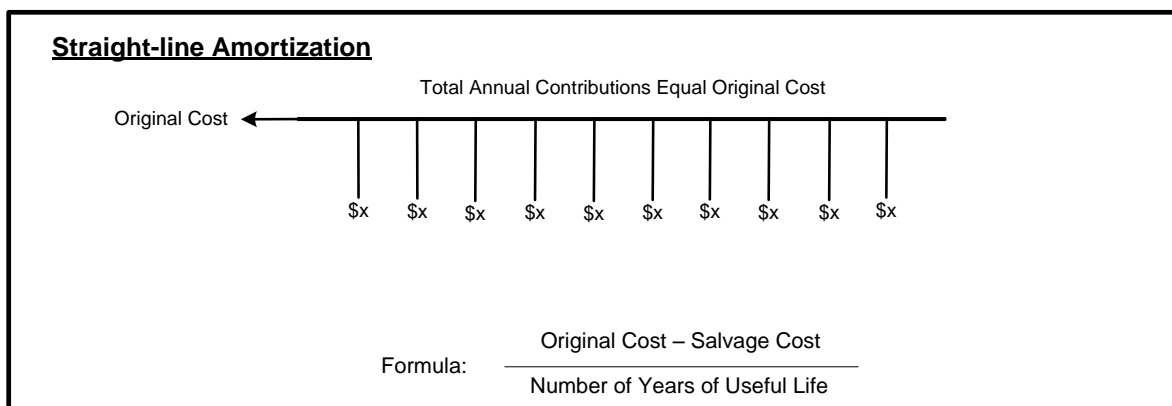
Charging for the cost of using up of an asset is the fundamental concept behind amortization methods utilized by the private sector. This concept allows for expending the asset as it is used up in the production process. The tracking of these costs forms part of the product's selling price and hence end users are charged for the asset's

amortization. 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.

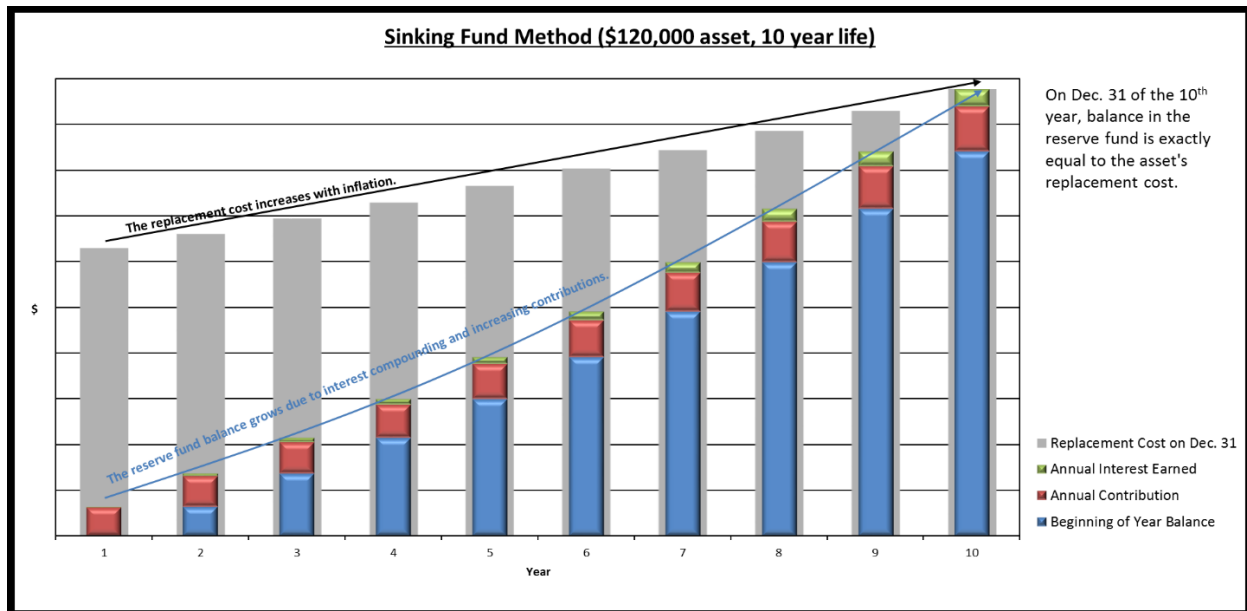
### 3.1.3 Costing Methods

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 Amortization 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 amortization: the straight-line method and the reducing balance method.

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



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



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

### 3.2 Asset Inventory

Water and wastewater capital asset inventory information was obtained from the Town's Asset Management Plan inventory database. Please refer to the Town's 2013 Asset Management Plan for detailed capital asset inventories.

Lifecycle "sinking fund" contribution amounts for each piece of infrastructure have been included. These calculations determine the level of capital investment to be included in the full cost assessment and rate forecast. Table 3-1 summarizes the estimated 2015 asset replacement value and long-term annual lifecycle replacement needs (based on useful life) in 2015 and 2025 dollars, representing the first and last years of the forecast period.

**Table 3-1**  
**Town of Petawawa**  
**Summary of Water and Wastewater Infrastructure**

| Area                    | Total Replacement Value | Annual Lifecycle Replacement |                  |
|-------------------------|-------------------------|------------------------------|------------------|
|                         | 2015 \$                 | 2015 \$                      | 2025 \$          |
| <b>Water</b>            |                         |                              |                  |
| Water Facilities        | 17,587,767              | 282,318                      | 379,411          |
| Water Mains             | 28,084,273              | 921,297                      | 1,238,146        |
| <b>Total Water</b>      | <b>45,672,040</b>       | <b>1,203,615</b>             | <b>1,617,558</b> |
| <b>Wastewater</b>       |                         |                              |                  |
| Wastewater Facilities   | 26,949,762              | 287,666                      | 386,599          |
| Wastewater Mains        | 17,726,450              | 348,357                      | 468,162          |
| <b>Total Wastewater</b> | <b>44,676,212</b>       | <b>636,023</b>               | <b>854,761</b>   |
| <b>Total</b>            | <b>90,348,252</b>       | <b>1,839,637</b>             | <b>2,472,319</b> |

### 3.3 Capital Forecast

Ten-year capital forecasts have been developed for the water and wastewater systems to address capital needs across all areas of the systems. The forecasts include projects included in the Town's Capital Forecast, Asset Management Plan, 2014 Development Charges Background Study, OCWA Capital Forecast and additional projects identified by Town staff.

The capital forecasts are summarized in Tables 3-2 and 3-3 for water and wastewater services respectively. These capital needs are forecast in current year dollars (i.e. 2015 \$). The water capital plan totals \$13.1 million and the wastewater capital plan totals \$20.2 million over the forecast period.

For rate determination purposes, the capital needs forecast will be indexed by 3% annually.

**Table 3-2**  
**Town of Petawawa**  
**Water Service**  
**Capital Budget Forecast – Uninflated\$**

| Description   | Total            | Budget<br>2015 | Forecast       |               |                |               |               |               |               |               |               |               |
|---|------------------|----------------|----------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|   |                  |                | 2016           | 2017          | 2018           | 2019          | 2020          | 2021          | 2022          | 2023          | 2024          | 2025          |
| <b>Capital Expenditures</b>   |                  |                |                |               |                |               |               |               |               |               |               |               |
| <b>Capital - Water System</b>   |                  |                |                |               |                |               |               |               |               |               |               |               |
| Replace existing 500 mm Water main at Plant                                       | 32,000           | 32,000         |                |               |                |               |               |               |               |               |               |               |
| McGregor Hill Watermain   | 15,000           | 15,000         |                |               |                |               |               |               |               |               |               |               |
| Future Looping of Watermain from Portage to Woodland - portion of Portage Landing | 39,671           | 39,671         |                |               |                |               |               |               |               |               |               |               |
| New Backup Backwash Pump System   | 727,270          | 727,270        |                |               |                |               |               |               |               |               |               |               |
| Rate Study Update and Water Financial Plan  | 30,000           |                |                |               |                |               |               | 15,000        |               |               |               | 15,000        |
| <b>Subtotal</b>   | <b>843,941</b>   | <b>813,941</b> | -              | -             | -              | -             | -             | <b>15,000</b> | -             | -             | -             | <b>15,000</b> |
| <b>Water Treatment Plant - OCWA Forecast</b>                                      |                  |                |                |               |                |               |               |               |               |               |               |               |
| Intake facility   | 10,075           | -              | 5,000          | -             | -              | -             | -             | -             | 5,075         | -             | -             | -             |
| Raw Water Well and Screening  | 11,703           | 1,000          | 1,000          | 1,015         | 1,030          | 1,046         | 1,061         | 1,077         | 1,093         | 1,110         | 1,126         | 1,143         |
| Low Lift Pumping Station  | 12,273           | 3,000          | -              | -             | 3,045          | -             | -             | 3,091         | -             | -             | 3,137         | -             |
| Mixing  | 5,000            | -              | -              | 5,000         | -              | -             | -             | -             | -             | -             | -             | -             |
| Flocculation Tanks  | 10,467           | -              | -              | -             | 5,000          | -             | -             | -             | -             | -             | 5,467         | -             |
| Clarifiers  | 10,467           | -              | -              | -             | 5,000          | -             | -             | -             | -             | -             | 5,467         | -             |
| Filters   | 40,960           | 3,500          | 3,500          | 3,553         | 3,606          | 3,660         | 3,715         | 3,770         | 3,827         | 3,884         | 3,943         | 4,002         |
| Filter Back Wash - Replacement  | 150,000          | -              | -              | -             | 150,000        | -             | -             | -             | -             | -             | -             | -             |
| Filter Back Wash - Piping Installation  | -                | -              | -              | -             | -              | -             | -             | -             | -             | -             | -             | -             |
| Clearwell   | 5,000            | -              | 5,000          | -             | -              | -             | -             | -             | -             | -             | -             | -             |
| High Lift Pumping Station   | 190,000          | 20,000         | 20,000         | -             | 150,000        | -             | -             | -             | -             | -             | -             | -             |
| Chemical Storage and Feed Systems   | 18,661           | 500            | 500            | 10,000        | 4,000          | 500           | 508           | 515           | 523           | 531           | 539           | 547           |
| Ammonia Feed  | 1                | -              | -              | -             | -              | -             | -             | -             | -             | -             | -             | 1             |
| Primary Coagulant   | 15,280           | 500            | 10,000         | 500           | 508            | 515           | 523           | 531           | 539           | 547           | 555           | 563           |
| Polymer   | 8,280            | 500            | 500            | 3,000         | 508            | 515           | 523           | 531           | 539           | 547           | 555           | 563           |
| Soda Ash  | 10,001           | -              | -              | 10,000        | -              | -             | -             | -             | -             | -             | -             | 1             |
| Fluoride  | 15,703           | 1,000          | 1,015          | 5,000         | 1,030          | 1,046         | 1,061         | 1,077         | 1,093         | 1,110         | 1,126         | 1,143         |
| Residue Management  | 58,514           | 5,000          | 5,000          | 5,075         | 5,151          | 5,228         | 5,307         | 5,386         | 5,467         | 5,549         | 5,632         | 5,717         |
| Process air system  | 20,000           | -              | -              | -             | 20,000         | -             | -             | -             | -             | -             | -             | -             |
| Stand-By Power Facility   | 11,703           | 1,000          | 1,000          | 1,015         | 1,030          | 1,046         | 1,061         | 1,077         | 1,093         | 1,110         | 1,126         | 1,143         |
| Electrical  | 175,541          | 15,000         | 15,000         | 15,225        | 15,453         | 15,685        | 15,920        | 16,159        | 16,402        | 16,648        | 16,897        | 17,151        |
| Control panels, MCC, SCADA, Outpost, etc.   | 213,514          | 5,000          | 160,000        | 5,075         | 5,151          | 5,228         | 5,307         | 5,386         | 5,467         | 5,549         | 5,632         | 5,717         |
| Boilers   | 31,405           | 2,000          | 10,000         | 2,030         | 2,060          | 2,091         | 2,123         | 2,155         | 2,187         | 2,220         | 2,253         | 2,287         |
| HVAC  | 23,405           | 2,000          | 2,000          | 2,030         | 2,060          | 2,091         | 2,123         | 2,155         | 2,187         | 2,220         | 2,253         | 2,287         |
| Plant Enclosure Building  | 58,514           | 5,000          | 5,000          | 5,075         | 5,151          | 5,228         | 5,307         | 5,386         | 5,467         | 5,549         | 5,632         | 5,717         |
| Buildings and Grounds   | -                | -              | -              | -             | -              | -             | -             | -             | -             | -             | -             | -             |
| Instrumentation   | 175,541          | 15,000         | 15,000         | 15,225        | 15,453         | 15,685        | 15,920        | 16,159        | 16,402        | 16,648        | 16,897        | 17,151        |
| Lab Equipment   | 23,405           | 2,000          | 2,000          | 2,030         | 2,060          | 2,091         | 2,123         | 2,155         | 2,187         | 2,220         | 2,253         | 2,287         |
| <b>Subtotal</b>   | <b>1,305,411</b> | <b>82,000</b>  | <b>261,515</b> | <b>90,848</b> | <b>397,298</b> | <b>61,657</b> | <b>62,582</b> | <b>71,686</b> | <b>64,473</b> | <b>76,374</b> | <b>69,559</b> | <b>67,420</b> |

**Table 3-2 (cont.)  
Town of Petawawa  
Water Service  
Capital Budget Forecast – Uninflated\$**

| Description   | Total             | Budget<br>2015 | Forecast         |                |                  |                |                  |                |                  |                  |                  |                  |
|---|-------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|------------------|------------------|------------------|
|   |                   |                | 2016             | 2017           | 2018             | 2019           | 2020             | 2021           | 2022             | 2023             | 2024             | 2025             |
| <b>Capital Expenditures</b>                         |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| <b>Distribution System - OCWA Forecast</b>          |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| South Town site elevated tank                       | 19,780            | 500            | 508              | 5,000          | 10,000           | 515            | 523              | 531            | 539              | 547              | 555              | 563              |
| Former Township elevate tank / Township Tower       | 55,461            | 3,500          | 3,553            | 8,500          | 13,500           | 3,606          | 3,660            | 3,715          | 3,771            | 3,828            | 3,885            | 3,943            |
| Booster Pumping Station No. 1                       | 219,897           | 500            | 508              | 5,000          | 210,000          | 531            | 539              | 547            | 555              | 564              | 572              | 581              |
| Booster Pumping Station No. 2                       | 19,896            | 500            | 508              | 5,000          | 10,000           | 531            | 539              | 547            | 555              | 564              | 572              | 581              |
| Town Tower (Woodland)                               | 44,458            | 3,500          | 3,500            | 3,553          | 7,500            | 3,606          | 3,660            | 3,715          | 3,770            | 3,827            | 3,884            | 3,943            |
| DND Tower (New)                                     | 44,458            | 3,500          | 3,500            | 3,553          | 7,500            | 3,606          | 3,660            | 3,715          | 3,770            | 3,827            | 3,884            | 3,943            |
| Hydrants, Valves, Curb stops, etc.                  | -                 | -              | -                | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| <b>Subtotal</b>                                     | <b>403,949</b>    | <b>12,000</b>  | <b>12,076</b>    | <b>30,605</b>  | <b>258,500</b>   | <b>12,395</b>  | <b>12,581</b>    | <b>12,770</b>  | <b>12,961</b>    | <b>13,156</b>    | <b>13,353</b>    | <b>13,553</b>    |
| <b>Other Works - OCWA Forecast</b>                  |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| Lead sampling                                       | -                 | -              | -                | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| Source Protection                                   | -                 | -              | -                | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| Tool allowance                                      | 11,000            | 1,000          | 1,000            | 1,000          | 1,000            | 1,000          | 1,000            | 1,000          | 1,000            | 1,000            | 1,000            | 1,000            |
| Emergency repairs                                   | 292,568           | 25,000         | 25,000           | 25,375         | 25,756           | 26,142         | 26,534           | 26,932         | 27,336           | 27,746           | 28,162           | 28,585           |
| Professional services                               | 15,000            | -              | -                | -              | -                | -              | -                | -              | 15,000           | -                | -                | -                |
| <b>Subtotal</b>                                     | <b>318,568</b>    | <b>26,000</b>  | <b>26,000</b>    | <b>26,375</b>  | <b>26,756</b>    | <b>27,142</b>  | <b>27,534</b>    | <b>27,932</b>  | <b>43,336</b>    | <b>28,746</b>    | <b>29,162</b>    | <b>29,585</b>    |
| <b>Growth Related Projects - DC Study</b>           |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| Portage Road Waterman Expansion                     | 431,146           | -              | -                | -              | -                | -              | -                | -              | -                | 431,146          | -                | -                |
| John St. (Herman St to Laura St) Waterman Expansion | 150,000           | -              | -                | 150,000        | -                | -              | -                | -              | -                | -                | -                | -                |
| Laura St. (John St to Mary St) Waterman Expansion   | 60,000            | -              | -                | 60,000         | -                | -              | -                | -              | -                | -                | -                | -                |
| Mary St. (Edith St to Laura St) Waterman Expansion  | 250,000           | -              | 250,000          | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| Civic Centre Road - Urbanization                    | 124,000           | -              | 124,000          | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| <b>Subtotal</b>                                     | <b>1,015,146</b>  | <b>-</b>       | <b>374,000</b>   | <b>210,000</b> | <b>-</b>         | <b>-</b>       | <b>-</b>         | <b>-</b>       | <b>-</b>         | <b>431,146</b>   | <b>-</b>         | <b>-</b>         |
| <b>Lifecycle Replacement - AM Plan</b>              |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| Facilities  | 980,930           | -              | 60,030           | 60,801         | 388,786          | 155,733        | 245,909          | 42,029         | 4,521            | 7,901            | 11,081           | 4,138            |
| Water Mains   | 3,294,103         | -              | 250,000          | -              | 360,000          | -              | 449,857          | 415,232        | 465,949          | 436,600          | 481,447          | 435,017          |
| <b>Subtotal</b>                                     | <b>4,275,032</b>  | <b>-</b>       | <b>310,030</b>   | <b>60,801</b>  | <b>748,786</b>   | <b>155,733</b> | <b>695,765</b>   | <b>457,261</b> | <b>470,470</b>   | <b>444,502</b>   | <b>492,528</b>   | <b>439,155</b>   |
| <b>Additional Lifecycle Replacement Needs</b>       |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| Facilities LOS                                      | 3,148,142         | -              | 439,743          | 245,625        | 257,906          | 270,801        | 284,341          | 298,559        | 313,486          | 329,161          | 345,619          | 362,900          |
| Water Mains LOS                                     | 1,794,200         | -              | 322,209          | 104,391        | 152,046          | 393,577        | 120,845          | 126,887        | 133,232          | 139,893          | 146,888          | 154,232          |
| <b>Subtotal</b>                                     | <b>4,942,342</b>  | <b>-</b>       | <b>761,952</b>   | <b>350,015</b> | <b>409,952</b>   | <b>664,378</b> | <b>405,187</b>   | <b>425,446</b> | <b>446,718</b>   | <b>469,054</b>   | <b>492,507</b>   | <b>517,132</b>   |
| <b>Total Capital Expenditures</b>                   | <b>13,104,389</b> | <b>933,941</b> | <b>1,745,572</b> | <b>768,644</b> | <b>1,841,292</b> | <b>921,305</b> | <b>1,218,648</b> | <b>995,095</b> | <b>1,037,959</b> | <b>1,462,978</b> | <b>1,097,109</b> | <b>1,081,845</b> |



**Table 3-3**  
**Town of Petawawa**  
**Wastewater Service**  
**Capital Budget Forecast – Uninflated\$**

| Description  | Total            | Budget<br>2015 | Forecast       |                |                |                |               |                |                |               |               |               |
|--|------------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|---------------|---------------|---------------|
|  |                  |                | 2016           | 2017           | 2018           | 2019           | 2020          | 2021           | 2022           | 2023          | 2024          | 2025          |
| <b>Capital Expenditures</b>                                    |                  |                |                |                |                |                |               |                |                |               |               |               |
| <b>Capital - Sewage System (2015)</b>                          |                  |                |                |                |                |                |               |                |                |               |               |               |
| Victoria Street  | 22,500           | 22,500         |                |                |                |                |               |                |                |               |               |               |
| Renfrew Street Pumping Station - Design                        | 50,000           | 50,000         |                |                |                |                |               |                |                |               |               |               |
| Renfrew Street Pumping Station - Construction                  | 200,000          | 200,000        |                |                |                |                |               |                |                |               |               |               |
| Civic Centre Road  | 588              | 588            |                |                |                |                |               |                |                |               |               |               |
| Rate Study Update  | 20,000           |                |                |                |                |                | 10,000        |                |                |               |               | 10,000        |
| <b>Subtotal</b>  | <b>293,088</b>   | <b>273,088</b> | -              | -              | -              | -              | 10,000        | -              | -              | -             | -             | 10,000        |
| <b>Wastewater Treatment Plant - OCWA Forecast</b>              |                  |                |                |                |                |                |               |                |                |               |               |               |
| By-pass System   | -                | -              | -              | -              | -              | -              | -             | -              | -              | -             | -             | -             |
| Raw Sewage Screening   | 30,703           | 10,000         | 11,000         | 1,015          | 1,030          | 1,046          | 1,061         | 1,077          | 1,093          | 1,110         | 1,126         | 1,143         |
| Grit Removal and Pre-aeration                                  | 57,608           | 1,500          | 27,000         | 3,045          | 3,091          | 3,137          | 3,184         | 3,232          | 3,280          | 3,330         | 3,379         | 3,430         |
| Primary Treatment  | 119,763          | 1,000          | 101,000        | 5,015          | 5,090          | 1,046          | 1,061         | 1,077          | 1,093          | 1,110         | 1,126         | 1,143         |
| Primary Effluent Screw Pumping                                 | 26,703           | 1,000          | 6,000          | 1,015          | 1,030          | 1,046          | 1,061         | 1,077          | 1,093          | 1,110         | 1,126         | 1,143         |
| Secondary Treatment  | 160,027          | 15,000         | 10,000         | 35,150         | 23,302         | 10,457         | 10,614        | 10,773         | 10,934         | 11,098        | 11,265        | 11,434        |
| UV disinfection system   | 161,508          | 1,000          | 10,000         | 14,075         | 120,000        | 1,015          | 1,030         | 1,046          | 10,061         | 1,077         | 1,093         | 1,110         |
| Plant Outfall Sewer  | 7,000            | -              | -              | 3,500          | -              | -              | -             | -              | 3,500          | -             | -             | -             |
| Primary Sludge Handling (Collection & Pumping)                 | 31,405           | -              | 12,000         | 2,030          | 2,060          | 2,091          | 2,123         | 2,155          | 2,187          | 2,220         | 2,253         | 2,287         |
| Secondary Sludge Handling (Collection, Thickening and Pumping) | 132,089          | 6,500          | 8,500          | 8,628          | 23,606         | 13,660         | 9,021         | 24,156         | 9,293          | 9,433         | 9,574         | 9,718         |
| Sludge Digestion System  | 246,405          | -              | 2,000          | 77,030         | 92,060         | 12,091         | 2,123         | 2,155          | 52,187         | 2,220         | 2,253         | 2,287         |
| Sludge Holding and Truck Loading System                        | 315,460          | 40,000         | 32,000         | 22,330         | 22,665         | 38,005         | 23,350        | 38,700         | 24,056         | 24,417        | 24,783        | 25,155        |
| Complete SCADA overhaul and upgrade of hardware and software   | 82,410           | -              | 5,000          | 20,000         | 5,075          | 5,151          | 5,228         | 5,307          | 20,000         | 5,467         | 5,549         | 5,632         |
| Instrumentation  | 112,027          | 5,000          | 10,000         | 10,150         | 10,302         | 10,457         | 10,614        | 10,773         | 10,934         | 11,098        | 11,265        | 11,434        |
| HVAC - General Repairs   | 21,405           | -              | 2,000          | 2,030          | 2,060          | 2,091          | 2,123         | 2,155          | 2,187          | 2,220         | 2,253         | 2,287         |
| General Repairs and Replacements                               | 22,905           | 1,500          | 2,000          | 2,030          | 2,060          | 2,091          | 2,123         | 2,155          | 2,187          | 2,220         | 2,253         | 2,287         |
| General Painting and Physical Upkeep of Properties             | 87,770           | 7,500          | 7,500          | 7,613          | 7,727          | 7,843          | 7,960         | 8,080          | 8,201          | 8,324         | 8,449         | 8,575         |
| Shingles Replacement of Control Building                       | 15,000           | -              | -              | -              | 15,000         | -              | -             | -              | -              | -             | -             | -             |
| Concrete structures: tanks, sewer pipes, etc.                  | 50,000           | -              | -              | -              | 50,000         | -              | -             | -              | -              | -             | -             | -             |
| <b>Subtotal</b>  | <b>1,680,189</b> | <b>90,000</b>  | <b>246,000</b> | <b>214,655</b> | <b>386,160</b> | <b>111,227</b> | <b>82,676</b> | <b>113,916</b> | <b>162,288</b> | <b>86,452</b> | <b>97,749</b> | <b>89,065</b> |
| <b>Sewage Collection System - OCWA Forecast</b>                |                  |                |                |                |                |                |               |                |                |               |               |               |
| Manhole Rehabilitation   | 234,054          | 20,000         | 20,000         | 20,300         | 20,605         | 20,914         | 21,227        | 21,546         | 21,869         | 22,197        | 22,530        | 22,868        |
| Collection System - Camera 20% of System                       | 292,568          | 25,000         | 25,000         | 25,375         | 25,756         | 26,142         | 26,534        | 26,932         | 27,336         | 27,746        | 28,162        | 28,585        |
| Earl Street Pumping Station                                    | 15,000           | -              | -              | -              | -              | -              | -             | -              | 15,000         | -             | -             | -             |
| Pumping Station Repairs  | 239,054          | 25,000         | 20,000         | 20,300         | 20,605         | 20,914         | 21,227        | 21,546         | 21,869         | 22,197        | 22,530        | 22,868        |
| <b>Subtotal</b>  | <b>780,677</b>   | <b>70,000</b>  | <b>65,000</b>  | <b>65,975</b>  | <b>66,965</b>  | <b>67,969</b>  | <b>68,989</b> | <b>70,023</b>  | <b>86,074</b>  | <b>72,140</b> | <b>73,222</b> | <b>74,320</b> |

**Table 3-3 (cont.)  
Town of Petawawa  
Wastewater Service  
Capital Budget Forecast – Uninflated\$**

| Description   | Total             | Budget<br>2015 | Forecast         |                  |                  |                  |                  |                  |                  |                |                |                |
|---|-------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|
|   |                   |                | 2016             | 2017             | 2018             | 2019             | 2020             | 2021             | 2022             | 2023           | 2024           | 2025           |
| <b>Capital Expenditures</b>                                   |                   |                |                  |                  |                  |                  |                  |                  |                  |                |                |                |
| <b>Other Works - OCWA Forecast</b>                            |                   |                |                  |                  |                  |                  |                  |                  |                  |                |                |                |
| Screw Pumps   | 5,000             | 5,000          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Thickened Waste Activated Sludge Holding Tank                 | 5,000             | 5,000          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| SBRs 3&4  | 6,500             | 6,500          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Laboratory  | 4,500             | 4,500          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Digester Gas System   | 7,500             | 7,500          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Replace All Doors in and Around the SBR Process               | 15,000            | 15,000         | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Tool Allowance  | 11,703            | 1,000          | 1,000            | 1,015            | 1,030            | 1,046            | 1,061            | 1,077            | 1,093            | 1,110          | 1,126          | 1,143          |
| General Pavement Repairs                                      | 15,000            | 15,000         | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Replace Underground Heating Lines for Headwork & UV Buildings | 12,000            | 12,000         | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Flow Meter on line to Holding Tanks from Mixing Pumps         | 3,500             | 3,500          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Reinstate Sludge Loading Arm                                  | 10,000            | 10,000         | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Emergency Repairs   | 292,568           | 25,000         | 25,000           | 25,375           | 25,756           | 26,142           | 26,534           | 26,932           | 27,336           | 27,746         | 28,162         | 28,585         |
| Replace Existing Miltronics Unit and Purchase Spare           | -                 | -              | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Major Maintenance Lifecycle Review                            | 15,000            | -              | -                | -                | -                | -                | -                | -                | 15,000           | -              | -              | -              |
| Assess Sludge Handling and Treatment System                   | 26,000            | -              | -                | 26,000           | -                | -                | -                | -                | -                | -              | -              | -              |
| Improvements to Sludge Handling and Treatment System          | 200,000           | -              | -                | -                | 100,000          | 100,000          | -                | -                | -                | -              | -              | -              |
| <b>Subtotal</b>   | <b>629,271</b>    | <b>110,000</b> | <b>26,000</b>    | <b>52,390</b>    | <b>126,786</b>   | <b>127,188</b>   | <b>27,595</b>    | <b>28,009</b>    | <b>43,430</b>    | <b>28,856</b>  | <b>29,289</b>  | <b>29,728</b>  |
| <b>Growth Related Projects - DC Study</b>                     |                   |                |                  |                  |                  |                  |                  |                  |                  |                |                |                |
| Pumping Station Expansion                                     | 463,000           | -              | 30,000           | -                | 433,000          | -                | -                | -                | -                | -              | -              | -              |
| Victoria St: Laurentian Dr to Treatment Plant                 | 1,820,000         | -              | 1,820,000        | -                | -                | -                | -                | -                | -                | -              | -              | -              |
| Petawawa Blvd Upgrade: Upstream Harry St to Pumping Stn       | 100,000           | -              | -                | -                | -                | -                | 100,000          | -                | -                | -              | -              | -              |
| Wastewater Treatment Plant Expansion - EA                     | 564,000           | -              | -                | 564,000          | -                | -                | -                | -                | -                | -              | -              | -              |
| Wastewater Treatment Plant Expansion                          | 7,694,800         | -              | -                | -                | -                | 7,694,800        | -                | -                | -                | -              | -              | -              |
| <b>Subtotal</b>   | <b>10,641,800</b> | <b>-</b>       | <b>1,850,000</b> | <b>564,000</b>   | <b>433,000</b>   | <b>7,694,800</b> | <b>100,000</b>   | <b>-</b>         | <b>-</b>         | <b>-</b>       | <b>-</b>       | <b>-</b>       |
| <b>Lifecycle Replacement - AM Plan</b>                        |                   |                |                  |                  |                  |                  |                  |                  |                  |                |                |                |
| Facilities  | 2,345,538         | -              | 98,230           | 111,644          | 210,677          | 54,347           | 482,483          | 341,512          | 571,734          | 303,728        | 162,907        | 8,275          |
| Sewer Mains   | 3,813,825         | -              | 176,289          | 28,293           | 360,000          | 276,766          | 473,269          | 518,710          | 462,321          | 357,293        | 622,353        | 538,529        |
| <b>Subtotal</b>   | <b>6,159,363</b>  | <b>-</b>       | <b>274,519</b>   | <b>139,937</b>   | <b>570,677</b>   | <b>331,113</b>   | <b>955,752</b>   | <b>860,222</b>   | <b>1,034,056</b> | <b>661,022</b> | <b>785,261</b> | <b>546,804</b> |
| <b>Total Capital Expenditures</b>                             | <b>20,184,388</b> | <b>543,088</b> | <b>2,461,519</b> | <b>1,036,957</b> | <b>1,583,588</b> | <b>8,332,296</b> | <b>1,245,012</b> | <b>1,072,171</b> | <b>1,325,847</b> | <b>848,470</b> | <b>985,520</b> | <b>749,918</b> |

## 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 number of years, legislative reforms have been introduced. Some of these have expanded municipal powers (e.g. Bill 130 providing for natural person powers for fees and charges bylaws); while others appear to restrict them (Bill 98 in 1997 providing amendments to the Development Charges Act).

The most recent Municipal Act came into force on January 1, 2003, with significant amendments in 2006 through the Municipal Statute Law Amendment Act. Part XII of the Act and Ontario Regulation 584/06, govern a municipality's ability to impose fees and charges. This Act provides municipalities with broadly defined powers and provides the ability to impose fees for both operating and capital purposes. Under s.484 of the 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.

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

| <b>Recovery Methods</b>   | <b>Section Reference</b> |
|---|--------------------------|
| • Development Charges Act, 1997   | 4.2                      |
| • Municipal Act <ul style="list-style-type: none"> <li>○ Fees and Charge</li> <li>○ Local Improvements</li> </ul> | 4.3                      |
| • Grant Funding   | 4.4                      |
| • Reserves/Reserve Funds  | 4.5                      |
| • Debenture Financing   | 4.6                      |

### 4.2 Development Charges Act, 1997

The Development Charges Act received royal assent on December 8, 1997, replacing the previous act, which had been in-force since November 23, 1989.

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. The Development Charges Act provides for limitations and ceilings on services that can be included in the charges.

The Town passed a By-law in 2014 to impose development charges on new development. The capital plan identifies significant growth related capital needs for both water and wastewater, to be funded by 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 Ontario Municipal Board.

4.3.2 s 391(2) of the Municipal Act permits municipalities to impose charges to recover capital costs, by by-law, from owners or occupants of land who receive an immediate benefit or a benefit at some later point in time. For a by-law imposed under this section of the 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 is not enjoyed;
- Non-abutting owners could be charged;

- Recovery could be authorized against existing works, where new infrastructure 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; and
- Ontario Municipal Board approval is not required.

#### 4.3.3 Under the previous Local Improvement Act:

- A variety of different types of works could be undertaken, such as water main, 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 Ontario Municipal Board, which might hold hearings and alter the by-law, particularly if there were objections;
- The entire cost of a work was assessed only upon the lots abutting directly on the work, according to the extent of their respective frontages, using an equal special rate per metre of frontage; and
- As noted, this Act was repealed as of April 1, 2003; however, Ontario Regulation 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

In August 2012, the Province of Ontario initiated the Municipal Infrastructure Investment Initiative. In supporting the efforts of communities to restore and revitalize their public infrastructure, this initiative provides one-time provincial funding to improve asset management planning in small municipalities and local service boards. In addition, funding will be made available for municipal infrastructure projects under this initiative. Any municipality or local service board seeking capital funding in the future must demonstrate how its proposed project fits within a detailed asset management plan. To assist in defining the components of an asset management plan, the Province produced a document entitled, "Building Together: Guide for Municipal Asset Management Plans." This guide documents the components, information and analysis that are required to be included in a municipality's asset management plan under this initiative.

The Town does not anticipate receiving grant funding during the forecast period. To the extent that the Town is successful in achieving grant funding for future infrastructure needs and the financial impacts are material, the rate forecast may be revisited.

#### 4.5 Existing Reserves/Reserve Funds

The Town has established several reserves and reserve funds for water and wastewater capital costs, lifecycle costs and development charges. The established water and wastewater reserves and reserve funds have been used in the capital funding forecast for rate-based needs.

The following table summarizes the water and wastewater reserves utilized in this analysis and the respective 2015 opening balances.

**Table 4-1  
Water and Wastewater Projected Reserve and Reserve Fund Balances  
(As at Jan. 1, 2015)**

| System                          | Balances<br>(Consolidated) |
|---------------------------------|----------------------------|
| <b>Water:</b>                   |                            |
| • <b>Distribution System</b>    | <b>\$1,877,715</b>         |
| • <b>Water Plant</b>            | <b>\$3,519,068</b>         |
| <b>Wastewater:</b>              |                            |
| • <b>Collection System</b>      | <b>\$52,198</b>            |
| • <b>Sewage Treatment Plant</b> | <b>\$1,664,270</b>         |

It is recommended that the above referenced existing capital reserves shown in Table 4-1 be closed in 2016 and replaced with the following reserve funds:

- Water Lifecycle Capital Reserve Fund; and
- Wastewater Lifecycle Capital Reserve Fund.

The use of reserve funds will allow the fund balances to accrue interest earned each year, which will assist in building adequate reserve fund balances over the forecast period. In addition, the consolidation of capital reserves (between system and plant

needs) will allow the Town to plan for water and wastewater on a consolidated system-wide level.

#### **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).

The Town currently has no external debt for water and wastewater services. The capital forecast proposes new growth related debt financing for water for capital projects outlined in the Town's Development Charges Background Study, with principal and interest payments to be funded by development charges. The capital forecast for wastewater includes debt financing for capital works required throughout the forecast period. A portion of this debt is growth related (i.e. for wastewater capacity increases), with principal and interest payments to be funded by development charges.

#### **4.7 Recommended Approach**

Tables 4-2 and 4-3 provide for the full capital expenditure and funding program by year for water and wastewater services respectively. These capital funding plans are provided in inflated dollars.

**Table 4-2**  
**Town of Petawawa**  
**Water Service**  
**Capital Budget Forecast – Inflated\$**

| Description   | Total             | Budget<br>2015 | Forecast         |                |                  |                  |                  |                  |                  |                  |                  |                  |
|---|-------------------|----------------|------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|   |                   |                | 2016             | 2017           | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             |
| <b>Capital Expenditures</b>                         |                   |                |                  |                |                  |                  |                  |                  |                  |                  |                  |                  |
| Capital - Water System                              | 851,541           | 813,941        | -                | -              | -                | -                | 17,400           | -                | -                | -                | -                | 20,200           |
| Water Treatment Plant - OCWA Forecast               | 1,466,800         | 82,000         | 269,400          | 96,400         | 434,100          | 69,400           | 72,500           | 85,600           | 79,300           | 96,700           | 90,800           | 90,600           |
| Distribution System - OCWA Forecast                 | 451,400           | 12,000         | 12,400           | 32,500         | 282,500          | 14,000           | 14,600           | 15,200           | 15,900           | 16,700           | 17,400           | 18,200           |
| Other Works - OCWA Forecast                         | 373,400           | 26,000         | 26,800           | 28,000         | 29,200           | 30,500           | 31,900           | 33,400           | 53,300           | 36,400           | 38,100           | 39,800           |
| <i>Subtotal</i>                                     | <i>3,143,141</i>  | <i>933,941</i> | <i>308,600</i>   | <i>156,900</i> | <i>745,800</i>   | <i>113,900</i>   | <i>136,400</i>   | <i>134,200</i>   | <i>148,500</i>   | <i>149,800</i>   | <i>146,300</i>   | <i>168,800</i>   |
| <b>Growth Related Projects - DC Study</b>           |                   |                |                  |                |                  |                  |                  |                  |                  |                  |                  |                  |
| Portage Road Waterman Expansion                     | 546,200           | -              | -                | -              | -                | -                | -                | -                | -                | 546,200          | -                | -                |
| John St. (Herman St to Laura St) Waterman Expansion | 159,100           | -              | -                | 159,100        | -                | -                | -                | -                | -                | -                | -                | -                |
| Laura St. (John St to Mary St) Waterman Expansion   | 63,700            | -              | -                | 63,700         | -                | -                | -                | -                | -                | -                | -                | -                |
| Mary St. (Edith St to Laura St) Waterman Expansion  | 257,500           | -              | 257,500          | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Civic Centre Road - Urbanization                    | 127,700           | -              | 127,700          | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| <i>Subtotal</i>                                     | <i>1,154,200</i>  | <i>-</i>       | <i>385,200</i>   | <i>222,800</i> | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>546,200</i>   | <i>-</i>         | <i>-</i>         |
| <b>Lifecycle Replacement</b>                        | <b>10,915,100</b> | <b>-</b>       | <b>1,104,100</b> | <b>435,800</b> | <b>1,266,200</b> | <b>923,000</b>   | <b>1,276,300</b> | <b>1,054,000</b> | <b>1,128,000</b> | <b>1,157,300</b> | <b>1,285,200</b> | <b>1,285,200</b> |
| <b>Total Capital Expenditures</b>                   | <b>15,212,441</b> | <b>933,941</b> | <b>1,797,900</b> | <b>815,500</b> | <b>2,012,000</b> | <b>1,036,900</b> | <b>1,412,700</b> | <b>1,188,200</b> | <b>1,276,500</b> | <b>1,853,300</b> | <b>1,431,500</b> | <b>1,454,000</b> |
| <b>Capital Financing</b>                            |                   |                |                  |                |                  |                  |                  |                  |                  |                  |                  |                  |
| Provincial/Federal Grants                           | -                 | -              | -                | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Development Charges Reserve Fund                    | 70,200            | -              | 70,200           | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Non-Growth Related Debenture Requirements           | -                 | -              | -                | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Growth Related Debenture Requirements               | 712,200           | -              | 173,900          | 155,960        | -                | -                | -                | -                | -                | 382,340          | -                | -                |
| Operating Contributions                             | 813,941           | 813,941        | -                | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Operating Contributions - OCWA Plant Maint          | 120,000           | 120,000        | -                | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Lifecycle Reserve Fund                              | 13,496,100        | -              | 1,553,800        | 659,540        | 2,012,000        | 1,036,900        | 1,412,700        | 1,188,200        | 1,276,500        | 1,470,960        | 1,431,500        | 1,454,000        |
| <b>Total Capital Financing</b>                      | <b>15,212,441</b> | <b>933,941</b> | <b>1,797,900</b> | <b>815,500</b> | <b>2,012,000</b> | <b>1,036,900</b> | <b>1,412,700</b> | <b>1,188,200</b> | <b>1,276,500</b> | <b>1,853,300</b> | <b>1,431,500</b> | <b>1,454,000</b> |



**Table 4-3**  
**Town of Petawawa**  
**Wastewater Service**  
**Capital Budget Forecast – Inflated\$**

| Description  | Total             | Budget<br>2015 | Forecast         |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|--|-------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|  |                   |                | 2016             | 2017             | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             |
| <b>Capital Expenditures</b>                                |                   |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Capital - Sewage System (2015)                             | 298,088           | 273,088        | -                | -                | -                | -                | 11,600           | -                | -                | -                | -                | 13,400           |
| Wastewater Treatment Plant - OCWA Forecast                 | 1,906,400         | 90,000         | 253,400          | 227,700          | 422,000          | 125,200          | 95,800           | 136,000          | 199,600          | 109,500          | 127,500          | 119,700          |
| Sewage Collection System - OCWA Forecast                   | 913,000           | 70,000         | 67,000           | 70,000           | 73,200           | 76,500           | 80,000           | 83,600           | 105,900          | 91,400           | 95,500           | 99,900           |
| Other Works - OCWA Forecast                                | 707,700           | 110,000        | 26,800           | 55,600           | 138,500          | 143,200          | 32,000           | 33,400           | 53,400           | 36,600           | 38,200           | 40,000           |
| <i>Subtotal</i>  | <i>3,825,188</i>  | <i>543,088</i> | <i>347,200</i>   | <i>353,300</i>   | <i>633,700</i>   | <i>344,900</i>   | <i>219,400</i>   | <i>253,000</i>   | <i>358,900</i>   | <i>237,500</i>   | <i>261,200</i>   | <i>273,000</i>   |
| <b>Growth Related Projects - DC Study</b>                  |                   |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Pumping Station Expansion                                  | 504,100           | -              | 30,900           | -                | 473,200          | -                | -                | -                | -                | -                | -                | -                |
| Victoria St: Laurentian Dr to Treatment Plant              | 1,874,600         | -              | 1,874,600        | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Petawawa Blvd Upgrade:<br>Upstream Harry St to Pumping Stn | 115,900           | -              | -                | -                | -                | -                | 115,900          | -                | -                | -                | -                | -                |
| Wastewater Treatment Plant Expansion - EA                  | 598,300           | -              | -                | 598,300          | -                | -                | -                | -                | -                | -                | -                | -                |
| Wastewater Treatment Plant Expansion                       | 8,660,600         | -              | -                | -                | -                | 8,660,600        | -                | -                | -                | -                | -                | -                |
| <i>Subtotal</i>  | <i>11,753,500</i> | <i>-</i>       | <i>1,905,500</i> | <i>598,300</i>   | <i>473,200</i>   | <i>8,660,600</i> | <i>115,900</i>   | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i>         |
| <b>Lifecycle Replacement</b>                               | <b>7,431,500</b>  | <b>-</b>       | <b>282,800</b>   | <b>148,500</b>   | <b>623,600</b>   | <b>372,700</b>   | <b>1,108,000</b> | <b>1,027,200</b> | <b>1,271,800</b> | <b>837,400</b>   | <b>1,024,600</b> | <b>734,900</b>   |
| <b>Total Capital Expenditures</b>                          | <b>23,010,188</b> | <b>543,088</b> | <b>2,535,500</b> | <b>1,100,100</b> | <b>1,730,500</b> | <b>9,378,200</b> | <b>1,443,300</b> | <b>1,280,200</b> | <b>1,630,700</b> | <b>1,074,900</b> | <b>1,285,800</b> | <b>1,007,900</b> |
| <b>Capital Financing</b>                                   |                   |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Provincial/Federal Grants                                  | -                 | -              | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Development Charges Reserve Fund                           | -                 | -              | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Non-Growth Related Debenture Requirements                  | 8,178,650         | -              | 1,483,200        | -                | -                | 6,695,450        | -                | -                | -                | -                | -                | -                |
| Growth Related Debenture Requirements                      | 3,774,850         | -              | 422,300          | 598,300          | 473,200          | 2,165,150        | 115,900          | -                | -                | -                | -                | -                |
| Operating Contributions - Sewage System                    | 273,088           | 273,088        | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Operating Contributions - OCWA Plant Maint                 | 270,000           | 270,000        | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Lifecycle Reserve Fund                                     | 10,513,600        | -              | 630,000          | 501,800          | 1,257,300        | 517,600          | 1,327,400        | 1,280,200        | 1,630,700        | 1,074,900        | 1,285,800        | 1,007,900        |
| <b>Total Capital Financing</b>                             | <b>23,010,188</b> | <b>543,088</b> | <b>2,535,500</b> | <b>1,100,100</b> | <b>1,730,500</b> | <b>9,378,200</b> | <b>1,443,300</b> | <b>1,280,200</b> | <b>1,630,700</b> | <b>1,074,900</b> | <b>1,285,800</b> | <b>1,007,900</b> |

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## 5. Operating Expenditure Forecast

### 5.1 Operating Expenditures

In this report the forecasted operating budget figures for water and wastewater services are based on the Town's 2015 operating budgets. The expenditures for each component of the operating budget have been reviewed with staff to establish inflationary adjustments.

Capital-related annual expenditures in the forecast include annual debt repayments and contributions to reserve funds to support the capital forecast and future capital needs. While operating aspects identified above generally increase with inflation over the period (i.e. 2.1% annually, except for maintenance costs which are forecast to increase at 5% annually), the capital-related aspects tend to increase more specifically with the increase in capital funding requirements.

As a result of the inflationary and capital-related expenditure increases, the water and wastewater operating expenditures are anticipated to increase over the forecast period. Gross operating expenditures are anticipated to increase as follows:

- Water - \$3,053,478 in 2015 to \$4,362,105 in 2025
- Wastewater - \$2,220,111 in 2015 to \$4,868,550 in 2025

### 5.2 Operating Revenues

The Town has operating revenue sources such as transfers from reserves and miscellaneous revenues that offset some of the annual operating costs. Billing revenues have been forecast in total for this chapter, and will be addressed in the rate structure outlined in Chapter 6.

Tables 5-1 and 5-2 provide the water and wastewater operating budget forecasts, respectively. The forecast operating budgets are provided in inflated dollars.

**Table 5-1**  
**Town of Petawawa**  
**Water Service**  
**Operating Budget Forecast – Inflated\$**

| Description                                      | Budget           | Forecast         |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|
|  | 2015             | 2016             | 2017             | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             |  |
| <b>Expenditures</b>                              |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
| <b>Operating Costs</b>                           |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
| Waterworks Salaries                              | 30,000           | 30,600           | 31,200           | 31,900           | 32,600           | 33,300           | 34,000           | 34,700           | 35,400           | 36,100           | 36,900           |  |
| Training/Associations                            | 8,000            | 8,200            | 8,400            | 8,600            | 8,800            | 9,000            | 9,200            | 9,400            | 9,600            | 9,800            | 10,000           |  |
| Dispatch/Alarm Monitoring                        | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            |  |
| Audit  | 7,500            | 7,700            | 7,900            | 8,100            | 8,300            | 8,500            | 8,700            | 8,900            | 9,100            | 9,300            | 9,500            |  |
| Service Contract - OCWA                          | 704,442          | 719,200          | 734,300          | 749,700          | 765,400          | 781,500          | 797,900          | 814,700          | 831,800          | 849,300          | 867,100          |  |
| Service Contract - OCWA - Extra                  | 50,000           | 51,100           | 52,200           | 53,300           | 54,400           | 55,500           | 56,700           | 57,900           | 59,100           | 60,300           | 61,600           |  |
| Waterworks Administration                        | 101,062          | 103,200          | 105,400          | 107,600          | 109,900          | 112,200          | 114,600          | 117,000          | 119,500          | 122,000          | 124,600          |  |
| Water Purchase Pembroke                          | 150,000          | 157,500          | 165,400          | 173,700          | 182,400          | 191,500          | 201,100          | 211,200          | 221,800          | 232,900          | 244,500          |  |
| Tools/Parts/Supplies                             | 5,000            | 5,100            | 5,200            | 5,300            | 5,400            | 5,500            | 5,600            | 5,700            | 5,800            | 5,900            | 6,000            |  |
| Water System Maintenance                         | 183,278          | 192,400          | 202,000          | 212,100          | 222,700          | 233,800          | 245,500          | 257,800          | 270,700          | 284,200          | 298,400          |  |
| Water Plant Maintenance                          | 148,500          | 155,900          | 163,700          | 171,900          | 180,500          | 189,500          | 199,000          | 209,000          | 219,500          | 230,500          | 242,000          |  |
| Water Plant Electricity                          | 220,000          | 224,600          | 229,300          | 234,100          | 239,000          | 244,000          | 249,100          | 254,300          | 259,600          | 265,100          | 270,700          |  |
| Insurance  | 20,000           | 20,400           | 20,800           | 21,200           | 21,600           | 22,100           | 22,600           | 23,100           | 23,600           | 24,100           | 24,600           |  |
| Elevated Tank - Woodland                         | 11,000           | 11,200           | 11,400           | 11,600           | 11,800           | 12,000           | 12,300           | 12,600           | 12,900           | 13,200           | 13,500           |  |
| Elevated Tank - Tower Road                       | 9,500            | 9,700            | 9,900            | 10,100           | 10,300           | 10,500           | 10,700           | 10,900           | 11,100           | 11,300           | 11,500           |  |
| Booster Station 1 - Brumm                        | 9,000            | 9,200            | 9,400            | 9,600            | 9,800            | 10,000           | 10,200           | 10,400           | 10,600           | 10,800           | 11,000           |  |
| Booster Station 2- Blvd                          | 16,000           | 16,300           | 16,600           | 16,900           | 17,300           | 17,700           | 18,100           | 18,500           | 18,900           | 19,300           | 19,700           |  |
| Hydrant Maintenance                              | 10,000           | 10,200           | 10,400           | 10,600           | 10,800           | 11,000           | 11,200           | 11,400           | 11,600           | 11,800           | 12,000           |  |
| Water System PILT County                         | 10,983           | 11,200           | 11,400           | 11,600           | 11,800           | 12,000           | 12,300           | 12,600           | 12,900           | 13,200           | 13,500           |  |
| <b>Sub Total Operating</b>                       | <b>1,695,265</b> | <b>1,744,700</b> | <b>1,795,900</b> | <b>1,848,900</b> | <b>1,903,800</b> | <b>1,960,600</b> | <b>2,019,800</b> | <b>2,081,100</b> | <b>2,144,500</b> | <b>2,210,100</b> | <b>2,278,100</b> |  |
| <b>Capital-Related</b>                           |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
| Growth Related Debt (Principal)                  | -                | -                | 5,259            | 10,239           | 10,751           | 11,288           | 11,853           | 12,445           | 13,068           | 25,284           | 26,548           |  |
| Growth Related Debt (Interest)                   | -                | -                | 8,695            | 16,230           | 15,718           | 15,181           | 14,616           | 14,024           | 13,401           | 31,865           | 30,601           |  |
| Non-Growth Related Debt (Principal)              | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Non-Growth Related Debt (Interest)               | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer to Capital                              | 813,941          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer to Reserve Fund - Water Plant           | 544,272          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer to Reserve Fund - Lifecycle             | -                | 566,190          | 703,940          | 843,095          | 994,624          | 1,159,569        | 1,338,549        | 1,533,064        | 1,709,700        | 1,899,650        | 2,026,856        |  |
| <b>Sub Total Capital Related</b>                 | <b>1,358,213</b> | <b>566,190</b>   | <b>717,894</b>   | <b>869,564</b>   | <b>1,021,093</b> | <b>1,186,038</b> | <b>1,365,018</b> | <b>1,559,533</b> | <b>1,736,169</b> | <b>1,956,798</b> | <b>2,084,005</b> |  |
| <b>Total Expenditures</b>                        | <b>3,053,478</b> | <b>2,310,890</b> | <b>2,513,794</b> | <b>2,718,464</b> | <b>2,924,893</b> | <b>3,146,638</b> | <b>3,384,818</b> | <b>3,640,633</b> | <b>3,880,669</b> | <b>4,166,898</b> | <b>4,362,105</b> |  |
| <b>Revenues</b>                                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
| Miscellaneous Revenue/Grant                      | 549,272          | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            |  |
| Surplus/(Deficit) from Previous Year             | (412,438)        | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer from Reserve Fund - Distribution System | 571,435          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer from DC Reserve Fund                    | -                | -                | 13,954           | 26,469           | 26,469           | 26,469           | 26,469           | 26,469           | 26,469           | 26,469           | 57,149           |  |
| Water Front/Connect                              | 3,208            | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| <b>Total Operating Revenue</b>                   | <b>711,477</b>   | <b>5,000</b>     | <b>18,954</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>62,149</b>    | <b>62,149</b>    |  |
| <b>Water Billing Recovery - Total</b>            | <b>2,342,001</b> | <b>2,305,890</b> | <b>2,494,840</b> | <b>2,686,995</b> | <b>2,893,424</b> | <b>3,115,169</b> | <b>3,353,349</b> | <b>3,609,164</b> | <b>3,849,200</b> | <b>4,104,750</b> | <b>4,299,956</b> |  |

**Table 5-2**  
**Town of Petawawa**  
**Wastewater Service**  
**Operating Budget Forecast – Inflated\$**

| Description                                  | Budget<br>2015   | Forecast         |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|  |                  | 2016             | 2017             | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             |                  |
| <b>Expenditures</b>                          |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| <b>Operating Costs</b>                       |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Sewage System Salaries                       | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            |
| Audit  | 5,100            | 5,200            | 5,300            | 5,400            | 5,500            | 5,600            | 5,700            | 5,800            | 5,900            | 6,000            | 6,100            | 6,100            |
| Service Contract - OCWA                      | 749,259          | 765,000          | 781,100          | 797,500          | 814,200          | 831,300          | 848,800          | 866,600          | 884,800          | 903,400          | 922,400          | 922,400          |
| Service Contract - OCWA - Extra              | 25,000           | 25,500           | 26,000           | 26,500           | 27,100           | 27,700           | 28,300           | 28,900           | 29,500           | 30,100           | 30,700           | 30,700           |
| Sewage System Administration                 | 72,809           | 74,300           | 75,900           | 77,500           | 79,100           | 80,800           | 82,500           | 84,200           | 86,000           | 87,800           | 89,600           | 89,600           |
| Sewage System Maintenance                    | 143,194          | 80,400           | 84,400           | 88,600           | 93,000           | 97,700           | 102,600          | 107,700          | 113,100          | 118,800          | 124,700          | 124,700          |
| Sewage Plant Maintenance                     | 619,743          | 400,700          | 420,700          | 441,700          | 463,800          | 487,000          | 511,400          | 537,000          | 563,900          | 592,100          | 621,700          | 621,700          |
| Flow Meters Electricity                      | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              |
| Insurance                                    | 22,000           | 22,500           | 23,000           | 23,500           | 24,000           | 24,500           | 25,000           | 25,500           | 26,000           | 26,500           | 27,100           | 27,100           |
| Sewage System PILT County                    | 10,296           | 10,500           | 10,700           | 10,900           | 11,100           | 11,300           | 11,500           | 11,700           | 11,900           | 12,100           | 12,400           | 12,400           |
| <b>Sub Total Operating</b>                   | <b>1,649,001</b> | <b>1,385,700</b> | <b>1,428,700</b> | <b>1,473,200</b> | <b>1,519,400</b> | <b>1,567,500</b> | <b>1,617,400</b> | <b>1,669,000</b> | <b>1,722,700</b> | <b>1,778,400</b> | <b>1,836,300</b> | <b>1,836,300</b> |
| <b>Capital-Related</b>                       |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Growth Related Debt (Principal)              | -                | -                | 12,771           | 31,504           | 47,390           | 115,239          | 124,506          | 130,732          | 137,268          | 144,132          | 151,338          | 151,338          |
| Growth Related Debt (Interest)               | -                | -                | 21,115           | 50,391           | 72,476           | 178,364          | 178,397          | 172,172          | 165,635          | 158,772          | 151,565          | 151,565          |
| Non-Growth Related Debt (Principal)          | -                | -                | 44,856           | 47,099           | 49,454           | 254,414          | 267,135          | 280,491          | 294,516          | 309,242          | 324,704          | 324,704          |
| Non-Growth Related Debt (Interest)           | -                | -                | 74,160           | 71,917           | 69,562           | 401,862          | 389,141          | 375,785          | 361,760          | 347,034          | 331,572          | 331,572          |
| Transfer to Capital - Sewage System          | 273,088          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Transfer to Reserve Fund - Collection System | 298,022          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Transfer to Reserve Fund - Lifecycle         | -                | 364,526          | 446,047          | 662,754          | 896,124          | 620,987          | 905,557          | 1,226,975        | 1,538,388        | 1,846,737        | 2,073,070        | 2,073,070        |
| <b>Sub Total Capital Related</b>             | <b>571,110</b>   | <b>364,526</b>   | <b>598,949</b>   | <b>863,665</b>   | <b>1,135,006</b> | <b>1,570,867</b> | <b>1,864,736</b> | <b>2,186,154</b> | <b>2,497,568</b> | <b>2,805,917</b> | <b>3,032,250</b> | <b>3,032,250</b> |
| <b>Total Expenditures</b>                    | <b>2,220,111</b> | <b>1,750,226</b> | <b>2,027,649</b> | <b>2,336,865</b> | <b>2,654,406</b> | <b>3,138,367</b> | <b>3,482,136</b> | <b>3,855,154</b> | <b>4,220,268</b> | <b>4,584,317</b> | <b>4,868,550</b> | <b>4,868,550</b> |
| <b>Revenues</b>                              |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Other Revenue                                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Surplus/(Deficit) from Previous Year         | 377,596          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Sewage Front - East                          | 6,100            | 6,100            | 6,100            | 6,100            | -                | -                | -                | -                | -                | -                | -                | -                |
| Transfer from DC Reserve Fund                | 50,000           | -                | 33,886           | 81,896           | 119,866          | 293,604          | 302,904          | 302,904          | 302,904          | 302,904          | 302,904          | 302,904          |
| <b>Total Operating Revenue</b>               | <b>433,696</b>   | <b>6,100</b>     | <b>39,986</b>    | <b>87,996</b>    | <b>119,866</b>   | <b>293,604</b>   | <b>302,904</b>   | <b>302,904</b>   | <b>302,904</b>   | <b>302,904</b>   | <b>302,904</b>   | <b>302,904</b>   |
| <b>Wastewater Billing Recovery - Total</b>   | <b>1,786,415</b> | <b>1,744,126</b> | <b>1,987,662</b> | <b>2,248,870</b> | <b>2,534,540</b> | <b>2,844,763</b> | <b>3,179,233</b> | <b>3,552,251</b> | <b>3,917,364</b> | <b>4,281,413</b> | <b>4,565,647</b> | <b>4,565,647</b> |

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## 6. Forecast Water and Wastewater Rates

### 6.1 Introduction

To summarize the analysis undertaken thus far, Chapter 3 reviewed capital-related issues for all customers within the water and wastewater systems and responds to the lifecycle needs of the Town. Chapter 4 provided a review of capital financing options of which internal sources (i.e. reserve fund transfers) and some external sources (i.e. debt) will be the predominant basis for financing future capital needs. Chapter 5 established the 10-year operating forecast of expenditures for Petawawa water and wastewater systems.

In summary, the following objectives were included in the determination of the water and wastewater rates:

- Moving from the use of capital reserves to lifecycle capital reserve funds;
- The School (classroom) flat rate was adjusted in 2016 to reflect actual consumption patterns for this type of customer;
- A 5-year phase in to move towards a uniform (constant) flat rate for all non-residential non-metered customers;
- A gradual removal of the subsidization of metered customers by the flat rate customers over the forecast period; and
- Moving to wastewater flow based billings (from water consumption based wastewater billings) for Garrison Petawawa.

The following calculations will be based on the net operating expenditures provided in Chapter 5.

### 6.2 Water Rates

Based on the discussions in previous chapters, the calculated rates are summarized in Table 6-1.

Initially, the consumptive rate outlines an increase of \$0.085 per m<sup>3</sup> in 2016 (i.e. 9.9% increase) but this drops over the forecast period, reaching 5.9% by 2025. All flat rates are forecast to increase in each year of the forecast period, with the exception of the

Classroom rate in 2016 (see the discussion above). In terms of comparing the consumptive rate and flat rate increases per year, the consumptive rates are increasing at higher levels, with the goal of eliminating the historical subsidization the flat rate customers have been providing the consumptive rate customers. Also, the gradual progression to one constant non-residential flat rate has been recommended. This has been reflected in the rate forecast as a 5-year phase in calculation (i.e. 2016 to 2020), where the non-residential rate will reach uniform (constant) levels in 2020. Due to recommendation, commercial flat rates increase at higher levels from 2016 to 2020 in comparison to other non-residential flat rates.

The detailed calculations of the proposed water rates are contained in Appendix A to this report.

### **6.3 Wastewater Rates**

Based on the discussions in previous chapters, the calculated rates are summarized in Table 6-2.

In order to fund the forecasted capital expenditures the wastewater rates increase year-over-year at higher levels than their water counterparts. The consumptive rate starts with an annual increase of \$0.1695 per m<sup>3</sup> in 2016 (i.e. 23% increase) and declines over the forecast period, reaching 7% increases by the end of the forecast. The larger increases in early years is primarily due to the change in billing methodology for Garrison Petawawa (i.e. from water based wastewater billing to wastewater flow based billings). All flat rates are forecast to increase in each year of the forecast period, with the exception of the Classroom rate in 2016 (see the discussion above).

Discussions in the section 6.2 above in relation to the School (classroom) 2016 adjustment, the historical subsidization between customers, and progressing to one uniform (constant) non-residential flat rate also apply to wastewater.

The detailed calculations of the proposed wastewater rates are contained in Appendix B to this report.

**Table 6-1**  
**Town of Petawawa**  
**Water Service**  
**Water Rate Forecast – Inflated\$**

| Description                           | Existing<br>2015 Rates | Forecast Rates |           |           |           |           |           |           |           |           |           |
|---------------------------------------|------------------------|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                       |                        | 2016           | 2017      | 2018      | 2019      | 2020      | 2021      | 2022      | 2023      | 2024      | 2025      |
| Total Water Billing Recovery          | 2,342,001              | 2,305,890      | 2,494,840 | 2,686,995 | 2,893,424 | 3,115,169 | 3,353,349 | 3,609,164 | 3,849,200 | 4,104,750 | 4,299,956 |
| Total Metered Consumption (m3)        |                        | 1,152,611      | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 |
| Consumptive Rate (per m3)             | 0.8600                 | 0.9451         | 1.0293    | 1.1106    | 1.1983    | 1.2930    | 1.3951    | 1.5053    | 1.5941    | 1.6882    | 1.7878    |
| Percentage Increase/(Decrease)        |                        | 9.90%          | 8.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 5.90%     | 5.90%     | 5.90%     |
| Flat Rates (per Year):                |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           | 268.33                 | 283.09         | 298.66    | 315.08    | 332.41    | 350.70    | 369.98    | 390.33    | 411.80    | 434.45    | 443.14    |
| Classroom                             | 198.26                 | 70.77          | 74.66     | 78.77     | 83.10     | 87.67     | 92.50     | 97.58     | 102.95    | 108.61    | 110.79    |
| Commercial                            | 311.56                 | 339.48         | 369.52    | 401.84    | 436.60    | 473.97    | 500.03    | 527.54    | 556.55    | 587.16    | 598.90    |
| Commercial High Volume                | 453.17                 | 458.99         | 464.09    | 468.35    | 471.68    | 473.97    | 500.03    | 527.54    | 556.55    | 587.16    | 598.90    |
| Industrial                            | 453.17                 | 458.99         | 464.09    | 468.35    | 471.68    | 473.97    | 500.03    | 527.54    | 556.55    | 587.16    | 598.90    |
| Percentage Increase/(Decrease):       |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 5.50%          | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Classroom                             |                        | -64.30%        | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Commercial                            |                        | 8.96%          | 8.85%     | 8.75%     | 8.65%     | 8.56%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Commercial High Volume                |                        | 1.29%          | 1.11%     | 0.92%     | 0.71%     | 0.48%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Industrial                            |                        | 1.29%          | 1.11%     | 0.92%     | 0.71%     | 0.48%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Dollar Increase/(Decrease) per Year:  |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 14.76          | 15.57     | 16.43     | 17.33     | 18.28     | 19.29     | 20.35     | 21.47     | 22.65     | 8.69      |
| Classroom                             |                        | (127.49)       | 3.89      | 4.11      | 4.33      | 4.57      | 4.82      | 5.09      | 5.37      | 5.66      | 2.17      |
| Commercial                            |                        | 27.92          | 30.04     | 32.32     | 34.76     | 37.37     | 26.07     | 27.50     | 29.01     | 30.61     | 11.74     |
| Commercial High Volume                |                        | 5.82           | 5.09      | 4.27      | 3.33      | 2.28      | 26.07     | 27.50     | 29.01     | 30.61     | 11.74     |
| Industrial                            |                        | 5.82           | 5.09      | 4.27      | 3.33      | 2.28      | 26.07     | 27.50     | 29.01     | 30.61     | 11.74     |
| Dollar Increase/(Decrease) per Month: |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 1.23           | 1.30      | 1.37      | 1.44      | 1.52      | 1.61      | 1.70      | 1.79      | 1.89      | 0.72      |
| Classroom                             |                        | (10.62)        | 0.32      | 0.34      | 0.36      | 0.38      | 0.40      | 0.42      | 0.45      | 0.47      | 0.18      |
| Commercial                            |                        | 2.33           | 2.50      | 2.69      | 2.90      | 3.11      | 2.17      | 2.29      | 2.42      | 2.55      | 0.98      |
| Commercial High Volume                |                        | 0.49           | 0.42      | 0.36      | 0.28      | 0.19      | 2.17      | 2.29      | 2.42      | 2.55      | 0.98      |
| Industrial                            |                        | 0.49           | 0.42      | 0.36      | 0.28      | 0.19      | 2.17      | 2.29      | 2.42      | 2.55      | 0.98      |

**Table 6-2**  
**Town of Petawawa**  
**Wastewater Service**  
**Wastewater Rate Forecast – Inflated\$**

| Description                           | Existing<br>2015 Rates | Forecast Rates |           |           |           |           |           |           |           |           |           |
|---------------------------------------|------------------------|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                       |                        | 2016           | 2017      | 2018      | 2019      | 2020      | 2021      | 2022      | 2023      | 2024      | 2025      |
| Total Wastewater Billing Recovery     | 1,786,415              | 1,744,126      | 1,987,662 | 2,248,870 | 2,534,540 | 2,844,763 | 3,179,233 | 3,552,251 | 3,917,364 | 4,281,413 | 4,565,647 |
| Total Metered Consumption (m3)        |                        | 816,794        | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   |
| Consumptive Rate (per m3)             | 0.7371                 | 0.9066         | 1.0698    | 1.2410    | 1.4271    | 1.6270    | 1.8385    | 2.0775    | 2.2852    | 2.4680    | 2.6408    |
| Percentage Increase/(Decrease)        |                        | 23.00%         | 18.00%    | 16.00%    | 15.00%    | 14.00%    | 13.00%    | 13.00%    | 10.00%    | 8.00%     | 7.00%     |
| Flat Rates (per Year):                |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           | 316.54                 | 341.55         | 368.53    | 397.64    | 429.06    | 462.95    | 499.53    | 538.99    | 581.57    | 627.51    | 651.98    |
| Classroom                             | 283.40                 | 85.39          | 92.13     | 99.41     | 107.26    | 115.74    | 124.88    | 134.75    | 145.39    | 156.88    | 163.00    |
| Commercial                            | 373.40                 | 417.08         | 465.33    | 518.60    | 577.39    | 642.23    | 692.96    | 747.71    | 806.77    | 870.51    | 904.46    |
| Commercial High Volume                | 541.80                 | 562.44         | 582.97    | 603.22    | 623.04    | 642.23    | 692.96    | 747.71    | 806.77    | 870.51    | 904.46    |
| Industrial                            | 541.80                 | 562.44         | 582.97    | 603.22    | 623.04    | 642.23    | 692.96    | 747.71    | 806.77    | 870.51    | 904.46    |
| Percentage Increase/(Decrease):       |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 7.90%          | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Classroom                             |                        | -69.87%        | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Commercial                            |                        | 11.70%         | 11.57%    | 11.45%    | 11.34%    | 11.23%    | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Commercial High Volume                |                        | 3.81%          | 3.65%     | 3.47%     | 3.29%     | 3.08%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Industrial                            |                        | 3.81%          | 3.65%     | 3.47%     | 3.29%     | 3.08%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Dollar Increase/(Decrease) per Year:  |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 25.01          | 26.98     | 29.11     | 31.41     | 33.90     | 36.57     | 39.46     | 42.58     | 45.94     | 24.47     |
| Classroom                             |                        | (198.01)       | 6.75      | 7.28      | 7.85      | 8.47      | 9.14      | 9.87      | 10.65     | 11.49     | 6.12      |
| Commercial                            |                        | 43.68          | 48.25     | 53.27     | 58.79     | 64.84     | 50.74     | 54.74     | 59.07     | 63.74     | 33.95     |
| Commercial High Volume                |                        | 20.64          | 20.52     | 20.26     | 19.82     | 19.18     | 50.74     | 54.74     | 59.07     | 63.74     | 33.95     |
| Industrial                            |                        | 20.64          | 20.52     | 20.26     | 19.82     | 19.18     | 50.74     | 54.74     | 59.07     | 63.74     | 33.95     |
| Dollar Increase/(Decrease) per Month: |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 2.08           | 2.25      | 2.43      | 2.62      | 2.82      | 3.05      | 3.29      | 3.55      | 3.83      | 2.04      |
| Classroom                             |                        | (16.50)        | 0.56      | 0.61      | 0.65      | 0.71      | 0.76      | 0.82      | 0.89      | 0.96      | 0.51      |
| Commercial                            |                        | 3.64           | 4.02      | 4.44      | 4.90      | 5.40      | 4.23      | 4.56      | 4.92      | 5.31      | 2.83      |
| Commercial High Volume                |                        | 1.72           | 1.71      | 1.69      | 1.65      | 1.60      | 4.23      | 4.56      | 4.92      | 5.31      | 2.83      |
| Industrial                            |                        | 1.72           | 1.71      | 1.69      | 1.65      | 1.60      | 4.23      | 4.56      | 4.92      | 5.31      | 2.83      |



## 6.4 Recommendations

Based upon the above analysis, the following recommendations are put forth for Council's consideration:

1. That Council provide for the recovery of all water and wastewater costs through full cost recovery rates;
2. That Council approve the Rate Study Update Report, allowing Town staff to use the report as a tool during annual budget deliberations;
3. That Council consider the 2016 water and wastewater rates provided in section 6.3 of the report;
4. That Council direct Town staff to create Lifecycle Capital Reserve Funds for water and wastewater services; and
5. That staff consider this Rate Study Update Report in any future revisions to the Town's Asset Management Plan.

# **Appendix A – Detailed Water Rate Calculation**

**Table A-1A**  
**Town of Petawawa**  
**Water Service**  
**Capital Budget Forecast**  
 Uninflated \$

| Description   | Total            | Budget 2015    | Forecast       |               |                |               |               |               |               |               |               |               |
|---|------------------|----------------|----------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|   |                  |                | 2016           | 2017          | 2018           | 2019          | 2020          | 2021          | 2022          | 2023          | 2024          | 2025          |
| <b>Capital Expenditures</b>   |                  |                |                |               |                |               |               |               |               |               |               |               |
| <b>Capital - Water System</b>   |                  |                |                |               |                |               |               |               |               |               |               |               |
| Replace existing 500 mm Water main at Plant                                       | 32,000           | 32,000         |                |               |                |               |               |               |               |               |               |               |
| McGregor Hill Watermain   | 15,000           | 15,000         |                |               |                |               |               |               |               |               |               |               |
| Future Looping of Watermain from Portage to Woodland - portion of Portage Landing | 39,671           | 39,671         |                |               |                |               |               |               |               |               |               |               |
| New Backup Backwash Pump System   | 727,270          | 727,270        |                |               |                |               |               |               |               |               |               |               |
| Rate Study Update and Water Financial Plan  | 30,000           |                |                |               |                |               |               | 15,000        |               |               |               | 15,000        |
| <b>Subtotal</b>   | <b>843,941</b>   | <b>813,941</b> | -              | -             | -              | -             | -             | <b>15,000</b> | -             | -             | -             | <b>15,000</b> |
| <b>Water Treatment Plant - OCWA Forecast</b>                                      |                  |                |                |               |                |               |               |               |               |               |               |               |
| Intake facility   | 10,075           | -              | 5,000          | -             | -              | -             | -             | -             | 5,075         | -             | -             | -             |
| Raw Water Well and Screening  | 11,703           | 1,000          | 1,000          | 1,015         | 1,030          | 1,046         | 1,061         | 1,077         | 1,093         | 1,110         | 1,126         | 1,143         |
| Low Lift Pumping Station  | 12,273           | 3,000          | -              | -             | 3,045          | -             | -             | 3,091         | -             | -             | 3,137         | -             |
| Mixing  | 5,000            | -              | -              | 5,000         | -              | -             | -             | -             | -             | -             | -             | -             |
| Flocculation Tanks  | 10,467           | -              | -              | -             | 5,000          | -             | -             | -             | -             | -             | 5,467         | -             |
| Clarifiers  | 10,467           | -              | -              | -             | 5,000          | -             | -             | -             | -             | -             | 5,467         | -             |
| Filters   | 40,960           | 3,500          | 3,500          | 3,553         | 3,606          | 3,660         | 3,715         | 3,770         | 3,827         | 3,884         | 3,943         | 4,002         |
| Filter Back Wash - Replacement  | 150,000          | -              | -              | -             | 150,000        | -             | -             | -             | -             | -             | -             | -             |
| Filter Back Wash - Piping Installation  | -                | -              | -              | -             | -              | -             | -             | -             | -             | -             | -             | -             |
| Clearwell   | 5,000            | -              | 5,000          | -             | -              | -             | -             | -             | -             | -             | -             | -             |
| High Lift Pumping Station   | 190,000          | 20,000         | 20,000         | -             | 150,000        | -             | -             | -             | -             | -             | -             | -             |
| Chemical Storage and Feed Systems   | 18,661           | 500            | 500            | 10,000        | 4,000          | 500           | 508           | 515           | 523           | 531           | 539           | 547           |
| Ammonia Feed  | 1                | -              | -              | -             | -              | -             | -             | -             | -             | -             | -             | 1             |
| Primary Coagulant   | 15,280           | 500            | 10,000         | 500           | 508            | 515           | 523           | 531           | 539           | 547           | 555           | 563           |
| Polymer   | 8,280            | 500            | 500            | 3,000         | 508            | 515           | 523           | 531           | 539           | 547           | 555           | 563           |
| Soda Ash  | 10,001           | -              | -              | 10,000        | -              | -             | -             | -             | -             | -             | -             | 1             |
| Fluoride  | 15,703           | 1,000          | 1,015          | 5,000         | 1,030          | 1,046         | 1,061         | 1,077         | 1,093         | 1,110         | 1,126         | 1,143         |
| Residue Management  | 58,514           | 5,000          | 5,000          | 5,075         | 5,151          | 5,228         | 5,307         | 5,386         | 5,467         | 5,549         | 5,632         | 5,717         |
| Process air system  | 20,000           | -              | -              | -             | 20,000         | -             | -             | -             | -             | -             | -             | -             |
| Stand-By Power Facility   | 11,703           | 1,000          | 1,000          | 1,015         | 1,030          | 1,046         | 1,061         | 1,077         | 1,093         | 1,110         | 1,126         | 1,143         |
| Electrical  | 175,541          | 15,000         | 15,000         | 15,225        | 15,453         | 15,685        | 15,920        | 16,159        | 16,402        | 16,648        | 16,897        | 17,151        |
| Control panels, MCC, SCADA, Outpost, etc.   | 213,514          | 5,000          | 160,000        | 5,075         | 5,151          | 5,228         | 5,307         | 5,386         | 5,467         | 5,549         | 5,632         | 5,717         |
| Boilers   | 31,405           | 2,000          | 10,000         | 2,030         | 2,060          | 2,091         | 2,123         | 2,155         | 2,187         | 2,220         | 2,253         | 2,287         |
| HVAC  | 23,405           | 2,000          | 2,000          | 2,030         | 2,060          | 2,091         | 2,123         | 2,155         | 2,187         | 2,220         | 2,253         | 2,287         |
| Plant Enclosure Building  | 58,514           | 5,000          | 5,000          | 5,075         | 5,151          | 5,228         | 5,307         | 5,386         | 5,467         | 5,549         | 5,632         | 5,717         |
| Buildings and Grounds   | -                | -              | -              | -             | -              | -             | -             | -             | -             | -             | -             | -             |
| Instrumentation   | 175,541          | 15,000         | 15,000         | 15,225        | 15,453         | 15,685        | 15,920        | 16,159        | 16,402        | 16,648        | 16,897        | 17,151        |
| Lab Equipment   | 23,405           | 2,000          | 2,000          | 2,030         | 2,060          | 2,091         | 2,123         | 2,155         | 2,187         | 2,220         | 2,253         | 2,287         |
| <b>Subtotal</b>   | <b>1,305,411</b> | <b>82,000</b>  | <b>261,515</b> | <b>90,848</b> | <b>397,298</b> | <b>61,657</b> | <b>62,582</b> | <b>71,686</b> | <b>64,473</b> | <b>76,374</b> | <b>69,559</b> | <b>67,420</b> |
| <b>Distribution System - OCWA Forecast</b>  |                  |                |                |               |                |               |               |               |               |               |               |               |
| South Town site elevated tank   | 19,780           | 500            | 508            | 5,000         | 10,000         | 515           | 523           | 531           | 539           | 547           | 555           | 563           |
| Former Township elevate tank / Township Tower                                     | 55,461           | 3,500          | 3,553          | 8,500         | 13,500         | 3,606         | 3,660         | 3,715         | 3,771         | 3,828         | 3,885         | 3,943         |
| Booster Pumping Station No. 1   | 219,897          | 500            | 508            | 5,000         | 210,000        | 531           | 539           | 547           | 555           | 564           | 572           | 581           |
| Booster Pumping Station No. 2   | 19,896           | 500            | 508            | 5,000         | 10,000         | 531           | 539           | 547           | 555           | 564           | 572           | 581           |
| Town Tower (Woodland)   | 44,458           | 3,500          | 3,500          | 3,553         | 7,500          | 3,606         | 3,660         | 3,715         | 3,770         | 3,827         | 3,884         | 3,943         |
| DND Tower (New)   | 44,458           | 3,500          | 3,500          | 3,553         | 7,500          | 3,606         | 3,660         | 3,715         | 3,770         | 3,827         | 3,884         | 3,943         |
| Hydrants, Valves, Curb stops, etc.  | -                | -              | -              | -             | -              | -             | -             | -             | -             | -             | -             | -             |
| <b>Subtotal</b>   | <b>403,949</b>   | <b>12,000</b>  | <b>12,076</b>  | <b>30,605</b> | <b>258,500</b> | <b>12,395</b> | <b>12,581</b> | <b>12,770</b> | <b>12,961</b> | <b>13,156</b> | <b>13,353</b> | <b>13,553</b> |

Table A-1A (cont.)  
Town of Petawawa  
Water Service  
Capital Budget Forecast  
Uninflated \$

| Description   | Total             | Budget<br>2015 | Forecast         |                |                  |                |                  |                |                  |                  |                  |                  |
|---|-------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|------------------|------------------|------------------|
|   |                   |                | 2016             | 2017           | 2018             | 2019           | 2020             | 2021           | 2022             | 2023             | 2024             | 2025             |
| <b>Capital Expenditures</b>                         |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| <b>Other Works - OCWA Forecast</b>                  |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| Lead sampling                                       | -                 | -              | -                | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| Source Protection                                   | -                 | -              | -                | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| Tool allowance                                      | 11,000            | 1,000          | 1,000            | 1,000          | 1,000            | 1,000          | 1,000            | 1,000          | 1,000            | 1,000            | 1,000            | 1,000            |
| Emergency repairs                                   | 292,568           | 25,000         | 25,000           | 25,375         | 25,756           | 26,142         | 26,534           | 26,932         | 27,336           | 27,746           | 28,162           | 28,585           |
| Professional services                               | 15,000            | -              | -                | -              | -                | -              | -                | -              | 15,000           | -                | -                | -                |
| <b>Subtotal</b>                                     | <b>318,568</b>    | <b>26,000</b>  | <b>26,000</b>    | <b>26,375</b>  | <b>26,756</b>    | <b>27,142</b>  | <b>27,534</b>    | <b>27,932</b>  | <b>43,336</b>    | <b>28,746</b>    | <b>29,162</b>    | <b>29,585</b>    |
| <b>Growth Related Projects - DC Study</b>           |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| Portage Road Waterman Expansion                     | 431,146           | -              | -                | -              | -                | -              | -                | -              | -                | -                | 431,146          | -                |
| John St. (Herman St to Laura St) Waterman Expansion | 150,000           | -              | -                | 150,000        | -                | -              | -                | -              | -                | -                | -                | -                |
| Laura St. (John St to Mary St) Waterman Expansion   | 60,000            | -              | -                | 60,000         | -                | -              | -                | -              | -                | -                | -                | -                |
| Mary St. (Edith St to Laura St) Waterman Expansion  | 250,000           | -              | 250,000          | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| Civic Centre Road - Urbanization                    | 124,000           | -              | 124,000          | -              | -                | -              | -                | -              | -                | -                | -                | -                |
| <b>Subtotal</b>                                     | <b>1,015,146</b>  | <b>-</b>       | <b>374,000</b>   | <b>210,000</b> | <b>-</b>         | <b>-</b>       | <b>-</b>         | <b>-</b>       | <b>-</b>         | <b>431,146</b>   | <b>-</b>         | <b>-</b>         |
| <b>Lifecycle Replacement - AM Plan</b>              |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| Facilities  | 980,930           | -              | 60,030           | 60,801         | 388,786          | 155,733        | 245,909          | 42,029         | 4,521            | 7,901            | 11,081           | 4,138            |
| Water Mains   | 3,294,103         | -              | 250,000          | -              | 360,000          | -              | 449,857          | 415,232        | 465,949          | 436,600          | 481,447          | 435,017          |
| <b>Subtotal</b>                                     | <b>4,275,032</b>  | <b>-</b>       | <b>310,030</b>   | <b>60,801</b>  | <b>748,786</b>   | <b>155,733</b> | <b>695,765</b>   | <b>457,261</b> | <b>470,470</b>   | <b>444,502</b>   | <b>492,528</b>   | <b>439,155</b>   |
| <b>Additional Lifecycle Replacement Needs</b>       |                   |                |                  |                |                  |                |                  |                |                  |                  |                  |                  |
| Facilities LOS                                      | 3,148,142         | -              | 439,743          | 245,625        | 257,906          | 270,801        | 284,341          | 298,559        | 313,486          | 329,161          | 345,619          | 362,900          |
| Water Mains LOS                                     | 1,794,200         | -              | 322,209          | 104,391        | 152,046          | 393,577        | 120,845          | 126,887        | 133,232          | 139,893          | 146,888          | 154,232          |
| <b>Subtotal</b>                                     | <b>4,942,342</b>  | <b>-</b>       | <b>761,952</b>   | <b>350,015</b> | <b>409,952</b>   | <b>664,378</b> | <b>405,187</b>   | <b>425,446</b> | <b>446,718</b>   | <b>469,054</b>   | <b>492,507</b>   | <b>517,132</b>   |
| <b>Total Capital Expenditures</b>                   | <b>13,104,389</b> | <b>933,941</b> | <b>1,745,572</b> | <b>768,644</b> | <b>1,841,292</b> | <b>921,305</b> | <b>1,218,648</b> | <b>995,095</b> | <b>1,037,959</b> | <b>1,462,978</b> | <b>1,097,109</b> | <b>1,081,845</b> |

**Table A-1**  
**Town of Petawawa**  
**Water Service**  
**Capital Budget Forecast**  
 Inflated \$

| Description   | Total             | Budget<br>2015 | Forecast         |                |                  |                  |                  |                  |                  |                  |                  |                  |
|---|-------------------|----------------|------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|   |                   |                | 2016             | 2017           | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             |
| <b>Capital Expenditures</b>                         |                   |                |                  |                |                  |                  |                  |                  |                  |                  |                  |                  |
| Capital - Water System                              | 851,541           | 813,941        | -                | -              | -                | -                | 17,400           | -                | -                | -                | -                | 20,200           |
| Water Treatment Plant - OCWA Forecast               | 1,466,800         | 82,000         | 269,400          | 96,400         | 434,100          | 69,400           | 72,500           | 85,600           | 79,300           | 96,700           | 90,800           | 90,600           |
| Distribution System - OCWA Forecast                 | 451,400           | 12,000         | 12,400           | 32,500         | 282,500          | 14,000           | 14,600           | 15,200           | 15,900           | 16,700           | 17,400           | 18,200           |
| Other Works - OCWA Forecast                         | 373,400           | 26,000         | 26,800           | 28,000         | 29,200           | 30,500           | 31,900           | 33,400           | 53,300           | 36,400           | 38,100           | 39,800           |
| <i>Subtotal</i>                                     | <i>3,143,141</i>  | <i>933,941</i> | <i>308,600</i>   | <i>156,900</i> | <i>745,800</i>   | <i>113,900</i>   | <i>136,400</i>   | <i>134,200</i>   | <i>148,500</i>   | <i>149,800</i>   | <i>146,300</i>   | <i>168,800</i>   |
| <b>Growth Related Projects - DC Study</b>           |                   |                |                  |                |                  |                  |                  |                  |                  |                  |                  |                  |
| Portage Road Waterman Expansion                     | 546,200           | -              | -                | -              | -                | -                | -                | -                | -                | 546,200          | -                | -                |
| John St. (Herman St to Laura St) Waterman Expansion | 159,100           | -              | -                | 159,100        | -                | -                | -                | -                | -                | -                | -                | -                |
| Laura St. (John St to Mary St) Waterman Expansion   | 63,700            | -              | -                | 63,700         | -                | -                | -                | -                | -                | -                | -                | -                |
| Mary St. (Edith St to Laura St) Waterman Expansion  | 257,500           | -              | 257,500          | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Civic Centre Road - Urbanization                    | 127,700           | -              | 127,700          | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| <i>Subtotal</i>                                     | <i>1,154,200</i>  | <i>-</i>       | <i>385,200</i>   | <i>222,800</i> | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>546,200</i>   | <i>-</i>         | <i>-</i>         |
| <b>Lifecycle Replacement</b>                        | <b>10,915,100</b> | <b>-</b>       | <b>1,104,100</b> | <b>435,800</b> | <b>1,266,200</b> | <b>923,000</b>   | <b>1,276,300</b> | <b>1,054,000</b> | <b>1,128,000</b> | <b>1,157,300</b> | <b>1,285,200</b> | <b>1,285,200</b> |
| <b>Total Capital Expenditures</b>                   | <b>15,212,441</b> | <b>933,941</b> | <b>1,797,900</b> | <b>815,500</b> | <b>2,012,000</b> | <b>1,036,900</b> | <b>1,412,700</b> | <b>1,188,200</b> | <b>1,276,500</b> | <b>1,853,300</b> | <b>1,431,500</b> | <b>1,454,000</b> |
| <b>Capital Financing</b>                            |                   |                |                  |                |                  |                  |                  |                  |                  |                  |                  |                  |
| Provincial/Federal Grants                           | -                 | -              | -                | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Development Charges Reserve Fund                    | 70,200            | -              | 70,200           | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Non-Growth Related Debenture Requirements           | -                 | -              | -                | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Growth Related Debenture Requirements               | 712,200           | -              | 173,900          | 155,960        | -                | -                | -                | -                | -                | 382,340          | -                | -                |
| Operating Contributions                             | 813,941           | 813,941        | -                | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Operating Contributions - OCWA Plant Maint          | 120,000           | 120,000        | -                | -              | -                | -                | -                | -                | -                | -                | -                | -                |
| Lifecycle Reserve Fund                              | 13,496,100        | -              | 1,553,800        | 659,540        | 2,012,000        | 1,036,900        | 1,412,700        | 1,188,200        | 1,276,500        | 1,470,960        | 1,431,500        | 1,454,000        |
| <b>Total Capital Financing</b>                      | <b>15,212,441</b> | <b>933,941</b> | <b>1,797,900</b> | <b>815,500</b> | <b>2,012,000</b> | <b>1,036,900</b> | <b>1,412,700</b> | <b>1,188,200</b> | <b>1,276,500</b> | <b>1,853,300</b> | <b>1,431,500</b> | <b>1,454,000</b> |

**Table A-2**  
**Town of Petawawa**  
**Water Service**  
**Schedule of Non-Growth Related Debenture Repayments**  
 Inflated \$

| Debenture<br>Year                | Principal<br>(Inflated) | Budget<br>2015 | Forecast |      |      |      |      |      |      |      |      |      |   |
|----------------------------------|-------------------------|----------------|----------|------|------|------|------|------|------|------|------|------|---|
|                                  |                         |                | 2016     | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |   |
| 2015                             | -                       |                | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    | - |
| 2016                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2017                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2018                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2019                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2020                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2021                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2022                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2023                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2024                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| 2025                             | -                       |                |          |      |      |      |      |      |      |      |      |      |   |
| <b>Total Annual Debt Charges</b> | -                       | -              | -        | -    | -    | -    | -    | -    | -    | -    | -    | -    | - |

**Table A-3**  
**Town of Petawawa**  
**Water Service**  
**Schedule of Growth Related Debenture Repayments**  
 Inflated \$

| Debenture<br>Year                | Principal<br>(Inflated) | Budget<br>2015 | Forecast |        |        |        |        |        |        |        |        |        |        |
|----------------------------------|-------------------------|----------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                  |                         |                | 2016     | 2017   | 2018   | 2019   | 2020   | 2021   | 2022   | 2023   | 2024   | 2025   |        |
| 2015                             | -                       |                | -        | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      |
| 2016                             | 173,900                 |                |          | 13,954 | 13,954 | 13,954 | 13,954 | 13,954 | 13,954 | 13,954 | 13,954 | 13,954 | 13,954 |
| 2017                             | 155,960                 |                |          |        | 12,515 | 12,515 | 12,515 | 12,515 | 12,515 | 12,515 | 12,515 | 12,515 | 12,515 |
| 2018                             | -                       |                |          |        |        |        |        |        |        |        |        |        |        |
| 2019                             | -                       |                |          |        |        |        |        |        |        |        |        |        |        |
| 2020                             | -                       |                |          |        |        |        |        |        |        |        |        |        |        |
| 2021                             | -                       |                |          |        |        |        |        |        |        |        |        |        |        |
| 2022                             | -                       |                |          |        |        |        |        |        |        |        |        |        |        |
| 2023                             | 382,340                 |                |          |        |        |        |        |        |        |        |        |        |        |
| 2024                             | -                       |                |          |        |        |        |        |        |        |        |        | 30,680 | 30,680 |
| 2025                             | -                       |                |          |        |        |        |        |        |        |        |        |        |        |
| <b>Total Annual Debt Charges</b> | <b>712,200</b>          | -              | -        | 13,954 | 26,469 | 26,469 | 26,469 | 26,469 | 26,469 | 26,469 | 26,469 | 57,149 | 57,149 |

**Table A-4**  
**Town of Petawawa**  
**Water Service**  
**Water Reserve Continuity - Distribution System**  
 Inflated \$

| Description                        | 2015      | 2016      | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------------------------------------|-----------|-----------|------|------|------|------|------|------|------|------|------|
| Opening Balance                    | 1,877,715 | 1,306,280 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer from Operating            | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Capital                | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Lifecycle Reserve Fund | -         | 1,306,280 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Operating              | 571,435   | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Closing Balance                    | 1,306,280 | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Interest                           | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |

**Table A-5**  
**Town of Petawawa**  
**Water Service**  
**Water Reserve Continuity - Water Plant**  
 Inflated \$

| Description                        | 2015      | 2016      | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------------------------------------|-----------|-----------|------|------|------|------|------|------|------|------|------|
| Opening Balance                    | 3,519,068 | 4,063,340 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer from Operating            | 544,272   | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Capital                | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Lifecycle Reserve Fund | -         | 4,063,340 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Operating              | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Closing Balance                    | 4,063,340 | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Interest                           | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |

**Table A-6**  
**Town of Petawawa**  
**Water Service**  
**Water Development Charges Reserve Fund Continuity**  
 Inflated \$

| Description                       | 2015   | 2016    | 2017    | 2018   | 2019   | 2020   | 2021   | 2022   | 2023    | 2024   | 2025   |
|-----------------------------------|--------|---------|---------|--------|--------|--------|--------|--------|---------|--------|--------|
| Opening Balance                   | 22,623 | 42,008  | -       | 15,351 | 19,154 | 23,942 | 29,736 | 36,626 | 44,648  | 53,827 | 32,960 |
| Development Charge Proceeds       | 18,561 | 28,192  | 29,004  | 29,896 | 30,788 | 31,680 | 32,640 | 33,616 | 34,592  | 35,636 | 36,692 |
| Transfer to Capital               | -      | 70,200  | -       | -      | -      | -      | -      | -      | -       | -      | -      |
| Transfer to Operating             | -      | -       | 13,954  | 26,469 | 26,469 | 26,469 | 26,469 | 26,469 | 26,469  | 57,149 | 57,149 |
| Closing Balance                   | 41,184 | -       | 15,050  | 18,778 | 23,473 | 29,153 | 35,908 | 43,773 | 52,771  | 32,314 | 12,504 |
| Interest                          | 824    | -       | 301     | 376    | 469    | 583    | 718    | 875    | 1,055   | 646    | 250    |
| Required from Development Charges | -      | 244,100 | 155,960 | -      | -      | -      | -      | -      | 382,340 | -      | -      |

**Table A-7**  
**Town of Petawawa**  
**Water Service**  
**Water Reserve Fund Continuity - Lifecycle**  
 Inflated \$

| Description                    | 2015 | 2016      | 2017      | 2018      | 2019      | 2020      | 2021      | 2022      | 2023      | 2024      | 2025      |
|--------------------------------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Opening Balance                | -    | -         | 4,469,650 | 4,604,331 | 3,504,135 | 3,531,097 | 3,343,526 | 3,563,753 | 3,896,723 | 4,218,173 | 4,780,049 |
| Transfer from Operating        | -    | 566,190   | 703,940   | 843,095   | 994,624   | 1,159,569 | 1,338,549 | 1,533,064 | 1,709,700 | 1,899,650 | 2,026,856 |
| Transfer from Capital Reserves | -    | 5,369,620 | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| Transfer to Capital            | -    | 1,553,800 | 659,540   | 2,012,000 | 1,036,900 | 1,412,700 | 1,188,200 | 1,276,500 | 1,470,960 | 1,431,500 | 1,454,000 |
| Transfer to Operating          | -    | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| Closing Balance                | -    | 4,382,010 | 4,514,050 | 3,435,427 | 3,461,860 | 3,277,966 | 3,493,875 | 3,820,317 | 4,135,464 | 4,686,322 | 5,352,905 |
| Interest                       | -    | 87,640    | 90,281    | 68,709    | 69,237    | 65,559    | 69,878    | 76,406    | 82,709    | 93,726    | 107,058   |



**Table A-8**  
**Town of Petawawa**  
**Water Services**  
**Operating Budget Forecast**  
 Inflated \$

| Description                                      | Budget<br>2015   | Forecast         |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|
|  |                  | 2016             | 2017             | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             |  |
| <b>Expenditures</b>                              |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
| <b>Operating Costs</b>                           |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
| Waterworks Salaries                              | 30,000           | 30,600           | 31,200           | 31,900           | 32,600           | 33,300           | 34,000           | 34,700           | 35,400           | 36,100           | 36,900           |  |
| Training/Associations                            | 8,000            | 8,200            | 8,400            | 8,600            | 8,800            | 9,000            | 9,200            | 9,400            | 9,600            | 9,800            | 10,000           |  |
| Dispatch/Alarm Monitoring                        | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            |  |
| Audit  | 7,500            | 7,700            | 7,900            | 8,100            | 8,300            | 8,500            | 8,700            | 8,900            | 9,100            | 9,300            | 9,500            |  |
| Service Contract - OCWA                          | 704,442          | 719,200          | 734,300          | 749,700          | 765,400          | 781,500          | 797,900          | 814,700          | 831,800          | 849,300          | 867,100          |  |
| Service Contract - OCWA - Extra                  | 50,000           | 51,100           | 52,200           | 53,300           | 54,400           | 55,500           | 56,700           | 57,900           | 59,100           | 60,300           | 61,600           |  |
| Waterworks Administration                        | 101,062          | 103,200          | 105,400          | 107,600          | 109,900          | 112,200          | 114,600          | 117,000          | 119,500          | 122,000          | 124,600          |  |
| Water Purchase Pembroke                          | 150,000          | 157,500          | 165,400          | 173,700          | 182,400          | 191,500          | 201,100          | 211,200          | 221,800          | 232,900          | 244,500          |  |
| Tools/Parts/Supplies                             | 5,000            | 5,100            | 5,200            | 5,300            | 5,400            | 5,500            | 5,600            | 5,700            | 5,800            | 5,900            | 6,000            |  |
| Water System Maintenance                         | 183,278          | 192,400          | 202,000          | 212,100          | 222,700          | 233,800          | 245,500          | 257,800          | 270,700          | 284,200          | 298,400          |  |
| Water Plant Maintenance                          | 148,500          | 155,900          | 163,700          | 171,900          | 180,500          | 189,500          | 199,000          | 209,000          | 219,500          | 230,500          | 242,000          |  |
| Water Plant Electricity                          | 220,000          | 224,600          | 229,300          | 234,100          | 239,000          | 244,000          | 249,100          | 254,300          | 259,600          | 265,100          | 270,700          |  |
| Insurance  | 20,000           | 20,400           | 20,800           | 21,200           | 21,600           | 22,100           | 22,600           | 23,100           | 23,600           | 24,100           | 24,600           |  |
| Elevated Tank - Woodland                         | 11,000           | 11,200           | 11,400           | 11,600           | 11,800           | 12,000           | 12,300           | 12,600           | 12,900           | 13,200           | 13,500           |  |
| Elevated Tank - Tower Road                       | 9,500            | 9,700            | 9,900            | 10,100           | 10,300           | 10,500           | 10,700           | 10,900           | 11,100           | 11,300           | 11,500           |  |
| Booster Station 1 - Brumm                        | 9,000            | 9,200            | 9,400            | 9,600            | 9,800            | 10,000           | 10,200           | 10,400           | 10,600           | 10,800           | 11,000           |  |
| Booster Station 2- Blvd                          | 16,000           | 16,300           | 16,600           | 16,900           | 17,300           | 17,700           | 18,100           | 18,500           | 18,900           | 19,300           | 19,700           |  |
| Hydrant Maintenance                              | 10,000           | 10,200           | 10,400           | 10,600           | 10,800           | 11,000           | 11,200           | 11,400           | 11,600           | 11,800           | 12,000           |  |
| Water System PILT County                         | 10,983           | 11,200           | 11,400           | 11,600           | 11,800           | 12,000           | 12,300           | 12,600           | 12,900           | 13,200           | 13,500           |  |
| <i>Sub Total Operating</i>                       | <i>1,695,265</i> | <i>1,744,700</i> | <i>1,795,900</i> | <i>1,848,900</i> | <i>1,903,800</i> | <i>1,960,600</i> | <i>2,019,800</i> | <i>2,081,100</i> | <i>2,144,500</i> | <i>2,210,100</i> | <i>2,278,100</i> |  |
| <b>Capital-Related</b>                           |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
| Growth Related Debt (Principal)                  | -                | -                | 5,259            | 10,239           | 10,751           | 11,288           | 11,853           | 12,445           | 13,068           | 25,284           | 26,548           |  |
| Growth Related Debt (Interest)                   | -                | -                | 8,695            | 16,230           | 15,718           | 15,181           | 14,616           | 14,024           | 13,401           | 31,865           | 30,601           |  |
| Non-Growth Related Debt (Principal)              | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Non-Growth Related Debt (Interest)               | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer to Capital                              | 813,941          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer to Reserve Fund - Water Plant           | 544,272          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer to Reserve Fund - Lifecycle             | -                | 566,190          | 703,940          | 843,095          | 994,624          | 1,159,569        | 1,338,549        | 1,533,064        | 1,709,700        | 1,899,650        | 2,026,856        |  |
| <i>Sub Total Capital Related</i>                 | <i>1,358,213</i> | <i>566,190</i>   | <i>717,894</i>   | <i>869,564</i>   | <i>1,021,093</i> | <i>1,186,038</i> | <i>1,365,018</i> | <i>1,559,533</i> | <i>1,736,169</i> | <i>1,956,798</i> | <i>2,084,005</i> |  |
| <b>Total Expenditures</b>                        | <b>3,053,478</b> | <b>2,310,890</b> | <b>2,513,794</b> | <b>2,718,464</b> | <b>2,924,893</b> | <b>3,146,638</b> | <b>3,384,818</b> | <b>3,640,633</b> | <b>3,880,669</b> | <b>4,166,898</b> | <b>4,362,105</b> |  |
| <b>Revenues</b>                                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |  |
| Miscellaneous Revenue/Grant                      | 549,272          | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            | 5,000            |  |
| Surplus/(Deficit) from Previous Year             | (412,438)        | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer from Reserve Fund - Distribution System | 571,435          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| Transfer from DC Reserve Fund                    | -                | -                | 13,954           | 26,469           | 26,469           | 26,469           | 26,469           | 26,469           | 26,469           | 57,149           | 57,149           |  |
| Water Front/Connect                              | 3,208            | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |  |
| <b>Total Operating Revenue</b>                   | <b>711,477</b>   | <b>5,000</b>     | <b>18,954</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>31,469</b>    | <b>62,149</b>    | <b>62,149</b>    |  |
| <b>Water Billing Recovery - Total</b>            | <b>2,342,001</b> | <b>2,305,890</b> | <b>2,494,840</b> | <b>2,686,995</b> | <b>2,893,424</b> | <b>3,115,169</b> | <b>3,353,349</b> | <b>3,609,164</b> | <b>3,849,200</b> | <b>4,104,750</b> | <b>4,299,956</b> |  |

**Table A-9**  
**Town of Petawawa**  
**Water Services**  
**Water Rate Forecast**  
 Inflated \$

| Description                           | Existing<br>2015 Rates | Forecast Rates |           |           |           |           |           |           |           |           |           |
|---------------------------------------|------------------------|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                       |                        | 2016           | 2017      | 2018      | 2019      | 2020      | 2021      | 2022      | 2023      | 2024      | 2025      |
| Total Water Billing Recovery          | 2,342,001              | 2,305,890      | 2,494,840 | 2,686,995 | 2,893,424 | 3,115,169 | 3,353,349 | 3,609,164 | 3,849,200 | 4,104,750 | 4,299,956 |
| Total Metered Consumption (m3)        |                        | 1,152,611      | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 | 1,152,611 |
| Consumptive Rate (per m3)             | 0.8600                 | 0.9451         | 1.0293    | 1.1106    | 1.1983    | 1.2930    | 1.3951    | 1.5053    | 1.5941    | 1.6882    | 1.7878    |
| Percentage Increase/(Decrease)        |                        | 9.90%          | 8.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 5.90%     | 5.90%     | 5.90%     |
| Flat Rates (per Year):                |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           | 268.33                 | 283.09         | 298.66    | 315.08    | 332.41    | 350.70    | 369.98    | 390.33    | 411.80    | 434.45    | 443.14    |
| Classroom                             | 198.26                 | 70.77          | 74.66     | 78.77     | 83.10     | 87.67     | 92.50     | 97.58     | 102.95    | 108.61    | 110.79    |
| Commercial                            | 311.56                 | 339.48         | 369.52    | 401.84    | 436.60    | 473.97    | 500.03    | 527.54    | 556.55    | 587.16    | 598.90    |
| Commercial High Volume                | 453.17                 | 458.99         | 464.09    | 468.35    | 471.68    | 473.97    | 500.03    | 527.54    | 556.55    | 587.16    | 598.90    |
| Industrial                            | 453.17                 | 458.99         | 464.09    | 468.35    | 471.68    | 473.97    | 500.03    | 527.54    | 556.55    | 587.16    | 598.90    |
| Percentage Increase/(Decrease):       |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 5.50%          | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Classroom                             |                        | -64.30%        | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Commercial                            |                        | 8.96%          | 8.85%     | 8.75%     | 8.65%     | 8.56%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Commercial High Volume                |                        | 1.29%          | 1.11%     | 0.92%     | 0.71%     | 0.48%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Industrial                            |                        | 1.29%          | 1.11%     | 0.92%     | 0.71%     | 0.48%     | 5.50%     | 5.50%     | 5.50%     | 5.50%     | 2.00%     |
| Dollar Increase/(Decrease) per Year:  |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 14.76          | 15.57     | 16.43     | 17.33     | 18.28     | 19.29     | 20.35     | 21.47     | 22.65     | 8.69      |
| Classroom                             |                        | (127.49)       | 3.89      | 4.11      | 4.33      | 4.57      | 4.82      | 5.09      | 5.37      | 5.66      | 2.17      |
| Commercial                            |                        | 27.92          | 30.04     | 32.32     | 34.76     | 37.37     | 26.07     | 27.50     | 29.01     | 30.61     | 11.74     |
| Commercial High Volume                |                        | 5.82           | 5.09      | 4.27      | 3.33      | 2.28      | 26.07     | 27.50     | 29.01     | 30.61     | 11.74     |
| Industrial                            |                        | 5.82           | 5.09      | 4.27      | 3.33      | 2.28      | 26.07     | 27.50     | 29.01     | 30.61     | 11.74     |
| Dollar Increase/(Decrease) per Month: |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 1.23           | 1.30      | 1.37      | 1.44      | 1.52      | 1.61      | 1.70      | 1.79      | 1.89      | 0.72      |
| Classroom                             |                        | (10.62)        | 0.32      | 0.34      | 0.36      | 0.38      | 0.40      | 0.42      | 0.45      | 0.47      | 0.18      |
| Commercial                            |                        | 2.33           | 2.50      | 2.69      | 2.90      | 3.11      | 2.17      | 2.29      | 2.42      | 2.55      | 0.98      |
| Commercial High Volume                |                        | 0.49           | 0.42      | 0.36      | 0.28      | 0.19      | 2.17      | 2.29      | 2.42      | 2.55      | 0.98      |
| Industrial                            |                        | 0.49           | 0.42      | 0.36      | 0.28      | 0.19      | 2.17      | 2.29      | 2.42      | 2.55      | 0.98      |

## **Appendix B – Detailed Wastewater Rate Calculations**

**Table B-1A**  
**Town of Petawawa**  
**Wastewater Service**  
**Capital Budget Forecast**  
 Uninflated \$

| Description  | Total            | Budget<br>2015 | Forecast       |                |                |                |               |                |                |               |               |               |
|--|------------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|---------------|---------------|---------------|
|  |                  |                | 2016           | 2017           | 2018           | 2019           | 2020          | 2021           | 2022           | 2023          | 2024          | 2025          |
| <b>Capital Expenditures</b>                                    |                  |                |                |                |                |                |               |                |                |               |               |               |
| <b>Capital - Sewage System (2015)</b>                          |                  |                |                |                |                |                |               |                |                |               |               |               |
| Victoria Street  | 22,500           | 22,500         |                |                |                |                |               |                |                |               |               |               |
| Renfrew Street Pumping Station - Design                        | 50,000           | 50,000         |                |                |                |                |               |                |                |               |               |               |
| Renfrew Street Pumping Station - Construction                  | 200,000          | 200,000        |                |                |                |                |               |                |                |               |               |               |
| Civic Centre Road  | 588              | 588            |                |                |                |                |               |                |                |               |               |               |
| Rate Study Update  | 20,000           |                |                |                |                |                | 10,000        |                |                |               |               | 10,000        |
| <b>Subtotal</b>  | <b>293,088</b>   | <b>273,088</b> | -              | -              | -              | -              | 10,000        | -              | -              | -             | -             | 10,000        |
| <b>Wastewater Treatment Plant - OCWA Forecast</b>              |                  |                |                |                |                |                |               |                |                |               |               |               |
| By-pass System   | -                | -              | -              | -              | -              | -              | -             | -              | -              | -             | -             | -             |
| Raw Sewage Screening   | 30,703           | 10,000         | 11,000         | 1,015          | 1,030          | 1,046          | 1,061         | 1,077          | 1,093          | 1,110         | 1,126         | 1,143         |
| Grit Removal and Pre-aeration                                  | 57,608           | 1,500          | 27,000         | 3,045          | 3,091          | 3,137          | 3,184         | 3,232          | 3,280          | 3,330         | 3,379         | 3,430         |
| Primary Treatment  | 119,763          | 1,000          | 101,000        | 5,015          | 5,090          | 1,046          | 1,061         | 1,077          | 1,093          | 1,110         | 1,126         | 1,143         |
| Primary Effluent Screw Pumping                                 | 26,703           | 1,000          | 6,000          | 1,015          | 1,030          | 1,046          | 1,061         | 1,077          | 1,093          | 1,110         | 11,126        | 1,143         |
| Secondary Treatment  | 160,027          | 15,000         | 10,000         | 35,150         | 23,302         | 10,457         | 10,614        | 10,773         | 10,934         | 11,098        | 11,265        | 11,434        |
| UV disinfection system   | 161,508          | 1,000          | 10,000         | 14,075         | 120,000        | 1,015          | 1,030         | 1,046          | 1,061          | 1,077         | 1,093         | 1,110         |
| Plant Outfall Sewer  | 7,000            | -              | -              | 3,500          | -              | -              | -             | -              | 3,500          | -             | -             | -             |
| Primary Sludge Handling (Collection & Pumping)                 | 31,405           | -              | 12,000         | 2,030          | 2,060          | 2,091          | 2,123         | 2,155          | 2,187          | 2,220         | 2,253         | 2,287         |
| Secondary Sludge Handling (Collection, Thickening and Pumping) | 132,089          | 6,500          | 8,500          | 8,628          | 23,606         | 13,660         | 9,021         | 24,156         | 9,293          | 9,433         | 9,574         | 9,718         |
| Sludge Digestion System  | 246,405          | -              | 2,000          | 77,030         | 92,060         | 12,091         | 2,123         | 2,155          | 52,187         | 2,220         | 2,253         | 2,287         |
| Sludge Holding and Truck Loading System                        | 315,460          | 40,000         | 32,000         | 22,330         | 22,665         | 38,005         | 23,350        | 38,700         | 24,056         | 24,417        | 24,783        | 25,155        |
| Complete SCADA overhaul and upgrade of hardware and software   | 82,410           | -              | 5,000          | 20,000         | 5,075          | 5,151          | 5,228         | 5,307          | 20,000         | 5,467         | 5,549         | 5,632         |
| Instrumentation  | 112,027          | 5,000          | 10,000         | 10,150         | 10,302         | 10,457         | 10,614        | 10,773         | 10,934         | 11,098        | 11,265        | 11,434        |
| HVAC - General Repairs   | 21,405           | -              | 2,000          | 2,030          | 2,060          | 2,091          | 2,123         | 2,155          | 2,187          | 2,220         | 2,253         | 2,287         |
| General Repairs and Replacements                               | 22,905           | 1,500          | 2,000          | 2,030          | 2,060          | 2,091          | 2,123         | 2,155          | 2,187          | 2,220         | 2,253         | 2,287         |
| General Painting and Physical Upkeep of Properties             | 87,770           | 7,500          | 7,500          | 7,613          | 7,727          | 7,843          | 7,960         | 8,080          | 8,201          | 8,324         | 8,449         | 8,575         |
| Shingles Replacement of Control Building                       | 15,000           | -              | -              | -              | 15,000         | -              | -             | -              | -              | -             | -             | -             |
| Concrete structures: tanks, sewer pipes, etc.                  | 50,000           | -              | -              | -              | 50,000         | -              | -             | -              | -              | -             | -             | -             |
| <b>Subtotal</b>  | <b>1,680,189</b> | <b>90,000</b>  | <b>246,000</b> | <b>214,655</b> | <b>386,160</b> | <b>111,227</b> | <b>82,676</b> | <b>113,916</b> | <b>162,288</b> | <b>86,452</b> | <b>97,749</b> | <b>89,065</b> |
| <b>Sewage Collection System - OCWA Forecast</b>                |                  |                |                |                |                |                |               |                |                |               |               |               |
| Manhole Rehabilitation   | 234,054          | 20,000         | 20,000         | 20,300         | 20,605         | 20,914         | 21,227        | 21,546         | 21,869         | 22,197        | 22,530        | 22,868        |
| Collection System - Camera 20% of System                       | 292,568          | 25,000         | 25,000         | 25,375         | 25,756         | 26,142         | 26,534        | 26,932         | 27,336         | 27,746        | 28,162        | 28,585        |
| Earl Street Pumping Station                                    | 15,000           | -              | -              | -              | -              | -              | -             | -              | 15,000         | -             | -             | -             |
| Pumping Station Repairs  | 239,054          | 25,000         | 20,000         | 20,300         | 20,605         | 20,914         | 21,227        | 21,546         | 21,869         | 22,197        | 22,530        | 22,868        |
| <b>Subtotal</b>  | <b>780,677</b>   | <b>70,000</b>  | <b>65,000</b>  | <b>65,975</b>  | <b>66,965</b>  | <b>67,969</b>  | <b>68,989</b> | <b>70,023</b>  | <b>86,074</b>  | <b>72,140</b> | <b>73,222</b> | <b>74,320</b> |

**Table B-1A (cont.)**  
**Town of Petawawa**  
**Wastewater Service**  
**Capital Budget Forecast**  
 Uninflated \$

| Description   | Total             | Budget<br>2015 | Forecast         |                  |                  |                  |                  |                  |                  |                |                |                |   |
|---|-------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|---|
|   |                   |                | 2016             | 2017             | 2018             | 2019             | 2020             | 2021             | 2022             | 2023           | 2024           | 2025           |   |
| <b>Capital Expenditures</b>                                   |                   |                |                  |                  |                  |                  |                  |                  |                  |                |                |                |   |
| <b>Other Works - OCWA Forecast</b>                            |                   |                |                  |                  |                  |                  |                  |                  |                  |                |                |                |   |
| Screw Pumps   | 5,000             | 5,000          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Thickened Waste Activated Sludge Holding Tank                 | 5,000             | 5,000          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| SBRs 3&4  | 6,500             | 6,500          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Laboratory  | 4,500             | 4,500          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Digester Gas System   | 7,500             | 7,500          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Replace All Doors in and Around the SBR Process               | 15,000            | 15,000         | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Tool Allowance  | 11,703            | 1,000          | 1,000            | 1,015            | 1,030            | 1,046            | 1,061            | 1,077            | 1,093            | 1,110          | 1,126          | 1,143          |   |
| General Pavement Repairs                                      | 15,000            | 15,000         | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Replace Underground Heating Lines for Headwork & UV Buildings | 12,000            | 12,000         | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Flow Meter on line to Holding Tanks from Mixing Pumps         | 3,500             | 3,500          | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Reinstate Sludge Loading Arm                                  | 10,000            | 10,000         | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Emergency Repairs   | 292,568           | 25,000         | 25,000           | 25,375           | 25,756           | 26,142           | 26,534           | 26,932           | 27,336           | 27,746         | 28,162         | 28,585         |   |
| Replace Existing Miltronics Unit and Purchase Spare           | -                 | -              | -                | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Major Maintenance Lifecycle Review                            | 15,000            | -              | -                | -                | -                | -                | -                | -                | 15,000           | -              | -              | -              | - |
| Assess Sludge Handling and Treatment System                   | 26,000            | -              | -                | 26,000           | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Improvements to Sludge Handling and Treatment System          | 200,000           | -              | -                | -                | 100,000          | 100,000          | -                | -                | -                | -              | -              | -              | - |
| <b>Subtotal</b>   | <b>629,271</b>    | <b>110,000</b> | <b>26,000</b>    | <b>52,390</b>    | <b>126,786</b>   | <b>127,188</b>   | <b>27,595</b>    | <b>28,009</b>    | <b>43,430</b>    | <b>28,856</b>  | <b>29,289</b>  | <b>29,728</b>  |   |
| <b>Growth Related Projects - DC Study</b>                     |                   |                |                  |                  |                  |                  |                  |                  |                  |                |                |                |   |
| Pumping Station Expansion                                     | 463,000           | -              | 30,000           | -                | 433,000          | -                | -                | -                | -                | -              | -              | -              | - |
| Victoria St: Laurentian Dr to Treatment Plant                 | 1,820,000         | -              | 1,820,000        | -                | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Petawawa Blvd Upgrade: Upstream Harry St to Pumping Stn       | 100,000           | -              | -                | -                | -                | -                | 100,000          | -                | -                | -              | -              | -              | - |
| Wastewater Treatment Plant Expansion - EA                     | 564,000           | -              | -                | 564,000          | -                | -                | -                | -                | -                | -              | -              | -              | - |
| Wastewater Treatment Plant Expansion                          | 7,694,800         | -              | -                | -                | -                | 7,694,800        | -                | -                | -                | -              | -              | -              | - |
| <b>Subtotal</b>   | <b>10,641,800</b> | <b>-</b>       | <b>1,850,000</b> | <b>564,000</b>   | <b>433,000</b>   | <b>7,694,800</b> | <b>100,000</b>   | <b>-</b>         | <b>-</b>         | <b>-</b>       | <b>-</b>       | <b>-</b>       |   |
| <b>Lifecycle Replacement - AM Plan</b>                        |                   |                |                  |                  |                  |                  |                  |                  |                  |                |                |                |   |
| Facilities  | 2,345,538         | -              | 98,230           | 111,644          | 210,677          | 54,347           | 482,483          | 341,512          | 571,734          | 303,728        | 162,907        | 8,275          |   |
| Sewer Mains   | 3,813,825         | -              | 176,289          | 28,293           | 360,000          | 276,766          | 473,269          | 518,710          | 462,321          | 357,293        | 622,353        | 538,529        |   |
| <b>Subtotal</b>   | <b>6,159,363</b>  | <b>-</b>       | <b>274,519</b>   | <b>139,937</b>   | <b>570,677</b>   | <b>331,113</b>   | <b>955,752</b>   | <b>860,222</b>   | <b>1,034,056</b> | <b>661,022</b> | <b>785,261</b> | <b>546,804</b> |   |
| <b>Total Capital Expenditures</b>                             | <b>20,184,388</b> | <b>543,088</b> | <b>2,461,519</b> | <b>1,036,957</b> | <b>1,583,588</b> | <b>8,332,296</b> | <b>1,245,012</b> | <b>1,072,171</b> | <b>1,325,847</b> | <b>848,470</b> | <b>985,520</b> | <b>749,918</b> |   |

**Table B-1**  
**Town of Petawawa**  
**Wastewater Service**  
**Capital Budget Forecast**  
 Inflated \$

| Description  | Total             | Budget<br>2015 | Forecast         |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
|--|-------------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
|  |                   |                | 2016             | 2017             | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             |          |
| <b>Capital Expenditures</b>                                |                   |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Capital - Sewage System (2015)                             | 298,088           | 273,088        | -                | -                | -                | -                | 11,600           | -                | -                | -                | -                | -                | 13,400   |
| Wastewater Treatment Plant - OCWA Forecast                 | 1,906,400         | 90,000         | 253,400          | 227,700          | 422,000          | 125,200          | 95,800           | 136,000          | 199,600          | 109,500          | 127,500          | 119,700          |          |
| Sewage Collection System - OCWA Forecast                   | 913,000           | 70,000         | 67,000           | 70,000           | 73,200           | 76,500           | 80,000           | 83,600           | 105,900          | 91,400           | 95,500           | 99,900           |          |
| Other Works - OCWA Forecast                                | 707,700           | 110,000        | 26,800           | 55,600           | 138,500          | 143,200          | 32,000           | 33,400           | 53,400           | 36,600           | 38,200           | 40,000           |          |
| <i>Subtotal</i>  | <i>3,825,188</i>  | <i>543,088</i> | <i>347,200</i>   | <i>353,300</i>   | <i>633,700</i>   | <i>344,900</i>   | <i>219,400</i>   | <i>253,000</i>   | <i>358,900</i>   | <i>237,500</i>   | <i>261,200</i>   | <i>273,000</i>   |          |
| <b>Growth Related Projects - DC Study</b>                  |                   |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Pumping Station Expansion                                  | 504,100           | -              | 30,900           | -                | 473,200          | -                | -                | -                | -                | -                | -                | -                | -        |
| Victoria St: Laurentian Dr to Treatment Plant              | 1,874,600         | -              | 1,874,600        | -                | -                | -                | -                | -                | -                | -                | -                | -                | -        |
| Petawawa Blvd Upgrade:<br>Upstream Harry St to Pumping Stn | 115,900           | -              | -                | -                | -                | -                | 115,900          | -                | -                | -                | -                | -                | -        |
| Wastewater Treatment Plant Expansion - EA                  | 598,300           | -              | -                | 598,300          | -                | -                | -                | -                | -                | -                | -                | -                | -        |
| Wastewater Treatment Plant Expansion                       | 8,660,600         | -              | -                | -                | -                | 8,660,600        | -                | -                | -                | -                | -                | -                | -        |
| <i>Subtotal</i>  | <i>11,753,500</i> | <i>-</i>       | <i>1,905,500</i> | <i>598,300</i>   | <i>473,200</i>   | <i>8,660,600</i> | <i>115,900</i>   | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i>         | <i>-</i> |
| <b>Lifecycle Replacement</b>                               | 7,431,500         | -              | 282,800          | 148,500          | 623,600          | 372,700          | 1,108,000        | 1,027,200        | 1,271,800        | 837,400          | 1,024,600        | 734,900          |          |
| <b>Total Capital Expenditures</b>                          | <b>23,010,188</b> | <b>543,088</b> | <b>2,535,500</b> | <b>1,100,100</b> | <b>1,730,500</b> | <b>9,378,200</b> | <b>1,443,300</b> | <b>1,280,200</b> | <b>1,630,700</b> | <b>1,074,900</b> | <b>1,285,800</b> | <b>1,007,900</b> |          |
| <b>Capital Financing</b>                                   |                   |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Provincial/Federal Grants                                  | -                 | -              | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -        |
| Development Charges Reserve Fund                           | -                 | -              | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -        |
| Non-Growth Related Debenture Requirements                  | 8,178,650         | -              | 1,483,200        | -                | -                | 6,695,450        | -                | -                | -                | -                | -                | -                | -        |
| Growth Related Debenture Requirements                      | 3,774,850         | -              | 422,300          | 598,300          | 473,200          | 2,165,150        | 115,900          | -                | -                | -                | -                | -                | -        |
| Operating Contributions - Sewage System                    | 273,088           | 273,088        | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -        |
| Operating Contributions - OCWA Plant Maint                 | 270,000           | 270,000        | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -        |
| Lifecycle Reserve Fund                                     | 10,513,600        | -              | 630,000          | 501,800          | 1,257,300        | 517,600          | 1,327,400        | 1,280,200        | 1,630,700        | 1,074,900        | 1,285,800        | 1,007,900        |          |
| <b>Total Capital Financing</b>                             | <b>23,010,188</b> | <b>543,088</b> | <b>2,535,500</b> | <b>1,100,100</b> | <b>1,730,500</b> | <b>9,378,200</b> | <b>1,443,300</b> | <b>1,280,200</b> | <b>1,630,700</b> | <b>1,074,900</b> | <b>1,285,800</b> | <b>1,007,900</b> |          |

**Table B-2**  
**Town of Petawawa**  
**Wastewater Service**  
**Schedule of Non-Growth Related Debenture Repayments**  
 Inflated \$

| Debenture<br>Year                | Principal<br>(Inflated) | Budget<br>2015 | Forecast |         |         |         |         |         |         |         |         |         |         |
|----------------------------------|-------------------------|----------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                  |                         |                | 2016     | 2017    | 2018    | 2019    | 2020    | 2021    | 2022    | 2023    | 2024    | 2025    |         |
| 2015                             | -                       |                | -        | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| 2016                             | 1,483,200               |                |          | 119,016 | 119,016 | 119,016 | 119,016 | 119,016 | 119,016 | 119,016 | 119,016 | 119,016 | 119,016 |
| 2017                             | -                       |                |          |         | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| 2018                             | -                       |                |          |         |         | -       | -       | -       | -       | -       | -       | -       | -       |
| 2019                             | 6,695,450               |                |          |         |         |         |         | 537,260 | 537,260 | 537,260 | 537,260 | 537,260 | 537,260 |
| 2020                             | -                       |                |          |         |         |         |         |         | -       | -       | -       | -       | -       |
| 2021                             | -                       |                |          |         |         |         |         |         | -       | -       | -       | -       | -       |
| 2022                             | -                       |                |          |         |         |         |         |         |         | -       | -       | -       | -       |
| 2023                             | -                       |                |          |         |         |         |         |         |         |         | -       | -       | -       |
| 2024                             | -                       |                |          |         |         |         |         |         |         |         |         | -       | -       |
| 2025                             | -                       |                |          |         |         |         |         |         |         |         |         |         | -       |
| <b>Total Annual Debt Charges</b> | <b>8,178,650</b>        | -              | -        | 119,016 | 119,016 | 119,016 | 119,016 | 656,276 | 656,276 | 656,276 | 656,276 | 656,276 | 656,276 |

**Table B-3**  
**Town of Petawawa**  
**Wastewater Service**  
**Schedule of Growth Related Debenture Repayments**  
 Inflated \$

| Debenture<br>Year                | Principal<br>(Inflated) | Budget<br>2015 | Forecast |        |        |         |         |         |         |         |         |         |         |
|----------------------------------|-------------------------|----------------|----------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                  |                         |                | 2016     | 2017   | 2018   | 2019    | 2020    | 2021    | 2022    | 2023    | 2024    | 2025    |         |
| 2015                             | -                       |                | -        | -      | -      | -       | -       | -       | -       | -       | -       | -       | -       |
| 2016                             | 422,300                 |                |          | 33,886 | 33,886 | 33,886  | 33,886  | 33,886  | 33,886  | 33,886  | 33,886  | 33,886  | 33,886  |
| 2017                             | 598,300                 |                |          |        | 48,009 | 48,009  | 48,009  | 48,009  | 48,009  | 48,009  | 48,009  | 48,009  | 48,009  |
| 2018                             | 473,200                 |                |          |        |        | 37,971  | 37,971  | 37,971  | 37,971  | 37,971  | 37,971  | 37,971  | 37,971  |
| 2019                             | 2,165,150               |                |          |        |        |         | 173,737 | 173,737 | 173,737 | 173,737 | 173,737 | 173,737 | 173,737 |
| 2020                             | 115,900                 |                |          |        |        |         |         | 9,300   | 9,300   | 9,300   | 9,300   | 9,300   | 9,300   |
| 2021                             | -                       |                |          |        |        |         |         |         | -       | -       | -       | -       | -       |
| 2022                             | -                       |                |          |        |        |         |         |         |         | -       | -       | -       | -       |
| 2023                             | -                       |                |          |        |        |         |         |         |         |         | -       | -       | -       |
| 2024                             | -                       |                |          |        |        |         |         |         |         |         |         | -       | -       |
| 2025                             | -                       |                |          |        |        |         |         |         |         |         |         |         | -       |
| <b>Total Annual Debt Charges</b> | <b>3,774,850</b>        | -              | -        | 33,886 | 81,896 | 119,866 | 293,604 | 302,904 | 302,904 | 302,904 | 302,904 | 302,904 | 302,904 |

**Table B-4**  
**Town of Petawawa**  
**Wastewater Service**  
**Wastewater Reserve Continuity - Sewage Collection System**  
 Inflated \$

| Description                        | 2015    | 2016    | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------------------------------------|---------|---------|------|------|------|------|------|------|------|------|------|
| Opening Balance                    | 52,198  | 350,220 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer from Operating            | 298,022 | -       | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Capital                | -       | -       | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Lifecycle Reserve Fund | -       | 350,220 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Operating              | -       | -       | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Closing Balance                    | 350,220 | -       | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Interest                           | -       | -       | -    | -    | -    | -    | -    | -    | -    | -    | -    |

**Table B-5**  
**Town of Petawawa**  
**Wastewater Service**  
**Wastewater Reserve Continuity - Sewage Treatment Plant**  
 Inflated \$

| Description                        | 2015      | 2016      | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|------------------------------------|-----------|-----------|------|------|------|------|------|------|------|------|------|
| Opening Balance                    | 1,664,270 | 1,664,270 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer from Operating            | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Capital                | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Lifecycle Reserve Fund | -         | 1,664,270 | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Transfer to Operating              | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Closing Balance                    | 1,664,270 | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Interest                           | -         | -         | -    | -    | -    | -    | -    | -    | -    | -    | -    |



**Table B-6**  
**Town of Petawawa**  
**Wastewater Service**  
**Wastewater Development Charges Reserve Fund Continuity**  
 Inflated \$

| Description                       | 2015    | 2016    | 2017    | 2018    | 2019      | 2020    | 2021    | 2022    | 2023    | 2024    | 2025    |
|-----------------------------------|---------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|
| Opening Balance                   | 84,840  | 118,152 | 621,694 | 747,807 | 831,923   | 883,598 | 763,787 | 636,952 | 512,596 | 390,933 | 272,186 |
| Development Charge Proceeds       | 80,995  | 141,132 | 145,336 | 149,700 | 154,216   | 158,816 | 163,580 | 168,496 | 173,576 | 178,820 | 184,148 |
| Transfer to Capital               | -       | -       | -       | -       | -         | -       | -       | -       | -       | -       | -       |
| Transfer to Operating             | 50,000  | -       | 33,886  | 81,896  | 119,866   | 293,604 | 302,904 | 302,904 | 302,904 | 302,904 | 302,904 |
| Closing Balance                   | 115,835 | 609,504 | 733,144 | 815,611 | 866,273   | 748,811 | 624,463 | 502,545 | 383,268 | 266,849 | 153,431 |
| Interest                          | 2,317   | 12,190  | 14,663  | 16,312  | 17,325    | 14,976  | 12,489  | 10,051  | 7,665   | 5,337   | 3,069   |
| Required from Development Charges | -       | 422,300 | 598,300 | 473,200 | 2,165,150 | 115,900 | -       | -       | -       | -       | -       |

**Table B-7**  
**Town of Petawawa**  
**Wastewater Service**  
**Wastewater Reserve Fund Continuity - Lifecycle**  
 Inflated \$

| Description                    | 2015 | 2016      | 2017      | 2018      | 2019      | 2020      | 2021      | 2022      | 2023      | 2024      | 2025      |
|--------------------------------|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Opening Balance                | -    | -         | 1,783,997 | 1,762,808 | 1,191,627 | 1,601,555 | 913,045   | 549,169   | 148,353   | 624,077   | 1,208,715 |
| Transfer from Operating        | -    | 364,526   | 446,047   | 662,754   | 896,124   | 620,987   | 905,557   | 1,226,975 | 1,538,388 | 1,846,737 | 2,073,070 |
| Transfer from Capital Reserves | -    | 2,014,490 | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| Transfer to Capital            | -    | 630,000   | 501,800   | 1,257,300 | 517,600   | 1,327,400 | 1,280,200 | 1,630,700 | 1,074,900 | 1,285,800 | 1,007,900 |
| Transfer to Operating          | -    | -         | -         | -         | -         | -         | -         | -         | -         | -         | -         |
| Closing Balance                | -    | 1,749,016 | 1,728,243 | 1,168,262 | 1,570,151 | 895,142   | 538,401   | 145,444   | 611,841   | 1,185,014 | 2,273,885 |
| Interest                       | -    | 34,980    | 34,565    | 23,365    | 31,403    | 17,903    | 10,768    | 2,909     | 12,237    | 23,700    | 45,478    |

**Table B-8**  
**Town of Petawawa**  
**Wastewater Services**  
**Operating Budget Forecast**  
 Inflated \$

| Description                                  | Budget<br>2015   | Forecast         |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|  |                  | 2016             | 2017             | 2018             | 2019             | 2020             | 2021             | 2022             | 2023             | 2024             | 2025             |                  |
| <b>Expenditures</b>                          |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| <b>Operating Costs</b>                       |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Sewage System Salaries                       | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            | 1,000            |
| Audit  | 5,100            | 5,200            | 5,300            | 5,400            | 5,500            | 5,600            | 5,700            | 5,800            | 5,900            | 6,000            | 6,100            | 6,100            |
| Service Contract - OCWA                      | 749,259          | 765,000          | 781,100          | 797,500          | 814,200          | 831,300          | 848,800          | 866,600          | 884,800          | 903,400          | 922,400          | 922,400          |
| Service Contract - OCWA - Extra              | 25,000           | 25,500           | 26,000           | 26,500           | 27,100           | 27,700           | 28,300           | 28,900           | 29,500           | 30,100           | 30,700           | 30,700           |
| Sewage System Administration                 | 72,809           | 74,300           | 75,900           | 77,500           | 79,100           | 80,800           | 82,500           | 84,200           | 86,000           | 87,800           | 89,600           | 89,600           |
| Sewage System Maintenance                    | 143,194          | 80,400           | 84,400           | 88,600           | 93,000           | 97,700           | 102,600          | 107,700          | 113,100          | 118,800          | 124,700          | 124,700          |
| Sewage Plant Maintenance                     | 619,743          | 400,700          | 420,700          | 441,700          | 463,800          | 487,000          | 511,400          | 537,000          | 563,900          | 592,100          | 621,700          | 621,700          |
| Flow Meters Electricity                      | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              | 600              |
| Insurance                                    | 22,000           | 22,500           | 23,000           | 23,500           | 24,000           | 24,500           | 25,000           | 25,500           | 26,000           | 26,500           | 27,100           | 27,100           |
| Sewage System PILT County                    | 10,296           | 10,500           | 10,700           | 10,900           | 11,100           | 11,300           | 11,500           | 11,700           | 11,900           | 12,100           | 12,400           | 12,400           |
| <b>Sub Total Operating</b>                   | <b>1,649,001</b> | <b>1,385,700</b> | <b>1,428,700</b> | <b>1,473,200</b> | <b>1,519,400</b> | <b>1,567,500</b> | <b>1,617,400</b> | <b>1,669,000</b> | <b>1,722,700</b> | <b>1,778,400</b> | <b>1,836,300</b> | <b>1,836,300</b> |
| <b>Capital-Related</b>                       |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Growth Related Debt (Principal)              | -                | -                | 12,771           | 31,504           | 47,390           | 115,239          | 124,506          | 130,732          | 137,268          | 144,132          | 151,338          | 151,338          |
| Growth Related Debt (Interest)               | -                | -                | 21,115           | 50,391           | 72,476           | 178,364          | 178,397          | 172,172          | 165,635          | 158,772          | 151,565          | 151,565          |
| Non-Growth Related Debt (Principal)          | -                | -                | 44,856           | 47,099           | 49,454           | 254,414          | 267,135          | 280,491          | 294,516          | 309,242          | 324,704          | 324,704          |
| Non-Growth Related Debt (Interest)           | -                | -                | 74,160           | 71,917           | 69,562           | 401,862          | 389,141          | 375,785          | 361,760          | 347,034          | 331,572          | 331,572          |
| Transfer to Capital - Sewage System          | 273,088          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Transfer to Reserve Fund - Collection System | 298,022          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Transfer to Reserve Fund - Lifecycle         | -                | 364,526          | 446,047          | 662,754          | 896,124          | 620,987          | 905,557          | 1,226,975        | 1,538,388        | 1,846,737        | 2,073,070        | 2,073,070        |
| <b>Sub Total Capital Related</b>             | <b>571,110</b>   | <b>364,526</b>   | <b>598,949</b>   | <b>863,665</b>   | <b>1,135,006</b> | <b>1,570,867</b> | <b>1,864,736</b> | <b>2,186,154</b> | <b>2,497,568</b> | <b>2,805,917</b> | <b>3,032,250</b> | <b>3,032,250</b> |
| <b>Total Expenditures</b>                    | <b>2,220,111</b> | <b>1,750,226</b> | <b>2,027,649</b> | <b>2,336,865</b> | <b>2,654,406</b> | <b>3,138,367</b> | <b>3,482,136</b> | <b>3,855,154</b> | <b>4,220,268</b> | <b>4,584,317</b> | <b>4,868,550</b> | <b>4,868,550</b> |
| <b>Revenues</b>                              |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Other Revenue                                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Surplus/(Deficit) from Previous Year         | 377,596          | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                | -                |
| Sewage Front - East                          | 6,100            | 6,100            | 6,100            | 6,100            | -                | -                | -                | -                | -                | -                | -                | -                |
| Transfer from DC Reserve Fund                | 50,000           | -                | 33,886           | 81,896           | 119,866          | 293,604          | 302,904          | 302,904          | 302,904          | 302,904          | 302,904          | 302,904          |
| <b>Total Operating Revenue</b>               | <b>433,696</b>   | <b>6,100</b>     | <b>39,986</b>    | <b>87,996</b>    | <b>119,866</b>   | <b>293,604</b>   | <b>302,904</b>   | <b>302,904</b>   | <b>302,904</b>   | <b>302,904</b>   | <b>302,904</b>   | <b>302,904</b>   |
| <b>Wastewater Billing Recovery - Total</b>   | <b>1,786,415</b> | <b>1,744,126</b> | <b>1,987,662</b> | <b>2,248,870</b> | <b>2,534,540</b> | <b>2,844,763</b> | <b>3,179,233</b> | <b>3,552,251</b> | <b>3,917,364</b> | <b>4,281,413</b> | <b>4,565,647</b> | <b>4,565,647</b> |

**Table B-9**  
**Town of Petawawa**  
**Wastewater Services**  
**Wastewater Rate Forecast**  
 Inflated \$

| Description                           | Existing<br>2015 Rates | Forecast Rates |           |           |           |           |           |           |           |           |           |
|---------------------------------------|------------------------|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                       |                        | 2016           | 2017      | 2018      | 2019      | 2020      | 2021      | 2022      | 2023      | 2024      | 2025      |
| Total Wastewater Billing Recovery     | 1,786,415              | 1,744,126      | 1,987,662 | 2,248,870 | 2,534,540 | 2,844,763 | 3,179,233 | 3,552,251 | 3,917,364 | 4,281,413 | 4,565,647 |
| Total Metered Consumption (m3)        |                        | 816,794        | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   | 816,794   |
| Consumptive Rate (per m3)             | 0.7371                 | 0.9066         | 1.0698    | 1.2410    | 1.4271    | 1.6270    | 1.8385    | 2.0775    | 2.2852    | 2.4680    | 2.6408    |
| Percentage Increase/(Decrease)        |                        | 23.00%         | 18.00%    | 16.00%    | 15.00%    | 14.00%    | 13.00%    | 13.00%    | 10.00%    | 8.00%     | 7.00%     |
| Flat Rates (per Year):                |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           | 316.54                 | 341.55         | 368.53    | 397.64    | 429.06    | 462.95    | 499.53    | 538.99    | 581.57    | 627.51    | 651.98    |
| Classroom                             | 283.40                 | 85.39          | 92.13     | 99.41     | 107.26    | 115.74    | 124.88    | 134.75    | 145.39    | 156.88    | 163.00    |
| Commercial                            | 373.40                 | 417.08         | 465.33    | 518.60    | 577.39    | 642.23    | 692.96    | 747.71    | 806.77    | 870.51    | 904.46    |
| Commercial High Volume                | 541.80                 | 562.44         | 582.97    | 603.22    | 623.04    | 642.23    | 692.96    | 747.71    | 806.77    | 870.51    | 904.46    |
| Industrial                            | 541.80                 | 562.44         | 582.97    | 603.22    | 623.04    | 642.23    | 692.96    | 747.71    | 806.77    | 870.51    | 904.46    |
| Percentage Increase/(Decrease):       |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 7.90%          | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Classroom                             |                        | -69.87%        | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Commercial                            |                        | 11.70%         | 11.57%    | 11.45%    | 11.34%    | 11.23%    | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Commercial High Volume                |                        | 3.81%          | 3.65%     | 3.47%     | 3.29%     | 3.08%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Industrial                            |                        | 3.81%          | 3.65%     | 3.47%     | 3.29%     | 3.08%     | 7.90%     | 7.90%     | 7.90%     | 7.90%     | 3.90%     |
| Dollar Increase/(Decrease) per Year:  |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 25.01          | 26.98     | 29.11     | 31.41     | 33.90     | 36.57     | 39.46     | 42.58     | 45.94     | 24.47     |
| Classroom                             |                        | (198.01)       | 6.75      | 7.28      | 7.85      | 8.47      | 9.14      | 9.87      | 10.65     | 11.49     | 6.12      |
| Commercial                            |                        | 43.68          | 48.25     | 53.27     | 58.79     | 64.84     | 50.74     | 54.74     | 59.07     | 63.74     | 33.95     |
| Commercial High Volume                |                        | 20.64          | 20.52     | 20.26     | 19.82     | 19.18     | 50.74     | 54.74     | 59.07     | 63.74     | 33.95     |
| Industrial                            |                        | 20.64          | 20.52     | 20.26     | 19.82     | 19.18     | 50.74     | 54.74     | 59.07     | 63.74     | 33.95     |
| Dollar Increase/(Decrease) per Month: |                        |                |           |           |           |           |           |           |           |           |           |
| Residential                           |                        | 2.08           | 2.25      | 2.43      | 2.62      | 2.82      | 3.05      | 3.29      | 3.55      | 3.83      | 2.04      |
| Classroom                             |                        | (16.50)        | 0.56      | 0.61      | 0.65      | 0.71      | 0.76      | 0.82      | 0.89      | 0.96      | 0.51      |
| Commercial                            |                        | 3.64           | 4.02      | 4.44      | 4.90      | 5.40      | 4.23      | 4.56      | 4.92      | 5.31      | 2.83      |
| Commercial High Volume                |                        | 1.72           | 1.71      | 1.69      | 1.65      | 1.60      | 4.23      | 4.56      | 4.92      | 5.31      | 2.83      |
| Industrial                            |                        | 1.72           | 1.71      | 1.69      | 1.65      | 1.60      | 4.23      | 4.56      | 4.92      | 5.31      | 2.83      |