

Memorandum

To:	Town of Petawawa	Fax	<input type="checkbox"/>
From:	Watson & Associates Economists Ltd.	Courier	<input type="checkbox"/>
Date:	August 10, 2017	Mail	<input type="checkbox"/>
Re:	2017 Water and Wastewater Rate Study Update	e-mail	<input checked="" type="checkbox"/>

Introduction

The Town of Petawawa (the Town) retained Watson & Associates Economists Ltd. (Watson) to assist with the following:

- Review existing water and wastewater agreements in place between the Town and Garrison;
- Facilitate meetings between Town staff and Garrison personnel regarding the agreements, and the interpretation of how they impact the calculation of water and wastewater rates specific to Garrison; and
- Adjust the Town's Water and Wastewater Rate Study Update completed in 2016 to reflect the interpretations of the Garrison agreements.

Agreements

The existing water and wastewater agreements between the Town and Garrison have been in place for many years, and provide information on assets that were transferred to the Town (from Garrison), the responsibility of the Town to provide water and wastewater services to Garrison, and the ability of the Town to invoice water and wastewater rates to Garrison. The following agreements were reviewed and discussed as part of this project:

Services

- | | | | |
|--|--|---|---|
| ▪ Demographics, Pupil Forecasting, Industrial/Commercial Forecasts | ▪ Development/Education Development Charge Policy | ▪ Financial Analysis of Municipal Restructuring Options | ▪ Fiscal Impact of Development |
| ▪ Land Needs and Market Studies | ▪ Long Range Financial Planning for Municipalities | ▪ Municipal Management Improvement | ▪ O.M.B. Hearings – Financial, Market, Demographic |
| ▪ School Board Planning and Financing | ▪ Servicing Cost Sharing | ▪ Tax Policy Analysis | ▪ Waste Management Rate Setting, Valuation and Planning |

Water Services

- Letter of Intent dated January 27, 1993
- Water Agreement dated October 26, 1993
- Operating Agreement dated October 26, 1993
- Water Tower Interim Operating Agreement dated February 21, 2012

Wastewater Services

- Agreement (bylaw 75/98) dated December 15, 1998

Through review and interpretation of the above noted agreements and through discussions with both Town staff and Garrison personnel, it has been agreed that Garrison contributions in all cost categories would be as follows:

Operating Costs: These costs are of mutual benefit to all customers connected to the systems. Garrison will be charged for their share of these costs through the rate calculation.

Capital Costs: These costs are defined as capital costs incurred or expected to be incurred over the defined forecast period of the rate study forecast. Garrison will receive benefit from specific capital projects and will contribute to these items specifically through the rate calculation.

Lifecycle Costs: These costs are defined as capital costs expected to be incurred beyond the defined forecast period of the rate study forecast. These costs are estimated based on the water and wastewater assets used to run the systems (i.e. replacement cost and useful life). Garrison will receive benefit from specific assets (i.e. plants and specific mains) and will contribute to these items specifically through the rate calculation.

Water & Wastewater Rate Calculation

With the above noted rate calculation strategy based on existing agreements with Garrison, adjustments were made to the 2016 Water and Wastewater Rate Study Update. More specifically, Garrison specific rates were calculated, along with the quantification of the overall impact on other system customers, ensuring appropriate revenue generation each year in moving towards a sustainable position.

The rate calculation adjustments discussed in this report were made for the historical years of 2014 to 2016, in addition to the 2017 to 2025 forecast period. Given that other customer water and wastewater billings have already occurred for 2014 to 2016, only Garrison rates were adjusted for these years. For 2017, water and wastewater rates have already been established by Council, therefore only Garrison rates were adjusted for this year. For the forecast years 2018 to 2025, adjustments were made to all system customers, as required. Further discussion is provided below.

To summarize the costs attributable to Garrison each year, the following table is provided. Please note that “mutual use” refers to costs or assets that are of mutual benefits to all customers, including Garrison.

**Table 1
Garrison Eligible Costs**

Asset Class	Action	Garrison Eligible
Water Facilities	Operations & Maintenance	All mutual use
	Replacement/Rehab.	Treatment Plant related assets are mutual use
	Expansion	Treatment Plant related assets, net of DC proceeds are mutual use
	Lifecycle Costs	Treatment Plant related assets are mutual use
Water Mains	Operations & Maintenance	All mutual use
	Replacement/Rehab.	Specific projects that are mutual use with Garrison
	Expansion	Specific projects that are mutual use with Garrison, net of DC proceeds
	Lifecycle Costs	Specific assets that are mutual use with Garrison
Wastewater Facilities	Operations & Maintenance	All mutual use
	Replacement/Rehab.	Treatment Plant related assets are mutual use
	Expansion	Treatment Plant related assets, net of DC proceeds are mutual use
	Lifecycle Costs	Treatment Plant related assets are mutual use
Wastewater Mains	Operations & Maintenance	All mutual use
	Replacement/Rehab.	Specific projects that are mutual use with Garrison
	Expansion	Specific projects that are mutual use with Garrison, net of DC proceeds

Asset Class	Action	Garrison Eligible
	Lifecycle Costs	Specific assets that are mutual use with Garrison

A review of all capital assets and all capital projects within the 2016 Water and Wastewater Rate Study Update has been undertaken with Town staff and Garrison personnel in order to determine costs that are of mutual use with Garrison (i.e. costs of mutual use to Garrison as well as other system customers). This analysis is presented in the sections to follow and detailed in the Appendix A and B to this memo report. Please note that these updated tables are intended to replace the tables contained within the 2016 Update Study.

Asset Inventory

The water and wastewater capital asset inventory was carried forward from the 2016 Water and Wastewater Rate Study Update. Figures for replacement cost were inflated from 2015 dollars to 2017 dollars based on the Non-Residential Building Construction Index. Two water main assets were added to the existing listing, specifically relating to mutual use mains with Garrison that were not recorded in the past.

Lifecycle “sinking fund” contribution amounts for each piece of infrastructure have been included. These calculations determine the optimal level of annual capital investment to be included in the full cost assessment and rate forecast. Table 2 summarizes the estimated 2017 asset replacement value and long-term annual lifecycle replacement needs in 2017 and 2025 dollars, representing the first and last years of the forecast period. In addition, the proportion of the asset inventory considered mutual use with Garrison is presented for each asset type. The mutual use percentages have been used to determine the proportion of “lifecycle reserve contributions” that are considered mutual use with Garrison over the forecast period.

Table 2
Summary of Water and Wastewater Infrastructure

Area	Total Replacement Value	Mutual Use	Mutual Use %	Annual Lifecycle Replacement	
				2017 \$	2025 \$
Water					
Water Facilities	18,578,627	10,674,645	57.5%	311,333	394,388
Water Mains	37,640,603	10,652,738	28.3%	1,279,869	1,621,300
Total Water	56,219,230	21,327,383	37.9%	1,591,202	2,015,687
Wastewater					
Wastewater Facilities	28,468,059	24,322,453	85.4%	322,215	408,173
Wastewater Mains	18,725,123	3,112,800	16.6%	391,034	495,350
Total Wastewater	47,193,182	27,435,253	58.1%	713,249	903,523
Total	103,412,412	48,762,636	47.2%	2,304,451	2,919,210

Capital Forecast

The capital forecasts for both water and wastewater were adjusted through discussions with Town staff in order to appropriately allocate those projects that were maintenance-related to the operating forecast.

In addition, 2014 capital figures were brought forward from the 2012 Water and Wastewater Rate Study, as these figures were not included within the 2016 Update Study. Finally, the 2017 budget, as approved by Council, was included in the forecast.

The capital forecasts are summarized in Tables 3 and 4 for water and wastewater services respectively. These capital needs are presented in inflated dollars (i.e. 2014 \$'s in 2014, 2015 \$'s in 2015, 2021 \$'s in 2021, etc.). Future capital needs (i.e. 2018 onwards) were indexed by a capital inflation estimate of 3.0% annually.

A summary of capital project totals that are considered mutual use with Garrison is provided at the bottom of Tables 3 and 4. A breakdown of specific projects representing these totals can be found within Appendix A and B to this memo report. These mutual use percentages have been used to determine the proportion of "capital forecast" costs that are considered mutual use with Garrison for rate calculation purposes.

**Table 3
Capital Budget Schedule – Water**

Description	Total	2014	2015	2016	Budget 2017	Forecast							
						2018	2019	2020	2021	2022	2023	2024	2025
Capital Expenditures													
Capital - Water Plant	1,841,526	791,956	759,270	216,300	74,000	-	-	-	-	-	-	-	-
Capital - Water System	35,343	-	-	-	35,343	-	-	-	-	-	-	-	-
Water Treatment Plant - OCWA Forecast	506,400	-	-	-	160,000	346,400	-	-	-	-	-	-	-
Distribution System - OCWA Forecast	227,400	-	-	-	-	227,400	-	-	-	-	-	-	-
Subtotal	2,610,669	791,956	759,270	216,300	269,343	573,800	-	-	-	-	-	-	-
Growth Related Projects - DC Study													
Portage Road Watermain Expansion	551,000	-	-	-	-	-	-	-	-	-	551,000	-	-
John St. (Herman St to Laura St) Watermain Expansion	164,600	-	-	-	25,000	139,600	-	-	-	-	-	-	-
Laura St. (John St to Mary St) Watermain Expansion	66,100	-	-	-	-	66,100	-	-	-	-	-	-	-
Mary St. (Edith St to Laura St) Watermain Expansion	572,534	-	-	-	572,534	-	-	-	-	-	-	-	-
Civic Centre Road - Urbanization	127,700	-	-	127,700	-	-	-	-	-	-	-	-	-
Subtotal	1,481,934	-	-	127,700	597,534	205,700	-	-	-	-	551,000	-	-
Lifecycle Replacement (AM Plan)													
Water Facilities	483,000	-	-	22,900	-	-	145,100	285,900	29,100	-	-	-	-
Watermains	3,902,400	-	-	-	-	433,000	-	533,300	544,100	586,100	565,600	642,400	597,900
LOS Requirements	286,400	-	-	-	-	44,700	241,700	-	-	-	-	-	-
Subtotal	4,671,800	-	-	22,900	-	477,700	386,800	819,200	573,200	586,100	565,600	642,400	597,900
Total Capital Expenditures	8,764,403	791,956	759,270	366,900	866,877	1,257,200	386,800	819,200	573,200	586,100	1,116,600	642,400	597,900
Capital Financing													
Provincial/Federal Grants	171,761	-	-	-	171,761	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	30,000	-	-	-	30,000	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	529,690	-	-	-	-	143,990	-	-	-	-	385,700	-	-
Operating Contributions	8,032,952	791,956	759,270	366,900	665,116	1,113,210	386,800	819,200	573,200	586,100	730,900	642,400	597,900
Lifecycle Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	8,764,403	791,956	759,270	366,900	866,877	1,257,200	386,800	819,200	573,200	586,100	1,116,600	642,400	597,900
Mutual Use Capital	3,978,569	791,956	759,270	216,300	269,343	346,400	145,100	756,700	-	586,100	-	107,400	-
Town Only Capital	3,773,960	-	-	86,700	179,260	766,800	241,700	62,500	573,200	-	730,900	535,000	597,900
Growth (DC)	1,011,874	-	-	63,900	418,274	144,000	-	-	-	-	385,700	-	-

**Table 4
Capital Budget Schedule – Wastewater**

Description	Total	2014	2015	2016	Budget 2017	Forecast							
						2018	2019	2020	2021	2022	2023	2024	2025
Capital Expenditures													
Capital - Sewage Plant	152,500	-	-	51,500	101,000	-	-	-	-	-	-	-	-
Capital - Sewage System	266,956	3,324	39,049	191,700	32,883	-	-	-	-	-	-	-	-
Wastewater Treatment Plant - OCWA Forecast	316,000	-	-	-	-	213,300	102,700	-	-	-	-	-	-
Other Works - OCWA Forecast	219,800	-	-	-	-	108,300	111,500	-	-	-	-	-	-
<i>Subtotal</i>	<i>955,256</i>	<i>3,324</i>	<i>39,049</i>	<i>243,200</i>	<i>133,883</i>	<i>321,600</i>	<i>214,200</i>	-	-	-	-	-	-
Growth Related Projects - DC Study													
Renfrew St Pumping Station Expansion	610,500	-	-	-	100,000	510,500	-	-	-	-	-	-	-
Victoria St: Laurentian Dr to Treatment Plant	1,536,572	-	-	-	1,536,572	-	-	-	-	-	-	-	-
Petawawa Blvd Upgrade: Upstream Harry St to Pumping Stn	117,000	-	-	-	-	-	-	117,000	-	-	-	-	-
Wastewater Treatment Plant Expansion - EA	621,800	-	-	-	-	621,800	-	-	-	-	-	-	-
Wastewater Treatment Plant Expansion	8,738,000	-	-	-	-	-	8,738,000	-	-	-	-	-	-
<i>Subtotal</i>	<i>11,623,872</i>	-	-	-	<i>1,636,572</i>	<i>1,132,300</i>	<i>8,738,000</i>	<i>117,000</i>	-	-	-	-	-
Lifecycle Replacement (AM Plan)													
Wastewater Facilities	1,008,300	-	-	48,700	-	-	-	-	377,200	-	393,500	188,900	-
Wastewater Mains	4,928,900	-	-	181,600	-	619,100	318,600	561,100	633,400	581,500	462,900	830,500	740,200
<i>Subtotal</i>	<i>5,937,200</i>	-	-	<i>230,300</i>	-	<i>619,100</i>	<i>318,600</i>	<i>561,100</i>	<i>1,010,600</i>	<i>581,500</i>	<i>856,400</i>	<i>1,019,400</i>	<i>740,200</i>
Total Capital Expenditures	18,516,328	3,324	39,049	473,500	1,770,455	2,073,000	9,270,800	678,100	1,010,600	581,500	856,400	1,019,400	740,200
Capital Financing													
Provincial/Federal Grants	947,861	-	-	-	947,861	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	420,823	-	-	-	420,823	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	6,500,000	-	-	-	-	-	6,500,000	-	-	-	-	-	-
Growth Related Debenture Requirements	3,433,800	-	-	-	-	1,132,300	2,184,500	117,000	-	-	-	-	-
Operating Contributions	7,213,844	3,324	39,049	473,500	401,771	940,700	586,300	561,100	1,010,600	581,500	856,400	1,019,400	740,200
Lifecycle Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewage Treatment Plant Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	18,516,328	3,324	39,049	473,500	1,770,455	2,073,000	9,270,800	678,100	1,010,600	581,500	856,400	1,019,400	740,200
Mutual Use Capital	8,435,649	-	22,500	51,500	1,316,749	213,300	6,656,200	-	-	-	-	14,500	160,900
Town Only Capital	6,226,056	3,324	16,549	422,000	32,883	727,400	430,100	561,100	1,010,600	581,500	856,400	1,004,900	579,300
Growth (DC)	3,854,623	-	-	-	420,823	1,132,300	2,184,500	117,000	-	-	-	-	-

Operating Forecast

The operating forecast was updated based on the following:

- Carried forward the operating estimates for 2014 from the 2012 Water and Wastewater Rate Study (similar to what was done for capital).
- Plant and system maintenance budgets were transferred from the capital forecast to the operating forecast as appropriate.
- Reserve transfers and capital transfers were adjusted accordingly to balance each year to the historic recovery totals used to calculate water and wastewater rates.
- Incorporated the 2017 approved water and wastewater budgets.
- Projected 2018 to 2025 operating needs based on the 2017 budget, adjusted for operating inflation (i.e. 2.1% operating inflation, with maintenance increasing at 5% annually).
- Determined future reserve fund transfers and capital transfers based on capital needs and progression towards sustainable rates.

Tables 5 and 6 below present the operating forecast for both Water and Wastewater, respectively. The “sub total operating” and miscellaneous revenues contained in each table represent costs that are shared by all customers of each system, including Garrison. Capital related costs are also shared across all customers, however Garrison contributes based on the specific mutual use projects and assets, as discussed above.

**Table 5
Operating Forecast – Water**

Description	2014	2015	2016	Budget 2017	Forecast								
					2018	2019	2020	2021	2022	2023	2024	2025	
Expenditures													
Operating Costs													
Waterworks Salaries	21,287	30,000	30,600	45,000	45,900	46,900	47,900	48,900	49,900	50,900	52,000	53,100	
Training/Associations	8,515	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	1,064	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Audit	7,450	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	534,868	704,442	719,200	723,576	738,800	754,300	770,100	786,300	802,800	819,700	836,900	854,500	
Service Contract - OCWA - Extra	31,930	50,000	51,100	52,200	53,300	54,400	55,500	56,700	57,900	59,100	60,300	61,600	
Waterworks Administration	98,983	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	107,730	150,000	153,200	165,400	173,700	182,400	191,500	201,100	211,200	221,800	232,900	244,500	
Tools/Parts/Supplies	5,321	5,000	5,100	20,000	20,400	20,800	21,200	21,600	22,100	22,600	23,100	23,600	
Water System Maintenance													
Distribution System - OCWA Forecast	85,146	90,895	95,400	40,000	84,500	57,900	61,000	64,300	67,700	71,400	75,200	79,300	
Misc. Maintenance	-	5,000	5,300	-	25,000	26,300	27,600	29,000	30,500	32,000	33,600	35,300	
Water Rate Review	-	30,000	6,636	15,000	-	-	16,600	-	-	-	-	18,500	
Code Compliance Generator	-	12,383	13,000	-	-	-	-	-	-	-	-	-	
Emergency Repairs	-	25,000	26,300	25,000	26,300	27,600	29,000	30,500	32,000	33,600	35,300	37,100	
Public Works - Hydrant Maintenance	-	20,000	21,000	20,000	21,000	22,100	23,200	24,400	25,600	26,900	28,200	29,600	
Water Plant Maintenance													
Water Treatment Plant - OCWA Forecast	131,804	102,000	107,100	93,743	86,400	72,600	77,400	92,900	87,800	109,000	104,400	106,300	
Misc. Maintenance	-	42,000	44,100	-	25,000	26,300	27,600	29,000	30,500	32,000	33,600	35,300	
Code Compliance Generator Repairs - Plant	-	4,500	4,700	-	-	-	-	-	-	-	-	-	
Water Plant Electricity	170,294	220,000	224,600	229,300	234,100	239,000	244,000	249,100	254,300	259,600	265,100	270,700	
Insurance	21,287	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	1,064	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	7,026	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	9,579	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	10,643	16,000	16,300	16,600	16,900	17,300	17,700	18,100	18,500	18,900	19,300	19,700	
Hydrant Maintenance	10,643	10,000	10,200	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	
Infrastructure/Mapping Update	15,965	-	-	30,000	30,600	31,200	31,900	32,600	33,300	34,000	34,700	35,400	
Water System PILT County	12,894	10,983	11,200	11,400	11,600	11,800	12,000	12,300	12,600	12,900	13,200	13,500	
McGregor Hill Watermain	-	-	-	15,000	-	-	-	-	-	-	-	-	
Future Looping of Watermain - Portage to Woodland (Portage Landing)	-	39,671	-	-	-	-	-	-	-	-	-	-	
Sub Total Operating	1,293,493	1,734,936	1,715,636	1,681,419	1,776,400	1,777,600	1,844,800	1,891,500	1,935,500	2,007,400	2,055,000	2,129,500	
Capital-Related													
Growth Related Debt (Principal)	-	-	-	-	-	4,355	4,572	4,801	5,041	5,293	17,222	18,083	
Growth Related Debt (Interest)	-	-	-	-	-	7,200	6,982	6,753	6,513	6,261	25,281	24,420	
Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-	-	
Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-	-	
Transfer to Capital	791,956	759,270	366,900	665,116	1,113,210	386,800	819,200	573,200	586,100	730,900	642,400	597,900	
Transfer to Reserve Fund - Lifecycle	175,047	559,272	463,500	771,081	-	525,042	159,664	499,897	590,977	529,656	733,704	875,009	
Sub Total Capital Related	967,003	1,318,542	830,400	1,436,197	1,113,210	923,396	990,418	1,084,651	1,188,631	1,272,110	1,418,607	1,515,413	
Total Expenditures	2,260,496	3,053,478	2,546,036	3,117,616	2,889,610	2,700,996	2,835,218	2,976,151	3,124,131	3,279,510	3,473,607	3,644,913	
Revenues													
Miscellaneous Revenue/Grant	2,500	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 Reserve - Water Lifecycle	102,074	-	235,146	677,748	327,999	-	-	-	-	-	-	-	
Transfer from DC Reserve Fund	-	-	-	-	-	11,554	11,554	11,554	11,554	11,554	42,504	42,504	
Water Front/Connect	3,208	3,208	-	-	-	-	-	-	-	-	-	-	
Total Operating Revenue	107,782	711,477	240,146	682,748	332,999	16,554	16,554	16,554	16,554	16,554	47,504	47,504	
Water Billing Recovery - Total	2,152,714	2,342,001	2,305,890	2,434,868	2,556,611	2,684,442	2,818,664	2,959,597	3,107,577	3,262,956	3,426,104	3,597,409	

**Table 6
Operating Forecast – Wastewater**

Description	2014	2015	2016	Budget 2017	Forecast								
					2018	2019	2020	2021	2022	2023	2024	2025	
Expenditures													
Operating Costs													
Sewage System Salaries	2,129	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	5,321	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	562,520	749,259	765,000	781,611	798,000	814,800	831,900	849,400	867,200	885,400	904,000	923,000	923,000
Service Contract - OCWA - Extra	10,643	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	71,311	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													
Collection System - OCWA Forecast	255,689	70,000	73,500	80,600	102,300	109,100	116,200	123,900	152,100	140,700	150,000	159,800	159,800
Misc. Maintenance	-	-	-	-	25,000	27,600	32,000	38,900	49,600	66,500	93,600	138,300	138,300
Code Compliance Generator Repairs - Distribution	-	73,194	6,900	-	-	-	-	-	-	-	-	-	-
Emergency Repairs	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Rate Review	-	-	-	15,000	-	-	11,100	-	-	-	-	-	12,300
Sewage Plant Maintenance													
Sewage Treatment Plant - OCWA Forecast	220,334	90,000	94,500	296,155	193,300	130,100	101,900	146,900	239,300	123,300	146,200	140,100	140,100
Misc. Maintenance	-	110,000	115,400	-	25,000	27,600	32,000	38,900	49,600	66,500	93,600	138,300	138,300
Primary Clarifier Tank Modification	-	367,500	135,900	-	-	-	-	-	-	-	-	-	-
Code Compliance Generator Repairs - Plant	-	27,243	28,600	-	-	-	-	-	-	-	-	-	-
Emergency Repairs	-	25,000	26,300	25,000	-	-	-	-	-	-	-	-	-
Flow Meters Electricity	639	600	600	600	600	600	600	600	600	600	600	600	600
Insurance	23,416	22,000	22,500	22,000	22,500	23,000	23,500	24,000	24,500	25,000	25,500	26,000	26,000
Infrastructure/Mapping Update	31,930	-	-	25,000	25,500	26,000	26,500	27,100	27,700	28,300	28,900	29,500	29,500
Sewage System PILT County	11,138	10,296	10,500	10,296	10,500	10,700	10,900	11,100	11,300	11,500	11,700	11,900	11,900
Sub Total Operating	1,195,070	1,649,001	1,385,700	1,364,462	1,313,100	1,282,200	1,301,700	1,378,300	1,541,800	1,470,200	1,579,000	1,707,200	1,707,200
Capital-Related													
Growth Related Debt (Principal)	-	-	-	-	-	34,244	102,021	110,660	116,193	122,003	128,103	134,508	134,508
Growth Related Debt (Interest)	-	-	-	-	-	56,615	164,128	164,877	159,344	153,534	147,434	141,029	141,029
Non-Growth Related Debt (Principal)	-	-	-	-	-	-	196,577	206,406	216,726	227,562	238,940	250,887	250,887
Non-Growth Related Debt (Interest)	-	-	-	-	-	-	325,000	315,171	304,851	294,015	282,636	270,689	270,689
Transfer to Capital	3,324	39,049	473,500	401,771	940,700	586,300	561,100	1,010,600	581,500	856,400	1,019,400	740,200	740,200
Transfer to Reserve Fund - Lifecycle	538,140	532,061	-	469,726	-	441,232	156,328	-	318,601	352,380	336,624	764,152	764,152
Sub Total Capital Related	541,464	571,110	473,500	871,497	940,700	1,118,390	1,505,153	1,807,714	1,697,215	2,005,893	2,153,138	2,301,466	2,301,466
Total Expenditures	1,736,534	2,220,111	1,859,200	2,235,959	2,253,800	2,400,590	2,806,853	3,186,014	3,239,015	3,476,093	3,732,138	4,008,666	4,008,666
Revenues													
Other Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-
Surplus/(Deficit) from Previous Year	-	377,596	-	-	-	-	-	-	-	-	-	-	-
Sewage Front - East	6,100	6,100	6,100	6,100	6,100	-	-	-	-	-	-	-	-
Transfer from Reserve - Wastewater Lifecycle	144,805	-	108,974	174,206	68,708	-	-	166,516	-	-	-	-	-
Transfer from DC Reserve Fund	-	50,000	-	-	-	90,859	266,149	275,537	275,537	275,537	275,537	275,537	275,537
Total Operating Revenue	150,905	433,696	115,074	180,306	74,808	90,859	266,149	442,053	275,537	275,537	275,537	275,537	275,537
Wastewater Billing Recovery - Total	1,585,629	1,786,415	1,744,126	2,055,653	2,178,992	2,309,732	2,540,705	2,743,961	2,963,478	3,200,556	3,456,601	3,733,129	3,733,129

Updated Water and Wastewater Rates

Based on the discussions above, the calculated rates are summarized in Tables 7 and 8, for water and wastewater respectively. Rates for metered and non-metered customers have been updated for 2018 onwards, and Garrison specific rates have been established for 2014 onwards, based on interpretation of the agreements in place.

Water Rates

The percentage utilized to determine Garrison eligible costs are as follows:

- Operating Costs, Prior Year Surplus/Deficits, and Miscellaneous Revenue: 100%.
- Transfers to Capital and Capital Grant Revenue: 52.7%
 - The percentage of mutual use capital costs relative to total capital costs, excluding growth-related costs, from the water capital forecast (details shown within Appendix A).
- Transfers to/from Lifecycle Reserve Fund: 37.9%
 - The percentage of water, mutual use asset replacement cost relative to total water asset replacement cost (as shown in Table 2).

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

Wastewater Rates

The percentage utilized to determine Garrison eligible costs are as follows:

- Operating Costs, Prior Year Surplus/Deficits, and Miscellaneous Revenue: 100%.
- Transfers to Capital: 59.4%
 - The percentage of mutual use capital costs relative to total capital costs, excluding growth-related costs, from the wastewater capital forecast (details shown within Appendix B).
- Non-Growth-Related Facility Debt: 100%
 - This proposed debt is directly related to a capital project that is considered mutual use with Garrison.
- Transfers to/from Lifecycle Reserve Fund: 58.1%
 - The percentage of wastewater, mutual use asset replacement cost relative to total wastewater asset replacement cost (as shown in Table 2).

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

**Table 7
Water Rate Forecast**

Description	Existing Rates				Forecast							
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total Water Billing Recovery	2,152,714	2,342,001	2,305,890	2,434,868	2,556,611	2,684,442	2,818,664	2,959,597	3,107,577	3,262,956	3,426,104	3,597,409
Garrison Mutual Use Analysis:												
Operating Costs 100.0%	1,293,493	1,734,936	1,715,636	1,681,419	1,776,400	1,777,600	1,844,800	1,891,500	1,935,500	2,007,400	2,055,000	2,129,500
Transfer to Capital 52.7%	417,160	399,943	193,263	350,347	586,379	203,746	431,511	301,931	308,726	384,999	338,382	314,942
Transfer to Reserve Fund - Lifecycle 37.9%	66,406	212,166	175,834	292,518	-	199,180	60,570	189,642	224,194	200,931	278,339	331,944
(Surplus)/Deficit from Previous Year 100.0%	-	412,438	-	-	-	-	-	-	-	-	-	-
Miscellaneous Revenue/Grant Water Front/Connect 100.0%	(5,708)	(8,208)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)
Capital Grants 52.7%	-	(286,693)	-	-	-	-	-	-	-	-	-	-
Transfer from Reserve Fund - Lifecycle 37.9%	(38,723)	(216,780)	(89,205)	(257,111)	(124,430)	-	-	-	-	-	-	-
Total Billing Recovery - Mutual Use	1,732,628	2,247,802	1,990,528	2,062,173	2,233,349	2,175,526	2,331,881	2,378,073	2,463,420	2,588,330	2,666,720	2,771,386
Percentage of Water Billing Recovery - Mutual Use	80.5%	96.0%	86.3%	84.7%	87.4%	81.0%	82.7%	80.4%	79.3%	79.3%	77.8%	77.0%
Consumption Estimates:												
Garrison	1,284,613	1,179,853	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985
Other	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611
Total Metered Consumption (m3)	1,337,224	1,232,464	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596
Consumption Rates:												
Consumptive Rate - Garrison (per m3)	0.6413	0.8254	0.8159	0.8717	1.0526	1.0608	1.1020	1.1417	1.1841	1.2295	1.2754	1.3239
Percentage Increase/(Decrease)		28.7%	-1.2%	6.8%	20.7%	0.8%	3.9%	3.6%	3.7%	3.8%	3.7%	3.8%
Percentage of Non-Residential Rate	80.5%	96.0%	86.3%	84.7%	87.4%	81.0%	82.7%	80.4%	79.3%	79.3%	77.8%	77.0%
Consumptive Rate - Other (per m3)	0.7968	0.8600	0.9451	1.0293	1.2049	1.3089	1.3321	1.4209	1.4938	1.5500	1.6385	1.7185
Percentage Increase/(Decrease)		7.9%	9.9%	8.9%	17.1%	8.6%	1.8%	6.7%	5.1%	3.8%	5.7%	4.9%
Flat Rates (per Year):												
Residential	268.33	268.33	283.09	298.66	319.57	338.74	352.29	366.38	381.04	396.28	412.13	428.61
Classroom	198.26	198.26	70.77	74.66	79.89	84.69	88.07	91.60	95.26	99.07	103.03	107.15
Commercial	311.56	311.56	339.48	369.52	407.56	444.91	480.66	495.16	514.97	535.57	556.99	579.27
Commercial High Volume	453.17	453.17	458.99	464.09	475.02	480.66	480.66	495.16	514.97	535.57	556.99	579.27
Industrial	453.17	453.17	458.99	464.09	475.02	480.66	480.66	495.16	514.97	535.57	556.99	579.27
Percentage Increase/(Decrease):												
Residential					7.0%	6.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Classroom					7.0%	6.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Commercial					10.3%	9.2%	8.0%	3.0%	4.0%	4.0%	4.0%	4.0%
Commercial High Volume					2.4%	1.2%	0.0%	3.0%	4.0%	4.0%	4.0%	4.0%
Industrial					2.4%	1.2%	0.0%	3.0%	4.0%	4.0%	4.0%	4.0%
Dollar Increase/(Decrease) per Year:												
Residential					20.91	19.17	13.55	14.09	14.66	15.24	15.85	16.49
Classroom					5.23	4.79	3.39	3.52	3.66	3.81	3.96	4.12
Commercial					38.04	37.35	35.75	14.50	19.81	20.60	21.42	22.28
Commercial High Volume					10.93	5.65	(0.00)	14.50	19.81	20.60	21.42	22.28
Industrial					10.93	5.65	(0.00)	14.50	19.81	20.60	21.42	22.28
Dollar Increase/(Decrease) per Month:												
Residential					1.74	1.60	1.13	1.17	1.22	1.27	1.32	1.37
Classroom					0.44	0.40	0.28	0.29	0.31	0.32	0.33	0.34
Commercial					3.17	3.11	2.98	1.21	1.65	1.72	1.79	1.86
Commercial High Volume					0.91	0.47	(0.00)	1.21	1.65	1.72	1.79	1.86
Industrial					0.91	0.47	(0.00)	1.21	1.65	1.72	1.79	1.86

**Table 8
Wastewater Rate Forecast**

Description	Existing Rates				Forecast								
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Total Wastewater Billing Recovery	1,585,629	1,786,415	1,744,126	2,055,653	2,178,992	2,309,732	2,540,705	2,743,961	2,963,478	3,200,556	3,456,601	3,733,129	
Garrison Mutual Use Analysis:													
Operating Costs	100.0%	1,195,070	1,649,001	1,385,700	1,364,462	1,313,100	1,282,200	1,301,700	1,378,300	1,541,800	1,470,200	1,579,000	1,707,200
Transfer to Capital	59.4%	1,974	23,188	281,174	238,580	558,608	348,157	333,193	600,116	345,307	508,548	605,341	439,546
Transfer to Reserve Fund - Lifecycle	58.1%	312,842	309,308	-	273,070	-	256,505	90,880	-	185,216	204,852	195,693	444,232
Non-Growth Related Debt (Facilities)	100.0%	-	-	-	-	-	-	521,577	521,577	521,577	521,577	521,577	521,577
(Surplus)/Deficit from Previous Year	100.0%	-	(377,596)	-	-	-	-	-	-	-	-	-	-
Misc Revenue	100.0%	(6,100)	(6,100)	(6,100)	(6,100)	(6,100)	-	-	-	-	-	-	-
Transfer from Reserve Fund - Lifecycle	58.1%	(84,181)	-	(63,351)	(101,273)	(39,943)	-	-	(96,802)	-	-	-	-
Total Billing Recovery - Mutual Use		1,419,605	1,597,801	1,597,423	1,768,740	1,825,665	1,886,863	2,247,350	2,403,190	2,593,899	2,705,177	2,901,611	3,112,555
Percentage of Water Billing Recovery - Mutual Use		89.5%	89.4%	91.6%	86.0%	83.8%	81.7%	88.5%	87.6%	87.5%	84.5%	83.9%	83.4%
Flow Estimates:													
Garrison		1,234,442	1,215,845	829,661	829,661	829,661	829,661	829,661	829,661	829,661	829,661	829,661	829,661
Other		16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794
Total Flows (m3)		1,251,236	1,232,639	846,455	846,455	846,455	846,455	846,455	846,455	846,455	846,455	846,455	846,455
Flow Rates:													
Flow Rate - Garrison: Jan-Mar 2014 (per m3)		0.3504											
Flow Rate - Garrison (per m3)		0.6599		0.8304	0.9205	1.0837	1.0905	1.2047	1.3246	1.4573	1.6023	1.7632	1.9403
Percentage Increase/(Decrease)			-0.1%	26.0%	10.9%	17.7%	0.6%	10.5%	10.0%	10.0%	10.0%	10.0%	10.0%
Percentage of Non-Residential Rate			89.4%	91.6%	86.0%	83.8%	81.7%	88.5%	87.6%	87.5%	84.5%	83.9%	83.4%
Flow Rate - Other: Jan-Mar 2014 (per m3)		0.3914											
Flow Rate - Other (per m3)		0.7371	0.7371	0.9066	1.0698	1.2935	1.3349	1.3620	1.5125	1.6649	1.8957	2.1004	2.3272
Percentage Increase/(Decrease)			0.0%	23.0%	18.0%	20.9%	3.2%	2.0%	11.0%	10.1%	13.9%	10.8%	10.8%
Flat Rates (per Year):													
Residential		316.54	316.54	341.55	368.53	405.01	433.36	463.70	482.25	501.54	521.60	542.46	564.16
Classroom		283.40	283.40	85.39	92.13	101.25	108.34	115.92	120.56	125.38	130.40	135.62	141.04
Commercial		373.40	373.40	417.08	465.33	528.22	583.19	643.26	668.99	695.75	723.58	752.53	782.63
Commercial High Volume		541.80	541.80	562.44	582.97	614.40	629.30	643.26	668.99	695.75	723.58	752.53	782.63
Industrial		541.80	541.80	562.44	582.97	614.40	629.30	643.26	668.99	695.75	723.58	752.53	782.63
Percentage Increase/(Decrease):													
Residential						9.90%	7.00%	7.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Classroom						9.90%	7.00%	7.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Commercial						13.51%	10.41%	10.30%	4.00%	4.00%	4.00%	4.00%	4.00%
Commercial High Volume						5.39%	2.42%	2.22%	4.00%	4.00%	4.00%	4.00%	4.00%
Industrial						5.39%	2.42%	2.22%	4.00%	4.00%	4.00%	4.00%	4.00%
Dollar Increase/(Decrease) per Year:													
Residential						36.48	28.35	30.34	18.55	19.29	20.06	20.86	21.70
Classroom						9.12	7.09	7.58	4.64	4.82	5.02	5.22	5.42
Commercial						62.88	54.97	60.08	25.73	26.76	27.83	28.94	30.10
Commercial High Volume						31.44	14.89	13.97	25.73	26.76	27.83	28.94	30.10
Industrial						31.44	14.89	13.97	25.73	26.76	27.83	28.94	30.10
Dollar Increase/(Decrease) per Month:													
Residential						3.04	2.36	2.53	1.55	1.61	1.67	1.74	1.81
Classroom						0.76	0.59	0.63	0.39	0.40	0.42	0.43	0.45
Commercial						5.24	4.58	5.01	2.14	2.23	2.32	2.41	2.51
Commercial High Volume						2.62	1.24	1.16	2.14	2.23	2.32	2.41	2.51
Industrial						2.62	1.24	1.16	2.14	2.23	2.32	2.41	2.51

Conclusions

As illustrated in the rate forecasts above, the adjustments result in Garrison specific rates that are lower than other non-residential metered system customers. This is due to the fact that Garrison would be contributing to “mutual use” capital and lifecycle costs, where other customers are contributing to all capital and lifecycle costs. Given the calculation process for establishing water and wastewater rates, a defined revenue figure is established, to be recovered from rates each year. If Garrison specific rates are proposed to decrease, other customer rates would have to increase in order to generate the same total annual revenue amount.

For the forecast years 2018 to 2025, reduced Garrison specific rates have been partially offset by increases to water and wastewater rates for other customers. In addition, the “path to sustainable rates” established within the 2016 Update Study has been extended to beyond the established forecast period. This means that the Town will reach sustainable water and wastewater rates at some point beyond 2025, where the 2016 Update Study calculated reaching sustainable rates by 2025. The exact year in which sustainability is attained will depend on the results of the Town’s next Rate Study Update (in 2020). This has the effect of lessening the impact of reduced Garrison rates on other system customers, by reducing the amounts required to be transferred to capital reserves each year.

The following objectives from the 2016 Rate Update were followed in establishing the proposed rates within this memo report:

1. Continue to move towards sustainable water and wastewater rates (however at a somewhat slower pace than what was proposed in 2016).
2. Move towards removing any cross-subsidization of rates between customer types. Currently the flat rate customers are partially subsidizing consumptive based users. The removal of this cross-subsidization will occur by 2025.
3. Move towards a uniform non-residential flat rate by 2020.

Recommendation

The following recommendation is provided for Council’s consideration:

1. That Council approve the 2017 Water and Wastewater Rate Study Update.

Appendix A – Water Calculations

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

Description	Mutual Use	Total	2014 (in 2011 \$)	2015 (in 2015 \$)	2016 (in 2015 \$)	Budget 2017	Forecast							
							2018	2019	2020	2021	2022	2023	2024	2025
Capital - Water Plant														
Replace Bristol System	Yes	74,000				74,000								
Backwash Pump System	Yes	727,270		727,270										
Water Treatment Plant Watermain (500mm)	Yes	482,000	450,000	32,000										
Replace Water Treatment Plant Roof	Yes	210,000			210,000									
Lifecycle Replacement - Facilities	Yes	250,000												
Subtotal		1,743,270	700,000	759,270	210,000	74,000	-	-	-	-	-	-	-	-
Capital - Water System														
Victoria Street	Yes	35,343				35,343								
Subtotal		35,343	-	-	-	35,343	-	-	-	-	-	-	-	-
Water Treatment Plant - OCWA Forecast														
Filter Back Wash - Replacement	Yes	157,668					157,668							
High Lift Pumping Station	Yes	157,668					157,668							
Process air system	Yes	21,022					21,022							
Control panels, MCC, SCADA, Outpost, etc.	Yes	160,000				160,000								
Subtotal		496,358	-	-	-	160,000	336,358	-	-	-	-	-	-	-
Distribution System - OCWA Forecast														
Booster Pumping Station No. 1		220,736					220,736							
Subtotal		220,736	-	-	-	-	220,736	-	-	-	-	-	-	-
Growth Related Projects - DC Study														
Portage Road Watermain Expansion		461,493										461,493		
John St. (Herman St to Laura St) Watermain Expansion		160,558				25,000	135,558							
Laura St. (John St to Mary St) Watermain Expansion		64,223					64,223							
Mary St. (Edith St to Laura St) Watermain Expansion		572,534				572,534								
Civic Centre Road - Urbanization		124,000			124,000									
Subtotal		1,382,808	-	-	124,000	597,534	199,781	-	-	-	-	461,493	-	-
Lifecycle Replacement - AM Plan														
Facilities														
CW0001 - Water Treatment Plant - Siteworks	Yes	261,604						-	-	261,604				
CW0012 - Inline Water Booster Sta. - Process/Mechanical/Electrical	Yes	136,806							136,806					
CW0013 - McGregor Hill Water Booster Sta. #1 - Siteworks		22,238			22,238									
CW0018 - Janet St. Water Booster Sta. #2 - Siteworks		25,895									25,895			
Subtotal		446,543	-	-	22,238	-	-	-	136,806	261,604	25,895	-	-	-

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

Description	Mutual Use	Total	2014 (in 2011 \$)	2015 (in 2015 \$)	2016 (in 2015 \$)	Budget 2017	Forecast							
							2018	2019	2020	2021	2022	2023	2024	2025
Water Mains														
W05000 - Albert St: Laurentian Dr to Alice St		126,227					-	-	-	126,227	-	-	-	-
W05005 - Albert St: Alice St to Island View Dr		112,488					-	-	-	-	-	112,488	-	-
W05150 - Alice St: Albert St to East St		67,264					-	-	-	-	-	67,264	-	-
W05200 - Van Hoof: Edward St to Cul de Sac		32,058					-	-	-	-	-	32,058	-	-
W05225 - Edward: Albert St to East St		38,068					-	-	-	-	-	38,068	-	-
W05275 - East St: Victoria St to Island View Dr		2,862					-	-	-	-	-	2,862	-	-
W05276 - East St: Abby Lane to Victoria St		37,210					-	-	-	-	-	37,210	-	-
W05277 - East St: Victoria St to Island View Dr		125,368					-	-	-	-	-	125,368	-	-
W06125 - Wilbert St: Fred St to Dundonald Dr		105,618					-	-	-	-	-	-	105,618	-
W06150 - Fred St: Petawawa Blvd to Wilbert St		27,192					-	-	-	-	-	27,192	-	-
W06175 - Maple Ave: Ethel St to Petawawa Blvd		85,010					-	-	-	-	-	-	85,010	-
W06200 - Pine Pl: Maple Ave to End South East		31,199					-	-	-	-	-	31,199	-	-
W06225 - Ellard (closed): Petawawa Blvd to End North		23,471					-	-	-	-	-	-	23,471	-
W06250 - Mohns Ave: Petawawa Blvd to Violet St	Yes	367,731					-	-	367,731	-	-	-	-	-
W06255 - Mohns Ave: Violet St to Wolfe Ave	Yes	87,300					-	-	-	-	-	-	87,300	-
W06275 - Willard St: Victoria St to Mohns Ave		61,253					-	-	-	-	-	-	61,253	-
W06300 - Ethel St: Victoria St to Maple Ave		108,480					-	-	-	-	-	-	108,480	-
W06325 - Violet St: Mohns Ave to Cul de Sac	Yes	63,113					-	-	63,113	-	-	-	-	-
W06326 - Violet St: Victoria St to Mohns Ave		57,246					-	-	57,246	-	-	-	-	-
W06400 - Alfred St: Victoria St to End North East		22,612					-	-	-	-	-	-	22,612	-
W06525 - Algonquin St: Harry St to End North		102,470					-	-	-	-	-	-	-	102,470
W06550 - Park Dr: Algonquin St to Algonquin St		135,672					-	-	-	-	-	-	-	135,672
W06575 - Harry St: Algonquin Street to 0.1 km West		28,623					-	-	-	-	-	-	28,623	-
W06580 - Harry St: Bert Street to 0.1 km W of Algonquin		57,246					-	-	-	-	-	-	-	57,246
W06585 - Harry St: Bert Street to North End		25,188					-	-	-	-	-	-	-	25,188
W06600 - Bert St: Petawawa Blvd to Harry St		26,619					-	-	-	-	-	-	-	26,619
W06900 - Petawawa Blvd: Bridge to Victoria / Portage	Yes	370,952					-	-	-	-	370,952	-	-	-
W06901 - Petawawa Blvd: Victoria / Portage to Mohns Ave	Yes	134,599					-	-	-	-	134,599	-	-	-
W06922 - Victoria St: Wolfe to Ethel St		124,795					-	-	-	-	-	-	-	124,795
W07075 - Roy St: Murphy Rd to Mary St		119,357					-	-	-	119,357	-	-	-	-
W07100 - John St: Murphy Rd to Herman St		150,000					-	-	-	150,000	-	-	-	-
W07150 - Mary St: Herman St to Cul de Sac		87,872					-	-	-	87,872	-	-	-	-
W07680 - Hilda St: Audrey St to Lisa Cres		160,000					160,000	-	-	-	-	-	-	-
W07725 - Lisa Cres: Scott St to Cul de Sac		173,599					173,599	-	-	-	-	-	-	-
W07750 - Scott St: Portage Rd to Hilda St		86,799					86,799	-	-	-	-	-	-	-
Subtotal		3,365,561	-	-	-	-	420,398	-	488,090	483,456	505,551	473,709	522,367	471,990
Subtotal		3,812,104	-	-	22,238	-	420,398	136,806	749,694	509,351	505,551	473,709	522,367	471,990
Additional Lifecycle Replacement Needs														
Water Mains LOS - Hilda Court		43,400					43,400							
Water Mains LOS - Risto Road		227,848						227,848						
Subtotal		271,248	-	-	-	-	43,400	227,848	-	-	-	-	-	-
Total Capital Expenditures		7,961,867	700,000	759,270	356,238	866,877	1,220,673	364,654	749,694	509,351	505,551	935,202	522,367	471,990
Mutual Use Capital	52.7%	3,697,076	700,000	759,270	210,000	269,343	336,358	136,806	692,448	-	505,551	-	87,300	-
Town Only Capital		3,321,626	-	-	84,238	179,260	744,468	227,848	57,246	509,351	-	612,157	435,067	471,990
Growth (DC)		943,166	-	-	62,000	418,274	139,847	-	-	-	-	323,045	-	-

* Calculation to determine "percentage mutual use" excludes growth related costs.

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

Description	Total	2014	2015	2016	Budget 2017	Forecast							
						2018	2019	2020	2021	2022	2023	2024	2025
Capital Expenditures													
Capital - Water Plant	1,841,526	791,956	759,270	216,300	74,000	-	-	-	-	-	-	-	-
Capital - Water System	35,343	-	-	-	35,343	-	-	-	-	-	-	-	-
Water Treatment Plant - OCWA Forecast	506,400	-	-	-	160,000	346,400	-	-	-	-	-	-	-
Distribution System - OCWA Forecast	227,400	-	-	-	-	227,400	-	-	-	-	-	-	-
<i>Subtotal</i>	<i>2,610,669</i>	<i>791,956</i>	<i>759,270</i>	<i>216,300</i>	<i>269,343</i>	<i>573,800</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Growth Related Projects - DC Study													
Portage Road Watermain Expansion	551,000	-	-	-	-	-	-	-	-	-	551,000	-	-
John St. (Herman St to Laura St) Watermain Expansion	164,600	-	-	-	25,000	139,600	-	-	-	-	-	-	-
Laura St. (John St to Mary St) Watermain Expansion	66,100	-	-	-	-	66,100	-	-	-	-	-	-	-
Mary St. (Edith St to Laura St) Watermain Expansion	572,534	-	-	-	572,534	-	-	-	-	-	-	-	-
Civic Centre Road - Urbanization	127,700	-	-	127,700	-	-	-	-	-	-	-	-	-
<i>Subtotal</i>	<i>1,481,934</i>	<i>-</i>	<i>-</i>	<i>127,700</i>	<i>597,534</i>	<i>205,700</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>551,000</i>	<i>-</i>	<i>-</i>
Lifecycle Replacement (AM Plan)													
Water Facilities	483,000	-	-	22,900	-	-	145,100	285,900	29,100	-	-	-	-
Watermains	3,902,400	-	-	-	-	433,000	-	533,300	544,100	586,100	565,600	642,400	597,900
LOS Requirements	286,400	-	-	-	-	44,700	241,700	-	-	-	-	-	-
<i>Subtotal</i>	<i>4,671,800</i>	<i>-</i>	<i>-</i>	<i>22,900</i>	<i>-</i>	<i>477,700</i>	<i>386,800</i>	<i>819,200</i>	<i>573,200</i>	<i>586,100</i>	<i>565,600</i>	<i>642,400</i>	<i>597,900</i>
Total Capital Expenditures	8,764,403	791,956	759,270	366,900	866,877	1,257,200	386,800	819,200	573,200	586,100	1,116,600	642,400	597,900
Capital Financing													
Provincial/Federal Grants	171,761	-	-	-	171,761	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	30,000	-	-	-	30,000	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	-	-	-	-	-	-	-	-	-	-	-	-	-
Growth Related Debenture Requirements	529,690	-	-	-	-	143,990	-	-	-	-	385,700	-	-
Operating Contributions	8,032,952	791,956	759,270	366,900	665,116	1,113,210	386,800	819,200	573,200	586,100	730,900	642,400	597,900
Lifecycle Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	8,764,403	791,956	759,270	366,900	866,877	1,257,200	386,800	819,200	573,200	586,100	1,116,600	642,400	597,900
Mutual Use Capital	3,978,569	791,956	759,270	216,300	269,343	346,400	145,100	756,700	-	586,100	-	107,400	-
Town Only Capital	3,773,960	-	-	86,700	179,260	766,800	241,700	62,500	573,200	-	730,900	535,000	597,900
Growth (DC)	1,011,874	-	-	63,900	418,274	144,000	-	-	-	-	385,700	-	-

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

Debenture Year	Principal (Inflated)				Budget 2017	Forecast							
						2018	2019	2020	2021	2022	2023	2024	2025
2017	-					-	-	-	-	-	-	-	-
2018	-							-	-	-	-	-	-
2019	-								-	-	-	-	-
2020	-								-	-	-	-	-
2021	-									-	-	-	-
2022	-										-	-	-
2023	-											-	-
2024	-												-
2025	-												-
Total Annual Debt Charges	-				-	-	-	-	-	-	-	-	-

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

Debenture Year	Principal (Inflated)				Budget 2017	Forecast							
						2018	2019	2020	2021	2022	2023	2024	2025
2017	-					-	-	-	-	-	-	-	-
2018	143,990							11,554	11,554	11,554	11,554	11,554	11,554
2019	-								-	-	-	-	-
2020	-									-	-	-	-
2021	-										-	-	-
2022	-											-	-
2023	385,700												30,950
2024	-												
2025	-												
Total Annual Debt Charges	529,690				-	-	11,554	11,554	11,554	11,554	11,554	42,504	42,504

Table A-4
Town of Petawawa
Water Service
Water Development Charges Reserve Fund Continuity
 Inflated \$

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Opening Balance	-	22,623	42,722	4,999	4,123	35,040	55,902	78,309	102,376	128,171	155,745	153,344
Development Charge Proceeds	33,426	18,855	32,029	29,004	29,896	30,788	31,680	32,640	33,616	34,592	35,636	36,692
Transfer to Capital	-	-	-	30,000	-	-	-	-	-	-	-	-
Transfer to Operating	11,462	-	69,898	-	-	11,554	11,554	11,554	11,554	11,554	42,504	42,504
Closing Balance	21,964	41,478	4,854	4,003	34,019	54,274	76,028	99,394	124,438	151,209	148,878	147,532
Interest	659	1,244	146	120	1,021	1,628	2,281	2,982	3,733	4,536	4,466	4,426
Required from Development Charges	-	-	-	418,274	143,990	-	-	-	-	385,700	-	-

Table A-5
Town of Petawawa
Water Service
Water Reserve Fund Continuity - Lifecycle
 Inflated \$

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Opening Balance	1,593,554	1,768,601	2,008,157	4,036,925	4,148,466	3,900,157	4,508,452	4,759,882	5,359,976	6,064,062	6,720,296	7,595,743
Transfer from Operating	175,047	559,272	463,500	771,081	-	525,042	159,664	499,897	590,977	529,656	733,704	875,009
Transfer from Water Plant Reserve	-	-	3,119,068	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	319,716	1,553,800	659,540	327,999	-	-	-	-	-	-	-
Closing Balance	1,768,601	2,008,157	4,036,925	4,148,466	3,820,467	4,425,199	4,668,116	5,259,779	5,950,953	6,593,718	7,454,000	8,470,752
Interest	-	-	-	-	79,689	83,254	91,766	100,197	113,109	126,578	141,743	160,665

* Excludes adjustments due to Garrison receivables.

Table A-6
Town of Petawawa
Water Services
Operating Budget Forecast
 Inflated \$

Description	2014	2015	2016	Budget 2017	Forecast								
					2018	2019	2020	2021	2022	2023	2024	2025	
Expenditures													
Operating Costs													
Waterworks Salaries	21,287	30,000	30,600	45,000	45,900	46,900	47,900	48,900	49,900	50,900	52,000	53,100	
Training/Associations	8,515	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	1,064	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	
Audit	7,450	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	534,868	704,442	719,200	723,576	738,800	754,300	770,100	786,300	802,800	819,700	836,900	854,500	
Service Contract - OCWA - Extra	31,930	50,000	51,100	52,200	53,300	54,400	55,500	56,700	57,900	59,100	60,300	61,600	
Waterworks Administration	98,983	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	107,730	150,000	153,200	165,400	173,700	182,400	191,500	201,100	211,200	221,800	232,900	244,500	
Tools/Parts/Supplies	5,321	5,000	5,100	20,000	20,400	20,800	21,200	21,600	22,100	22,600	23,100	23,600	
Water System Maintenance													
Distribution System - OCWA Forecast	85,146	90,895	95,400	40,000	84,500	57,900	61,000	64,300	67,700	71,400	75,200	79,300	
Misc. Maintenance	-	5,000	5,300	-	25,000	26,300	27,600	29,000	30,500	32,000	33,600	35,300	
Water Rate Review	-	30,000	6,636	15,000	-	-	16,600	-	-	-	-	18,500	
Code Compliance Generator	-	12,383	13,000	-	-	-	-	-	-	-	-	-	
Emergency Repairs	-	25,000	26,300	25,000	26,300	27,600	29,000	30,500	32,000	33,600	35,300	37,100	
Public Works - Hydrant Maintenance	-	20,000	21,000	20,000	21,000	22,100	23,200	24,400	25,600	26,900	28,200	29,600	
Water Plant Maintenance													
Water Treatment Plant - OCWA Forecast	131,804	102,000	107,100	93,743	86,400	72,600	77,400	92,900	87,800	109,000	104,400	106,300	
Misc. Maintenance	-	42,000	44,100	-	25,000	26,300	27,600	29,000	30,500	32,000	33,600	35,300	
Code Compliance Generator Repairs - Plant	-	4,500	4,700	-	-	-	-	-	-	-	-	-	
Water Plant Electricity	170,294	220,000	224,600	229,300	234,100	239,000	244,000	249,100	254,300	259,600	265,100	270,700	
Insurance	21,287	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	1,064	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	7,026	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	9,579	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	10,643	16,000	16,300	16,600	16,900	17,300	17,700	18,100	18,500	18,900	19,300	19,700	
Hydrant Maintenance	10,643	10,000	10,200	5,000	5,100	5,200	5,300	5,400	5,500	5,600	5,700	5,800	
Infrastructure/Mapping Update	15,965	-	-	30,000	30,600	31,200	31,900	32,600	33,300	34,000	34,700	35,400	
Water System PILT County	12,894	10,983	11,200	11,400	11,600	11,800	12,000	12,300	12,600	12,900	13,200	13,500	
McGregor Hill Watermain	-	-	-	15,000	-	-	-	-	-	-	-	-	
Future Looping of Watermain - Portage to Woodland (Portage Landing)	-	39,671	-	-	-	-	-	-	-	-	-	-	
Sub Total Operating	1,293,493	1,734,936	1,715,636	1,681,419	1,776,400	1,777,600	1,844,800	1,891,500	1,935,500	2,007,400	2,055,000	2,129,500	
Capital-Related													
Growth Related Debt (Principal)	-	-	-	-	-	4,355	4,572	4,801	5,041	5,293	17,222	18,083	
Growth Related Debt (Interest)	-	-	-	-	-	7,200	6,982	6,753	6,513	6,261	25,281	24,420	
Non-Growth Related Debt (Principal)	-	-	-	-	-	-	-	-	-	-	-	-	
Non-Growth Related Debt (Interest)	-	-	-	-	-	-	-	-	-	-	-	-	
Transfer to Capital	791,956	759,270	366,900	665,116	1,113,210	386,800	819,200	573,200	586,100	730,900	642,400	597,900	
Transfer to Reserve Fund - Lifecycle	175,047	559,272	463,500	771,081	-	525,042	159,664	499,897	590,977	529,656	733,704	875,009	
Sub Total Capital Related	967,003	1,318,542	830,400	1,436,197	1,113,210	923,396	990,418	1,084,651	1,188,631	1,272,110	1,418,607	1,515,413	
Total Expenditures	2,260,496	3,053,478	2,546,036	3,117,616	2,889,610	2,700,996	2,835,218	2,976,151	3,124,131	3,279,510	3,473,607	3,644,913	

Table A-6 (cont.)
Town of Petawawa
Water Services
Operating Budget Forecast
 Inflated \$

Description	2014	2015	2016	Budget 2017	Forecast							
					2018	2019	2020	2021	2022	2023	2024	2025
Revenues												
Miscellaneous Revenue/Grant	2,500	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 Reserve - Water Lifecycle	102,074	-	235,146	677,748	327,999	-	-	-	-	-	-	-
Transfer from DC Reserve Fund	-	-	-	-	-	11,554	11,554	11,554	11,554	11,554	42,504	42,504
Water Front/Connect	3,208	3,208	-	-	-	-	-	-	-	-	-	-
Total Operating Revenue	107,782	711,477	240,146	682,748	332,999	16,554	16,554	16,554	16,554	16,554	47,504	47,504
Water Billing Recovery - Total	2,152,714	2,342,001	2,305,890	2,434,868	2,556,611	2,684,442	2,818,664	2,959,597	3,107,577	3,262,956	3,426,104	3,597,409

Table A-7
Town of Petawawa
Water Services
Water Rate Forecast
 Inflated \$

Description	Existing Rates				Forecast							
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Total Water Billing Recovery	2,152,714	2,342,001	2,305,890	2,434,868	2,556,611	2,684,442	2,818,664	2,959,597	3,107,577	3,262,956	3,426,104	3,597,409
Garrison Mutual Use Analysis:												
Operating Costs 100.0%	1,293,493	1,734,936	1,715,636	1,681,419	1,776,400	1,777,600	1,844,800	1,891,500	1,935,500	2,007,400	2,055,000	2,129,500
Transfer to Capital 52.7%	417,160	399,943	193,263	350,347	586,379	203,746	431,511	301,931	308,726	384,999	338,382	314,942
Transfer to Reserve Fund - Lifecycle 37.9%	66,406	212,166	175,834	292,518	-	199,180	60,570	189,642	224,194	200,931	278,339	331,944
(Surplus)/Deficit from Previous Year 100.0%	-	412,438	-	-	-	-	-	-	-	-	-	-
Miscellaneous Revenue/Grant Water Front/Connect 100.0%	(5,708)	(8,208)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)	(5,000)
Capital Grants 52.7%	-	(286,693)	-	-	-	-	-	-	-	-	-	-
Transfer from Reserve Fund - Lifecycle 37.9%	(38,723)	(216,780)	(89,205)	(257,111)	(124,430)	-	-	-	-	-	-	-
Total Billing Recovery - Mutual Use	1,732,628	2,247,802	1,990,528	2,062,173	2,233,349	2,175,526	2,331,881	2,378,073	2,463,420	2,588,330	2,666,720	2,771,386
Percentage of Water Billing Recovery - Mutual Use	80.5%	96.0%	86.3%	84.7%	87.4%	81.0%	82.7%	80.4%	79.3%	79.3%	77.8%	77.0%
Consumption Estimates:												
Garrison	1,284,613	1,179,853	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985	1,012,985
Other	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611	52,611
Total Metered Consumption (m3)	1,337,224	1,232,464	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596	1,065,596
Consumption Rates:												
Consumptive Rate - Garrison (per m3)	0.6413	0.8254	0.8159	0.8717	1.0526	1.0608	1.1020	1.1417	1.1841	1.2295	1.2754	1.3239
Percentage Increase/(Decrease)		28.7%	-1.2%	6.8%	20.7%	0.8%	3.9%	3.6%	3.7%	3.8%	3.7%	3.8%
Percentage of Non-Residential Rate	80.5%	96.0%	86.3%	84.7%	87.4%	81.0%	82.7%	80.4%	79.3%	79.3%	77.8%	77.0%
Consumptive Rate - Other (per m3)	0.7968	0.8600	0.9451	1.0293	1.2049	1.3089	1.3321	1.4209	1.4938	1.5500	1.6385	1.7185
Percentage Increase/(Decrease)		7.9%	9.9%	8.9%	17.1%	8.6%	1.8%	6.7%	5.1%	3.8%	5.7%	4.9%
Flat Rates (per Year):												
Residential	268.33	268.33	283.09	298.66	319.57	338.74	352.29	366.38	381.04	396.28	412.13	428.61
Classroom	198.26	198.26	70.77	74.66	79.89	84.69	88.07	91.60	95.26	99.07	103.03	107.15
Commercial	311.56	311.56	339.48	369.52	407.56	444.91	480.66	495.16	514.97	535.57	556.99	579.27
Commercial High Volume	453.17	453.17	458.99	464.09	475.02	480.66	480.66	495.16	514.97	535.57	556.99	579.27
Industrial	453.17	453.17	458.99	464.09	475.02	480.66	480.66	495.16	514.97	535.57	556.99	579.27
Percentage Increase/(Decrease):												
Residential					7.0%	6.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Classroom					7.0%	6.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Commercial					10.3%	9.2%	8.0%	3.0%	4.0%	4.0%	4.0%	4.0%
Commercial High Volume					2.4%	1.2%	0.0%	3.0%	4.0%	4.0%	4.0%	4.0%
Industrial					2.4%	1.2%	0.0%	3.0%	4.0%	4.0%	4.0%	4.0%
Dollar Increase/(Decrease) per Year:												
Residential					20.91	19.17	13.55	14.09	14.66	15.24	15.85	16.49
Classroom					5.23	4.79	3.39	3.52	3.66	3.81	3.96	4.12
Commercial					38.04	37.35	35.75	14.50	19.81	20.60	21.42	22.28
Commercial High Volume					10.93	5.65	(0.00)	14.50	19.81	20.60	21.42	22.28
Industrial					10.93	5.65	(0.00)	14.50	19.81	20.60	21.42	22.28
Dollar Increase/(Decrease) per Month:												
Residential					1.74	1.60	1.13	1.17	1.22	1.27	1.32	1.37
Classroom					0.44	0.40	0.28	0.29	0.31	0.32	0.33	0.34
Commercial					3.17	3.11	2.98	1.21	1.65	1.72	1.79	1.86
Commercial High Volume					0.91	0.47	(0.00)	1.21	1.65	1.72	1.79	1.86
Industrial					0.91	0.47	(0.00)	1.21	1.65	1.72	1.79	1.86

Appendix B – Wastewater Calculations

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

Description	Mutual Use	Total	2014 (in 2011 \$)	2015 (in 2015 \$)	2016 (in 2015 \$)	Budget 2017	Forecast							
							2018	2019	2020	2021	2022	2023	2024	2025
Capital - Sewage Plant														
Roof Replacement - Digester	Yes	50,000			50,000									
Misc. Capital	Yes	101,000				101,000								
Subtotal		151,000	-	-	50,000	101,000	-	-	-	-	-	-	-	-
Capital - Sewage System														
Victoria Street	Yes	22,500		22,500										
Renfrew Street Pumping Station Generator		205,049	2,938	15,961	186,150									
Civic Centre Road		588		588										
Earl Street		-												
Mary Street		32,883				32,883								
Subtotal		261,020	2,938	39,049	186,150	32,883	-	-	-	-	-	-	-	-
Wastewater Treatment Plant - OCWA Forecast														
UV disinfection system	Yes	126,135					126,135							
Sludge Digestion System	Yes	177,735		-			80,968	96,767						
Subtotal		303,870	-	-	-	-	207,103	96,767	-	-	-	-	-	-
Other Works - OCWA Forecast														
Improvements to Sludge Handling and Treatment System	Yes	210,225		-			105,112	105,112	-	-	-	-	-	-
Subtotal		210,225	-	-	-	-	105,112	105,112	-	-	-	-	-	-
Growth Related Projects - DC Study														
Renfrew St Pumping Station Expansion		595,589				100,000	495,589							
Victoria St: Laurentian Dr to Treatment Plant	Yes	1,536,572				1,536,572								
Petawawa Blvd Upgrade: Upstream Harry St to Pumping Stn		107,039							107,039					
Wastewater Treatment Plant Expansion - EA	Yes	603,698					603,698							
Wastewater Treatment Plant Expansion	Yes	8,236,406						8,236,406						
Subtotal		11,079,303	-	-	-	1,636,572	1,099,286	8,236,406	107,039	-	-	-	-	-
Lifecycle Replacement - AM Plan														
Facilities														
CW0033 - East St. Sanitary Pump Sta - Siteworks		35,400			35,400		-	-	-	-	-	-	-	-
CW0036 - East St. Sanitary Pump Sta - Building Elements		153,633					-	-	-	-	-	-	153,633	-
CW0037 - East St. Sanitary Pump Sta - Process/Mechanical/Electrical		329,542					-	-	-	-	-	329,542	-	-
CW0043 - Earl St. Sanitary Pump Sta - Siteworks		11,881			11,881		-	-	-	-	-	-	-	-
CW0047 - Earl St. Sanitary Pump Sta - Process/Mechanical/Electrical		335,168					-	-	-	335,168	-	-	-	-
Subtotal		865,624	-	-	47,281	-	-	-	-	335,168	-	329,542	153,633	-

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

Description	Mutual Use	Total	2014 (in 2011 \$)	2015 (in 2015 \$)	2016 (in 2015 \$)	Budget 2017	Forecast							
							2018	2019	2020	2021	2022	2023	2024	2025
Wastewater Mains														
S0 - Easement: Harry St to MH A		5,116					-	-	5,116	-	-	-	-	-
S0 - Easement: MH A to Harry St PS		1,288					-	-	1,288	-	-	-	-	-
S05000 - Albert St: Laurentian Dr to Alice St		167,658					-	-	-	167,658	-	-	-	-
S05005 - Albert St: Alice St to Island View Dr		24,007					-	-	-	-	-	24,007	-	-
S05150 - Alice St: Albert St to East St		82,255					-	-	-	-	-	82,255	-	-
S05225 - Edward St: Albert St to East St		27,549					-	-	-	-	-	27,549	-	-
S05275 - East St: Victoria St to Island View Dr		188,517					-	-	-	-	-	188,517	-	-
S06125 - Wilbert St: Fred St to Dundonald Dr		151,164					-	-	-	-	-	-	151,164	-
S06150 - Fred St: Petawawa Blvd to Wilbert St		22,433					-	-	-	-	-	22,433	-	-
S06175 - Maple Ave: Ethel St to Petawawa Blvd		151,772					-	-	-	-	-	-	151,772	-
S06200 - Pine Pl: Maple Ave to End South East		42,898					-	-	-	-	-	42,898	-	-
S06225 - Ellard (closed): Petawawa Blvd to End North		27,549					-	-	-	-	-	-	27,549	-
S06250 - Mohns Ave: Petawawa Blvd to Violet St		188,517					-	-	188,517	-	-	-	-	-
S06255 - Mohns Ave: Violet St to Violet St		133,024					-	-	-	-	-	-	133,024	-
S06275 - Willard St: Victoria St to Mohns Ave		72,809					-	-	-	-	-	-	72,809	-
S06300 - Ethel St: Victoria St to Maple Ave		99,572					-	-	-	-	-	-	99,572	-
S06325 - Violet St: Victoria St to Cul de Sac		148,767					-	-	148,767	-	-	-	-	-
S06326 - Easement: Violet St to Wilbert St		169,805					-	-	169,805	-	-	-	-	-
S06400 - Alfred St: Victoria St to End North East	Yes	11,807					-	-	-	-	-	-	11,807	-
S06525 - Algonquin St: Harry St to End North		123,973					-	-	-	-	-	-	-	123,973
S06550 - Park Dr: Algonquin St to Algonquin St		172,381					-	-	-	-	-	-	-	172,381
S06575 - Harry St: Victoria St to .1 K W of Algonquin		27,549					-	-	-	-	-	-	27,549	-
S06580 - Harry St: Bert St to .1 K W of Algonquin		63,757					-	-	-	-	-	-	-	63,757
S06585 - Harry St: Bert St to End North		70,054					-	-	-	-	-	-	-	70,054
S06600.1 - Bert St: Petawawa Blvd to Harry St		27,156					-	-	-	-	-	-	-	27,156
S06900.2 - Petawawa Blvd: Bridge to Victoria / Portage		345,549					-	-	-	345,549	-	-	-	-
S06901.1 - Petawawa Blvd: Victoria / Portage to Mohns Ave		62,577					-	-	-	62,577	-	-	-	-
S06901.2 - Petawawa Blvd: Victoria / Portage to Mohns Ave		93,489					-	-	-	93,489	-	-	-	-
S06922 - Victoria St: 50m west of Vermont Meadows to Wolfe	Yes	126,978					-	-	-	-	-	-	-	126,978
S07075 - Roy St: Murphy Rd to Mary St		109,017					-	-	-	109,017	-	-	-	-
S07100 - John St: Murphy Rd to Herman St		150,341					-	-	-	150,341	-	-	-	-
S07125 Norman St: Mary to Railroad Tracks		150,000					150,000	-	-	-	-	-	-	-
S07150 - Mary St: Herman St to End South		135,779					-	-	-	135,779	-	-	-	-
S07155 - Mary St: Herman St to End North		176,289			176,289		-	-	-	-	-	-	-	-
S07175 - Laura St: Doran Rd to End East		30,698					30,698	-	-	-	-	-	-	-
S07685 - Hilda St: Audrey St to Lisa Cres		160,000					160,000	-	-	-	-	-	-	-
S07725 - Lisa Cres: Scott St to Cul de Sac		173,599					173,599	-	-	-	-	-	-	-
S07750 - Scott St: Portage Rd to Hilda St		86,799					86,799	-	-	-	-	-	-	-
S07825 - Portage Rd: Petawawa Blvd to Florence St		159,393					-	159,393	-	-	-	-	-	-
S07830 - Portage Rd: Florence St to Fmr Town Limits		140,896					-	140,896	-	-	-	-	-	-
Subtotal		4,302,784	-	-	176,289	-	601,096	300,289	513,493	562,796	501,615	387,660	675,248	584,299
Subtotal		5,168,408	-	-	223,570	-	601,096	300,289	513,493	897,964	501,615	717,202	828,881	584,299
Total Capital Expenditures		17,173,825	2,938	39,049	459,720	1,770,455	2,012,597	8,738,574	620,532	897,964	501,615	717,202	828,881	584,299

Mutual Use Capital	59.4%	8,009,208	-	22,500	50,000	1,316,749	207,103	6,274,071	-	-	-	-	11,807	126,978
Town Only Capital		5,478,367	2,938	16,549	409,720	32,883	706,208	405,401	513,493	897,964	501,615	717,202	817,074	457,321
Growth (DC)		3,686,249	-	-	-	420,823	1,099,286	2,059,102	107,039	-	-	-	-	-

* Calculation to determine "percentage mutual use" excludes growth related costs.

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

Description	Total	2014	2015	2016	Budget 2017	Forecast							
						2018	2019	2020	2021	2022	2023	2024	2025
Capital Expenditures													
Capital - Sewage Plant	152,500	-	-	51,500	101,000	-	-	-	-	-	-	-	-
Capital - Sewage System	266,956	3,324	39,049	191,700	32,883	-	-	-	-	-	-	-	-
Wastewater Treatment Plant - OCWA Forecast	316,000	-	-	-	-	213,300	102,700	-	-	-	-	-	-
Other Works - OCWA Forecast	219,800	-	-	-	-	108,300	111,500	-	-	-	-	-	-
<i>Subtotal</i>	<i>955,256</i>	<i>3,324</i>	<i>39,049</i>	<i>243,200</i>	<i>133,883</i>	<i>321,600</i>	<i>214,200</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Growth Related Projects - DC Study													
Renfrew St Pumping Station Expansion	610,500	-	-	-	100,000	510,500	-	-	-	-	-	-	-
Victoria St: Laurentian Dr to Treatment Plant	1,536,572	-	-	-	1,536,572	-	-	-	-	-	-	-	-
Petawawa Blvd Upgrade: Upstream Harry St to Pumping Stn	117,000	-	-	-	-	-	-	117,000	-	-	-	-	-
Wastewater Treatment Plant Expansion - EA	621,800	-	-	-	-	621,800	-	-	-	-	-	-	-
Wastewater Treatment Plant Expansion	8,738,000	-	-	-	-	-	8,738,000	-	-	-	-	-	-
<i>Subtotal</i>	<i>11,623,872</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>1,636,572</i>	<i>1,132,300</i>	<i>8,738,000</i>	<i>117,000</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Lifecycle Replacement (AM Plan)													
Wastewater Facilities	1,008,300	-	-	48,700	-	-	-	-	377,200	-	393,500	188,900	-
Wastewater Mains	4,928,900	-	-	181,600	-	619,100	318,600	561,100	633,400	581,500	462,900	830,500	740,200
<i>Subtotal</i>	<i>5,937,200</i>	<i>-</i>	<i>-</i>	<i>230,300</i>	<i>-</i>	<i>619,100</i>	<i>318,600</i>	<i>561,100</i>	<i>1,010,600</i>	<i>581,500</i>	<i>856,400</i>	<i>1,019,400</i>	<i>740,200</i>
Total Capital Expenditures	18,516,328	3,324	39,049	473,500	1,770,455	2,073,000	9,270,800	678,100	1,010,600	581,500	856,400	1,019,400	740,200
Capital Financing													
Provincial/Federal Grants	947,861	-	-	-	947,861	-	-	-	-	-	-	-	-
Development Charges Reserve Fund	420,823	-	-	-	420,823	-	-	-	-	-	-	-	-
Non-Growth Related Debenture Requirements	6,500,000	-	-	-	-	-	6,500,000	-	-	-	-	-	-
Growth Related Debenture Requirements	3,433,800	-	-	-	-	1,132,300	2,184,500	117,000	-	-	-	-	-
Operating Contributions	7,213,844	3,324	39,049	473,500	401,771	940,700	586,300	561,100	1,010,600	581,500	856,400	1,019,400	740,200
Lifecycle Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	-	-
Sewage Treatment Plant Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Capital Financing	18,516,328	3,324	39,049	473,500	1,770,455	2,073,000	9,270,800	678,100	1,010,600	581,500	856,400	1,019,400	740,200
Mutual Use Capital	8,435,649	-	22,500	51,500	1,316,749	213,300	6,656,200	-	-	-	-	14,500	160,900
Town Only Capital	6,226,056	3,324	16,549	422,000	32,883	727,400	430,100	561,100	1,010,600	581,500	856,400	1,004,900	579,300
Growth (DC)	3,854,623	-	-	-	420,823	1,132,300	2,184,500	117,000	-	-	-	-	-

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

Debenture Year	Principal (Inflated)			Budget 2017	Forecast							
					2018	2019	2020	2021	2022	2023	2024	2025
2017	-				-	-	-	-	-	-	-	-
2018	-					-						
2019	6,500,000							521,577	521,577	521,577	521,577	521,577
2020	-								-	-	-	-
2021	-									-	-	-
2022	-									-	-	-
2023	-										-	-
2024	-											-
2025	-											-
Total Annual Debt Charges	6,500,000					-	-	521,577	521,577	521,577	521,577	521,577

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

Debenture Year	Principal (Inflated)			Budget 2017	Forecast							
					2018	2019	2020	2021	2022	2023	2024	2025
2017	-				-	-	-	-	-	-	-	-
2018	1,132,300					90,859	90,859	90,859	90,859	90,859	90,859	90,859
2019	2,184,500						175,290	175,290	175,290	175,290	175,290	175,290
2020	117,000							9,388	9,388	9,388	9,388	9,388
2021	-								-	-	-	-
2022	-									-	-	-
2023	-										-	-
2024	-											-
2025	-											-
Total Annual Debt Charges	3,433,800					-	90,859	266,149	275,537	275,537	275,537	275,537

Table B-4
Town of Petawawa
Wastewater Service
Wastewater Development Charges Reserve Fund Continuity
 Inflated \$

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Opening Balance	-	84,840	176,391	321,368	(4,242)	149,822	219,574	115,609	3,762	(106,378)	(214,589)	(320,645)
Development Charge Proceeds	83,954	86,413	135,617	145,336	149,700	154,216	158,816	163,580	168,496	173,576	178,820	184,148
Transfer to Capital	-	-	-	420,823	-	-	-	-	-	-	-	-
Transfer to Operating	1,585	-	-	50,000	-	90,859	266,149	275,537	275,537	275,537	275,537	275,537
Closing Balance	82,369	171,253	312,008	(4,118)	145,458	213,179	112,242	3,652	(103,279)	(208,339)	(311,306)	(412,034)
Interest	2,471	5,138	9,360	(124)	4,364	6,395	3,367	110	(3,098)	(6,250)	(9,339)	(12,361)
Required from Development Charges	-	-	-	420,823	1,132,300	2,184,500	117,000	-	-	-	-	-

Table B-5
Town of Petawawa
Wastewater Service
Wastewater Reserve Fund Continuity - Lifecycle
 Inflated \$

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Opening Balance	34,613	(92,607)	391,494	2,987,361	2,839,498	2,826,893	3,329,075	3,553,548	3,456,438	3,847,354	4,280,205	4,705,799
Transfer from Operating	17,585	484,101	1,040,571	26,343	-	441,232	156,328	-	318,601	352,380	336,624	764,152
Transfer from Sewage Treatment Plant Reserve	-	-	1,664,270	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	144,805	-	108,974	174,206	68,708	-	-	166,516	-	-	-	-
Closing Balance	(92,607)	391,494	2,987,361	2,839,498	2,770,790	3,268,125	3,485,403	3,387,032	3,775,039	4,199,734	4,616,829	5,469,951
Interest	-	-	-	-	56,103	60,950	68,145	69,406	72,315	80,471	88,970	101,758

* Excludes adjustments due to Garrison receivables.

**Table B-6
Town of Petawawa
Wastewater Services
Operating Budget Forecast
Inflated \$**

Description	2014	2015	2016	Budget 2017	Forecast								
					2018	2019	2020	2021	2022	2023	2024	2025	
Expenditures													
<u>Operating Costs</u>													
Sewage System Salaries	2,129	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	5,321	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	562,520	749,259	765,000	781,611	798,000	814,800	831,900	849,400	867,200	885,400	904,000	923,000	923,000
Service Contract - OCWA - Extra	10,643	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	71,311	72,809	74,300	75,900	77,500	79,100	80,800	82,500	84,200	86,000	87,800	89,600	89,600
<u>Sewage System Maintenance</u>													
Collection System - OCWA Forecast	255,689	70,000	73,500	80,600	102,300	109,100	116,200	123,900	152,100	140,700	150,000	159,800	159,800
Misc. Maintenance	-	-	-	-	25,000	27,600	32,000	38,900	49,600	66,500	93,600	138,300	138,300
Code Compliance Generator Repairs - Distribution	-	73,194	6,900	-	-	-	-	-	-	-	-	-	-
Emergency Repairs	-	-	-	-	-	-	-	-	-	-	-	-	-
Wastewater Rate Review	-	-	-	15,000	-	-	11,100	-	-	-	-	-	12,300
<u>Sewage Plant Maintenance</u>													
Sewage Treatment Plant - OCWA Forecast	220,334	90,000	94,500	296,155	193,300	130,100	101,900	146,900	239,300	123,300	146,200	140,100	140,100
Misc. Maintenance	-	110,000	115,400	-	25,000	27,600	32,000	38,900	49,600	66,500	93,600	138,300	138,300
Primary Clarifier Tank Modification	-	367,500	135,900	-	-	-	-	-	-	-	-	-	-
Code Compliance Generator Repairs - Plant	-	27,243	28,600	-	-	-	-	-	-	-	-	-	-
Emergency Repairs	-	25,000	26,300	25,000	-	-	-	-	-	-	-	-	-
Flow Meters Electricity	639	600	600	600	600	600	600	600	600	600	600	600	600
Insurance	23,416	22,000	22,500	22,000	22,500	23,000	23,500	24,000	24,500	25,000	25,500	26,000	26,000
Infrastructure/Mapping Update	31,930	-	-	25,000	25,500	26,000	26,500	27,100	27,700	28,300	28,900	29,500	29,500
Sewage System PILT County	11,138	10,296	10,500	10,296	10,500	10,700	10,900	11,100	11,300	11,500	11,700	11,900	11,900
Sub Total Operating	1,195,070	1,649,001	1,385,700	1,364,462	1,313,100	1,282,200	1,301,700	1,378,300	1,541,800	1,470,200	1,579,000	1,707,200	1,707,200
<u>Capital-Related</u>													
Growth Related Debt (Principal)	-	-	-	-	-	34,244	102,021	110,660	116,193	122,003	128,103	134,508	134,508
Growth Related Debt (Interest)	-	-	-	-	-	56,615	164,128	164,877	159,344	153,534	147,434	141,029	141,029
Non-Growth Related Debt (Principal)	-	-	-	-	-	-	196,577	206,406	216,726	227,562	238,940	250,887	250,887
Non-Growth Related Debt (Interest)	-	-	-	-	-	-	325,000	315,171	304,851	294,015	282,636	270,689	270,689
Transfer to Capital	3,324	39,049	473,500	401,771	940,700	586,300	561,100	1,010,600	581,500	856,400	1,019,400	740,200	740,200
Transfer to Reserve Fund - Lifecycle	538,140	532,061	-	469,726	-	441,232	156,328	-	318,601	352,380	336,624	764,152	764,152
Sub Total Capital Related	541,464	571,110	473,500	871,497	940,700	1,118,390	1,505,153	1,807,714	1,697,215	2,005,893	2,153,138	2,301,466	2,301,466
Total Expenditures	1,736,534	2,220,111	1,859,200	2,235,959	2,253,800	2,400,590	2,806,853	3,186,014	3,239,015	3,476,093	3,732,138	4,008,666	4,008,666
<u>Revenues</u>													
Other Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-
Surplus/(Deficit) from Previous Year	-	377,596	-	-	-	-	-	-	-	-	-	-	-
Sewage Front - East	6,100	6,100	6,100	6,100	6,100	-	-	-	-	-	-	-	-
Transfer from Reserve - Wastewater Lifecycle	144,805	-	108,974	174,206	68,708	-	-	166,516	-	-	-	-	-
Transfer from DC Reserve Fund	-	50,000	-	-	-	90,859	266,149	275,537	275,537	275,537	275,537	275,537	275,537
Total Operating Revenue	150,905	433,696	115,074	180,306	74,808	90,859	266,149	442,053	275,537	275,537	275,537	275,537	275,537
Wastewater Billing Recovery - Total	1,585,629	1,786,415	1,744,126	2,055,653	2,178,992	2,309,732	2,540,705	2,743,961	2,963,478	3,200,556	3,456,601	3,733,129	3,733,129

**Table B-7
Town of Petawawa
Wastewater Services
Wastewater Rate Forecast
Inflated \$**

Description	Existing Rates				Forecast								
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Total Wastewater Billing Recovery	1,585,629	1,786,415	1,744,126	2,055,653	2,178,992	2,309,732	2,540,705	2,743,961	2,963,478	3,200,556	3,456,601	3,733,129	
Garrison Mutual Use Analysis:													
Operating Costs	100.0%	1,195,070	1,649,001	1,385,700	1,364,462	1,313,100	1,282,200	1,301,700	1,378,300	1,541,800	1,470,200	1,579,000	1,707,200
Transfer to Capital	59.4%	1,974	23,188	281,174	238,580	558,608	348,157	333,193	600,116	345,307	508,548	605,341	439,546
Transfer to Reserve Fund - Lifecycle	58.1%	312,842	309,308	-	273,070	-	256,505	90,880	-	185,216	204,852	195,693	444,232
Non-Growth Related Debt (Facilities)	100.0%	-	-	-	-	-	-	521,577	521,577	521,577	521,577	521,577	521,577
(Surplus)/Deficit from Previous Year	100.0%	-	(377,596)	-	-	-	-	-	-	-	-	-	-
Misc Revenue	100.0%	(6,100)	(6,100)	(6,100)	(6,100)	(6,100)	-	-	-	-	-	-	-
Transfer from Reserve Fund - Lifecycle	58.1%	(84,181)	-	(63,351)	(101,273)	(39,943)	-	-	(96,802)	-	-	-	-
Total Billing Recovery - Mutual Use		1,419,605	1,597,801	1,597,423	1,768,740	1,825,665	1,886,863	2,247,350	2,403,190	2,593,899	2,705,177	2,901,611	3,112,555
Percentage of Water Billing Recovery - Mutual Use		89.5%	89.4%	91.6%	86.0%	83.8%	81.7%	88.5%	87.6%	87.5%	84.5%	83.9%	83.4%
Flow Estimates:													
Garrison		1,234,442	1,215,845	829,661	829,661	829,661	829,661	829,661	829,661	829,661	829,661	829,661	829,661
Other		16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794	16,794
Total Flows (m3)		1,251,236	1,232,639	846,455	846,455	846,455	846,455	846,455	846,455	846,455	846,455	846,455	846,455
Flow Rates:													
Flow Rate - Garrison: Jan-Mar 2014 (per m3)		0.3504											
Flow Rate - Garrison (per m3)		0.6599	0.6593	0.8304	0.9205	1.0837	1.0905	1.2047	1.3246	1.4573	1.6023	1.7632	1.9403
Percentage Increase/(Decrease)			-0.1%	26.0%	10.9%	17.7%	0.6%	10.5%	10.0%	10.0%	10.0%	10.0%	10.0%
Percentage of Non-Residential Rate			89.4%	91.6%	86.0%	83.8%	81.7%	88.5%	87.6%	87.5%	84.5%	83.9%	83.4%
Flow Rate - Other: Jan-Mar 2014 (per m3)		0.3914											
Flow Rate - Other (per m3)		0.7371	0.7371	0.9066	1.0698	1.2935	1.3349	1.3620	1.5125	1.6649	1.8957	2.1004	2.3272
Percentage Increase/(Decrease)			0.0%	23.0%	18.0%	20.9%	3.2%	2.0%	11.0%	10.1%	13.9%	10.8%	10.8%
Flat Rates (per Year):													
Residential		316.54	316.54	341.55	368.53	405.01	433.36	463.70	482.25	501.54	521.60	542.46	564.16
Classroom		283.40	283.40	85.39	92.13	101.25	108.34	115.92	120.56	125.38	130.40	135.62	141.04
Commercial		373.40	373.40	417.08	465.33	528.22	583.19	643.26	668.99	695.75	723.58	752.53	782.63
Commercial High Volume		541.80	541.80	562.44	582.97	614.40	629.30	643.26	668.99	695.75	723.58	752.53	782.63
Industrial		541.80	541.80	562.44	582.97	614.40	629.30	643.26	668.99	695.75	723.58	752.53	782.63
Percentage Increase/(Decrease):													
Residential					9.90%	7.00%	7.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Classroom					9.90%	7.00%	7.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Commercial					13.51%	10.41%	10.30%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Commercial High Volume					5.39%	2.42%	2.22%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Industrial					5.39%	2.42%	2.22%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Dollar Increase/(Decrease) per Year:													
Residential					36.48	28.35	30.34	18.55	19.29	20.06	20.86	21.70	
Classroom					9.12	7.09	7.58	4.64	4.82	5.02	5.22	5.42	
Commercial					62.88	54.97	60.08	25.73	26.76	27.83	28.94	30.10	
Commercial High Volume					31.44	14.89	13.97	25.73	26.76	27.83	28.94	30.10	
Industrial					31.44	14.89	13.97	25.73	26.76	27.83	28.94	30.10	
Dollar Increase/(Decrease) per Month:													
Residential					3.04	2.36	2.53	1.55	1.61	1.67	1.74	1.81	
Classroom					0.76	0.59	0.63	0.39	0.40	0.42	0.43	0.45	
Commercial					5.24	4.58	5.01	2.14	2.23	2.32	2.41	2.51	
Commercial High Volume					2.62	1.24	1.16	2.14	2.23	2.32	2.41	2.51	
Industrial					2.62	1.24	1.16	2.14	2.23	2.32	2.41	2.51	