

## **Water and Wastewater Rates Ad-hoc Committee Rate Recommendations to Council**

### **Executive Summary:**

The purpose of this report is to provide Council with the Water and Wastewater Rates Ad-hoc Committee's recommendations for water and wastewater rates and for connection charges.

The Committee's mandate was to provide a report to Council for consideration regarding future Water and Wastewater Rate and Capital Charge policies to achieve system sustainability.

The water and wastewater rate recommendations result in annualized rate increases of 5.0% for water and 5.0% for wastewater until 2019, 4.0% in 2020, and 1.1% in 2021 (calculated based on a typical customer with 124m<sup>3</sup> of annual consumption). The recommended connection charges are imposed at levels equal to that calculated using development charges calculation methodology.

Water and wastewater rates and connection charges fund the operating and capital costs (to include debt servicing) of the water and wastewater systems. The recommended rates achieve financial sustainability for the water and wastewater systems as measured by:

- Maximum "County" Debt Level (ARL) of 10.6% occurring in 2027
- The funding of the forecasted \$74.0 million capital program utilizing transfers from reserves, debt and grant funding
- Forecasted reserve balances of \$9.8 million in 2035
- Greater cost certainty and lower costs for developers by using development charges as the basis for calculating connection charges. Lower development costs should promote growth – providing more system users.

Attachment 1 to this report provides an overview of the, process, methodologies and results of the Ad-hoc Committee's work completed for the recommendations to Council contained in this report.

### **Recommendation:**

**THAT the report of the Water and Wastewater Rates Ad-hoc Committee dated June 15, 2017 regarding Water and Wastewater Rates Ad-hoc Committee Rate Recommendations to Council be received;**

THAT the Water and Wastewater Rates and Connection Charges Ad-hoc Committee recommends:

THAT effective July 1, 2017, and subsequently on January 1st of each year Water and Sanitary Sewer Monthly Base and Consumptive rates be set as shown below and as outlined in Attachment 1 to this report “Water and Wastewater Rates and Connection Charges Ad Hoc Committee Analysis”:

	July 1, 2017	Jan 1, 2018	Jan 1, 2019	Jan 1, 2020	Jan 1, 2021
<b>Water Rates:</b>					
Monthly Base Charge	\$ 28.36	\$ 29.30	\$ 30.26	\$ 31.26	\$ 32.29
Consumptive Rate (\$/m3)	\$ 2.12	\$ 2.28	\$ 2.44	\$ 2.61	\$ 2.79
<b>Wastewater Rates:</b>					
Monthly Base Charge	\$ 40.34	\$ 41.19	\$ 42.05	\$ 42.94	\$ 43.84
Consumptive Rate (\$/m3)	\$ 2.84	\$ 3.10	\$ 3.37	\$ 3.58	\$ 3.58

THAT the Multi-Unit Monthly Base rate continue to be calculated as 63.0% of the Monthly Base Charge;

THAT the remaining meter sizes have rates calculated in proportion with meter size;

THAT effective July 1, 2017 Water and Wastewater Connection Charges for new residential and non-residential connections to County of Prince Edward Water and Wastewater services be established as follows:

	Uniform residential Charge per Dwelling Unit					Uniform Non-Residential Charge per sq. ft. GFA
	Single and Semi Detached (>2 bedrooms)	Single and Semi Detached (<=2 bedrooms)	Apartment Units (>= 2 Bedrooms)	Apartment Units (< 2 Bedrooms)	Other Multiple Units*	
July 1, 2017						
Water	\$ 3,937	\$ 2,766	\$ 3,161	\$ 2,181	\$ 3,081	\$ 1.97
Wastewater	\$ 6,402	\$ 4,498	\$ 5,141	\$ 3,546	\$ 5,010	\$ 3.11
Total	\$ 10,339	\$ 7,264	\$ 8,302	\$ 5,727	\$ 8,091	\$ 5.08

THAT Connection Charges be indexed annually commencing January 1, 2018; and

THAT By-Laws 3008-2012 and 2701-2010 be amended at the June 27, 2017 Council meeting with new rates effective July 1, 2017.

**Purpose:**

The purpose of this report is to provide Council with the Water and Wastewater Rates Ad-hoc Committee recommendations for setting 2017 and future Water and Wastewater rates and Connection Charge rates

## **Background:**

In 2008 the County of Prince Edward initiated a review of its water and wastewater services financial plans and fees/charges. An Ad-hoc Committee was established in 2009 and provided recommendations to Council on the overall principles, water and wastewater financial plan and rate model assumptions, and water and wastewater connection charges and model assumptions. In 2010 Council adopted a financial plan to move toward full cost recovery uniform water and wastewater rates over a 4-year period (i.e. 2011-2014).

During the 2016 Budget meetings Council received a report from Watson & Associates dated December 4, 2015 - Water and Wastewater Rate and Study and Connection Charges Update. The forecasts in the 2010 Financial Plan were not being achieved. Revenue projections were not being met due to consumption not meeting forecasts and operating expenditures were exceeding forecast due to a reorganization of the department and additional costs due to legislative requirements. Reserves were depleted and without a new financial plan financial sustainability would not be achieved.

During the 2016 Budget meetings (December 2015) Council passed a motion to establish a Water and Wastewater Rates and Connection Charges Ad-hoc Committee. The Committee was formed by Council and Terms of Reference were adopted March 22, 2016.

The Water and Wastewater Rates and Connection Charges Ad-hoc Committee has been tasked to "Provide a report to Council for consideration regarding future Water and Wastewater Rate and Capital Charge policies to achieve system sustainability" and to review the December 16, 2015 Water and Wastewater Rate and Study and Connection Charges Update Report prepared by Watson's and Associates.

Further, the Committee's Terms of Reference "Purpose" is as follows:

To investigate, review and recommend options to Council regarding financial sustainability of the County's water and wastewater service delivery, including user rates, capital charges, service delivery operations, capital infrastructure replacement and financial assistance programs.

The Committee has met 14 times. Attachment 2 is a summary of the documents considered, initiated and reviewed by the Committee.

Analysis/Comment:

The attached memorandum from Watson & Associates provides an overview of the, process, methodologies and results of the Ad-hoc Committee's work completed for the recommendations to Council for the setting of water and wastewater rates.

The rate analysis contained in the attached memorandum was prepared using the following guidelines:

- Average annual residential customer bill increase to be limited to no more than 5% annually; and
- Maximum debt capacity utilization be limited to no greater than 17% of own source revenues (note, a municipality's annual debt repayment limit is set by the Province at 25% of own source revenues)

- Connection Charges imposed at levels equal to that calculated using development charges methodology

The recommended rate scenario achieves the following:

- Annualized rate increases for water (base and consumptive) of 5.0% until 2026, decreasing thereafter (until 2035).
- Annualized rate increases for wastewater (base and consumptive) of 5.0% until 2019, 4.0% in 2020, 1.1% in 2021 and 1.1% to 1.3% increases thereafter (until 2035)
- Maximum “County” Debt Level (ARL) of 10.6% occurring in 2027
- The funding of the forecasted \$74.0 million capital program utilizing transfers from reserves, debt and grant funding
- Forecasted reserve balances of \$9.8 million in 2035
- Greater cost certainty and lower costs for developers by using development charges as the basis for calculating connection charges. Lower development costs should promote growth – providing more system users.

It is recommended that the rates be set for the next five years. The following are the recommended rates with effective dates for Water and Wastewater based on a ¾” connection:

	Jan 1, 2016	July 1, 2017	Jan 1, 2018	Jan 1, 2019	Jan 1, 2020	Jan 1, 2021
<b>Water Rates:</b>						
Monthly Base Charge	\$ 27.46	\$ 28.36	\$ 29.30	\$ 30.26	\$ 31.26	\$ 32.29
Consumptive Rate (\$/m3)	\$ 1.98	\$ 2.12	\$ 2.28	\$ 2.44	\$ 2.61	\$ 2.79
<b>Wastewater Rates:</b>						
Monthly Base Charge	\$ 39.51	\$ 40.34	\$ 41.19	\$ 42.05	\$ 42.94	\$ 43.84
Consumptive Rate (\$/m3)	\$ 2.60	\$ 2.84	\$ 3.10	\$ 3.37	\$ 3.58	\$ 3.58

Meter sizes of 1” to 6” are charged a higher Base Charge based on the meter size. Multi-unit customers are charged 63% of the single-unit base rate.

The recommended Connection Charges are as follows:

	Uniform residential Charge per Dwelling Unit					Uniform Non-Residential Charge per sq. ft. GFA
	Single and Semi Detached (>2 bedrooms)	Single and Semi Detached (<=2 bedrooms)	Apartment Units (>= 2 Bedrooms)	Apartment Units (< 2 Bedrooms)	Other Multiple Units*	
<b>January 1, 2016</b>						
Water	\$ 7,304	\$ 5,132	\$ 5,866	\$ 4,046	\$ 6,490	\$ 3.09
Wastewater	\$ 5,197	\$ 3,651	\$ 4,173	\$ 2,878	\$ 4,617	\$ 2.35
<b>Total</b>	<b>\$ 12,501</b>	<b>\$ 8,783</b>	<b>\$ 10,039</b>	<b>\$ 6,924</b>	<b>\$ 11,107</b>	<b>\$ 5.44</b>
<b>July 1, 2017</b>						
Water	\$ 3,937	\$ 2,766	\$ 3,161	\$ 2,181	\$ 3,081	\$ 1.97
Wastewater	\$ 6,402	\$ 4,498	\$ 5,141	\$ 3,546	\$ 5,010	\$ 3.11
<b>Total</b>	<b>\$ 10,339</b>	<b>\$ 7,264</b>	<b>\$ 8,302</b>	<b>\$ 5,727</b>	<b>\$ 8,091</b>	<b>\$ 5.08</b>

\* Other Multiple Units > 2 Units, January 1, 2016, <= charge same as Single and Semi Detached Dwelling (= <2 bedrooms)

Connection Charges would be indexed each year effective January 1<sup>st</sup>.

Committee has reviewed a list of Operating Cost Savings Measures. These measures have been prioritized and staff will be implementing these measures.

There are a number of items remaining on the Committee's work plan that will be addressed to include Financial Assistance Programs.

**Corporate Strategic Plan/Priority Implications:**

1. **Financial Sustainability** - Ensuring financial sustainability with a financial plan and reserves that all us to achieve our financial objectives:

1.1 Create a sustainable water and wastewater plan

The rate model that is being proposed will result in financial sustainability for Water and Wastewater Operations.

**Financial Implications:**

As outlined in the Analysis/Comment section.

**Policy Implications:**

Not Applicable

**Notice/Consultation:**

**Other Options:**

Not Applicable

**Attachments:**

1. *Water and Wastewater Rates and Connection Charges Ad Hoc Committee Analysis*
2. *Committee Document Listing – Documents considered by Committee to Date*

*Submitted by:*

*James Hepburn, on behalf of the Water & Wastewater Rates & Connection Charges Ad-Hoc Committee*

May 26, 2017

James Hepburn  
Chief Administrative Officer  
The Corporation of the County of Prince Edward  
332 Picton Main Street  
Picton, Ontario  
K0K 2T0

Dear Mr. Hepburn:

Re: Water and Wastewater Rates and Connection Charges Ad Hoc Committee Analysis

## 1. Introduction

In 2015, Watson & Associates Economists Ltd. (Watson) was retained by the County of Prince Edward (County) to update the 2010 Water and Wastewater Rates and Connection Charges Study. The final recommendations in the Water and Wastewater Rate Study and Connection Charges Update report, dated December 16, 2015, were prepared using the same principles and recommendations of the 2010 Water and Wastewater Rate Study and Connection Charges Ad Hoc Committee (with some revisions noted).

The 2015 Study final recommendations included 2016-2033 forecast water and wastewater rates, and updated uniform connection charges for new water and wastewater customers. These recommendations are summarized in the following tables.

Table 1-1 summarizes the forecast water and wastewater rates, and the annual bill impacts for a typical residential customer. Table 1-2 provides the calculated water and wastewater connection charges, by residential dwelling unit type and non-residential gross floor area of development.

The County imposed the water and wastewater rates as recommended for 2016, and maintained those rates for 2017. However, the recommended connection charges were not imposed. The connection charges currently in effect, are unchanged from those imposed at the time of preparing the 2015 Study, other than indexing.

**Table 1-1**  
**2015 Study – Water and Wastewater Rate Forecast and Annual Customer Bill Impacts**

**Annual Customer Water Bill - Based on 124 m<sup>3</sup> of usage and ¾" or ½" meter**

Description	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$24.96	\$27.46	\$28.29	\$29.14	\$30.03	\$30.93	\$31.87	\$32.83	\$33.83	\$34.85	\$35.91	\$36.99	\$38.11	\$39.27	\$40.46	\$41.68	\$42.94	\$44.24	\$45.58
Consumptive Rate	\$1.82	\$1.98	\$2.33	\$2.74	\$3.23	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80
<b>Annual Base Rate Bill</b>	<b>\$300</b>	<b>\$329</b>	<b>\$339</b>	<b>\$350</b>	<b>\$360</b>	<b>\$371</b>	<b>\$382</b>	<b>\$394</b>	<b>\$406</b>	<b>\$418</b>	<b>\$431</b>	<b>\$444</b>	<b>\$457</b>	<b>\$471</b>	<b>\$485</b>	<b>\$500</b>	<b>\$515</b>	<b>\$531</b>	<b>\$547</b>
Consumption	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
Annual Consumption Bill	\$226	\$246	\$290	\$341	\$401	\$472	\$472	\$472	\$472	\$472	\$472	\$472	\$472	\$472	\$472	\$472	\$472	\$472	\$472
<b>Total Annual Bill</b>	<b>\$526</b>	<b>\$575</b>	<b>\$629</b>	<b>\$691</b>	<b>\$761</b>	<b>\$843</b>	<b>\$855</b>	<b>\$866</b>	<b>\$878</b>	<b>\$890</b>	<b>\$903</b>	<b>\$916</b>	<b>\$930</b>	<b>\$943</b>	<b>\$958</b>	<b>\$972</b>	<b>\$988</b>	<b>\$1,003</b>	<b>\$1,019</b>
% Increase - Base Rate		10.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
% Increase - Consumption Rate		8.8%	17.7%	17.7%	17.7%	17.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% Increase - Total Annual Bill		9.5%	9.3%	9.8%	10.3%	10.8%	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%	1.5%	1.5%	1.5%	1.5%	1.6%	1.6%	1.6%
<b>\$ Increase - Total Annual Bill</b>	<b>\$50</b>	<b>\$54</b>	<b>\$62</b>	<b>\$71</b>	<b>\$82</b>	<b>\$11</b>	<b>\$12</b>	<b>\$12</b>	<b>\$12</b>	<b>\$12</b>	<b>\$13</b>	<b>\$13</b>	<b>\$13</b>	<b>\$14</b>	<b>\$14</b>	<b>\$15</b>	<b>\$15</b>	<b>\$16</b>	<b>\$16</b>

**Annual Customer Wastewater Bill - Based on 124 m<sup>3</sup> of usage and ¾" or ½" meter**

Description	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Monthly Base Rate	\$35.92	\$39.51	\$40.34	\$41.19	\$42.05	\$42.94	\$43.84	\$44.76	\$45.70	\$46.66	\$47.64	\$48.64	\$49.66	\$50.70	\$51.77	\$52.86	\$53.97	\$55.10	\$56.26
Consumptive Rate	\$2.76	\$2.60	\$2.65	\$2.70	\$2.75	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81	\$2.81
<b>Annual Base Rate Bill</b>	<b>\$431</b>	<b>\$474</b>	<b>\$484</b>	<b>\$494</b>	<b>\$505</b>	<b>\$515</b>	<b>\$526</b>	<b>\$537</b>	<b>\$548</b>	<b>\$560</b>	<b>\$572</b>	<b>\$584</b>	<b>\$596</b>	<b>\$608</b>	<b>\$621</b>	<b>\$634</b>	<b>\$648</b>	<b>\$661</b>	<b>\$675</b>
Consumption	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
Annual Consumption Bill	\$343	\$323	\$329	\$336	\$342	\$349	\$349	\$349	\$349	\$349	\$349	\$349	\$349	\$349	\$349	\$349	\$349	\$349	\$349
<b>Total Annual Bill</b>	<b>\$774</b>	<b>\$797</b>	<b>\$813</b>	<b>\$830</b>	<b>\$847</b>	<b>\$864</b>	<b>\$875</b>	<b>\$886</b>	<b>\$897</b>	<b>\$909</b>	<b>\$921</b>	<b>\$933</b>	<b>\$945</b>	<b>\$957</b>	<b>\$970</b>	<b>\$983</b>	<b>\$997</b>	<b>\$1,010</b>	<b>\$1,024</b>
% Increase - Base Rate		10.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
% Increase - Consumption Rate		-6.0%	2.0%	2.0%	2.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% Increase - Total Annual Bill		2.9%	2.1%	2.1%	2.1%	2.1%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.4%	1.4%	1.4%
<b>\$ Increase - Total Annual Bill</b>	<b>\$23</b>	<b>\$16</b>	<b>\$17</b>	<b>\$17</b>	<b>\$17</b>	<b>\$17</b>	<b>\$11</b>	<b>\$11</b>	<b>\$11</b>	<b>\$12</b>	<b>\$12</b>	<b>\$12</b>	<b>\$12</b>	<b>\$13</b>	<b>\$13</b>	<b>\$13</b>	<b>\$13</b>	<b>\$14</b>	<b>\$14</b>

**Combined Water and Wastewater Annual Bill**

Description	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
<b>Total Annual Bill</b>	<b>\$1,300</b>	<b>\$1,372</b>	<b>\$1,442</b>	<b>\$1,520</b>	<b>\$1,608</b>	<b>\$1,708</b>	<b>\$1,730</b>	<b>\$1,752</b>	<b>\$1,776</b>	<b>\$1,799</b>	<b>\$1,824</b>	<b>\$1,849</b>	<b>\$1,874</b>	<b>\$1,901</b>	<b>\$1,928</b>	<b>\$1,956</b>	<b>\$1,984</b>	<b>\$2,013</b>	<b>\$2,043</b>
% Increase - Total Annual Bill		5.6%	5.1%	5.4%	5.8%	6.2%	1.3%	1.3%	1.3%	1.3%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.5%	1.5%	1.5%
<b>\$ Increase - Total Annual Bill</b>	<b>\$72</b>	<b>\$70</b>	<b>\$78</b>	<b>\$88</b>	<b>\$99</b>	<b>\$22</b>	<b>\$23</b>	<b>\$23</b>	<b>\$23</b>	<b>\$24</b>	<b>\$24</b>	<b>\$25</b>	<b>\$26</b>	<b>\$26</b>	<b>\$27</b>	<b>\$28</b>	<b>\$28</b>	<b>\$29</b>	<b>\$30</b>

**Table 1-2  
2015 Study – Water and Wastewater Connection Charges (2015\$)**

Location	Residential Charge per Dwelling Unit					Non-Residential Charge per Sq.ft. of GFA
	Single & Semi Detached (> 2 bedroom) 2.69	Single & Semi Detached (<= 2 bedroom) 1.89	Apartment Units (>= 2 bedroom) 2.16	Apartment Units (< 2 bedroom) 1.49	Other Multiple Units 2.11	
<u>Water</u>						
Pictou	9,964	7,000	8,001	5,519	7,797	7.79
Wellington	7,251	5,095	5,823	4,016	5,674	4.75
Ameliasburg	49,406	34,713	39,672	27,366	38,662	44.80
Rossmore/Fenwood Gardens Water	9,725	6,833	7,809	5,387	7,610	8.27
Peat's Point Water	53,652	37,696	43,081	29,718	41,984	-
Consecon/Carrying Place Water	34,391	24,163	27,615	19,049	26,912	30.28
<b>Uniform Water Connection Charge</b>	<b>10,211</b>	<b>7,174</b>	<b>8,199</b>	<b>5,656</b>	<b>7,990</b>	<b>7.48</b>
<u>Wastewater</u>						
Pictou	10,246	7,199	8,227	5,675	8,018	7.96
Wellington	5,922	4,161	4,755	3,280	4,634	3.88
<b>Uniform Wastewater Connection Charge</b>	<b>7,960</b>	<b>5,593</b>	<b>6,391</b>	<b>4,409</b>	<b>6,229</b>	<b>6.78</b>
<b>Uniform Water and Wastewater Connection Charge</b>	<b>18,170</b>	<b>12,766</b>	<b>14,590</b>	<b>10,065</b>	<b>14,219</b>	<b>14.26</b>

In May, 2016 the County formed a Water and Wastewater Rates and Connection Charges Ad Hoc Committee to investigate, review, and recommend options to Council regarding financial sustainability of the County's water and wastewater service delivery, including user rates and connection charges. Watson was retained by the County to assist in the Ad Hoc Committee process and to provide sensitivity analysis relative to the 2015 Study recommendations. More specifically, Watson's role in the Ad Hoc Committee process has involved:

- presenting the 2015 Study recommendations, underlying methodology and approach;
- assisting the County in responding to specific questions/issues raised by the Committee;
- presenting information on water and wastewater rate structure options and cost recovery trends in Ontario; and
- preparing alternative water and wastewater rate forecasts and connection charge scenarios.

## 2. Water and Wastewater Rate and Connection Charges Scenarios

Water and wastewater rate forecast scenarios were prepared for the Ad Hoc Committee based on revised capital forecast, updates to underlying modeling assumptions, and proposed changes to the connection charges calculation methodology,. The following subsections provide in detail the changes made to the 2015 Study, and the impacts on the recommended water and wastewater rate forecasts and connection charges.



## 2.1 Forecast Growth and Service Demands

### Current Service Demands

The water and wastewater financial plan model was updated to reflect current service demands. The County provided the 2016 year-end customer counts for residential, general service (non-residential) and multi-unit customers. Based on the distribution of customers by meter size provided for the 2015 Study, the summary of existing customers is provided in Table 2-1.

**Table 2-1  
Residential and General Service Water and Wastewater Customers**

Residential			General		
Metered	Water	Wastewater	Metered	Water	Wastewater
¾"	3,812	2,640	¾"	257	166
1"	4	1	1"	44	28
1 ½"	-	1	1 ½"	22	13
2"	-	-	2"	16	8
3"	-	-	3"	1	-
4"	-	-	4"	2	1
Multi-Unit	854	824	Multi-Unit	357	336
Total	4,670	3,466	Total	699	552

2016 water consumption was estimated based on average water consumption demands per customer used in the 2015 Study.

### Forecast Service Demands

Based on Ad Hoc Committee recommendations, it is assumed that future residential connections to the water and wastewater systems will occur at a rate equal to the previous 5-year average. Annual water connections are assumed at 50 units per year, while wastewater connections will occur at 40 units per year. These connections are divided between metered and multi-unit customers based on distribution of new connections in the 2015 Study (approx. 10% of new connections will be multi-unit customers). The 2015 Study forecast of annual residential connections to the water and wastewater systems for the 2017-2033 period was approximately 45% higher (i.e. 73 annual water connections and 68 annual wastewater connections) based on the County's Development Charges Background Study growth forecast.

Forecast annual non-residential connections to the water and wastewater systems have remained unchanged from the 2015 Study. Forecast water consumption per customer assumptions for water and wastewater billing purposes has also remained unchanged from the 2015 Study as summarized in Table 2-2.

**Table 2-2  
Average Annual Water Consumption per Customer**

	<b>Consumption (m<sup>3</sup>/customer)</b>
<b>Residential</b>	
Metered	124
Multi-Unit	78
<b>General</b>	
Metered	405
Multi-Unit	139

**Table 2-3  
2033 Water and Wastewater Customers and Consumption**

	2015 Study	May 12, 2017 Revised
<b>Water</b>		
<u>2033 Customers</u>		
Residential	5,909	5,520
General	738	789
Total	6,647	6,309
<u>2033 Water Consumption (m<sup>3</sup>)</u>		
Residential	690,382	643,619
General	276,100	294,778
Total	966,482	938,397
<b>Wastewater</b>		
<u>2033 Customers</u>		
Residential	4,622	4,146
General	586	640
Total	5,209	4,786
<u>2033 Water Consumption (m<sup>3</sup>)</u>		
Residential	512,944	455,381
General	186,500	201,659
Total	699,444	657,039

In total, as summarized in Table 2-3, the revisions of the Ad Hoc Committee result in 338 and 423 fewer water and wastewater customers respectively by the year 2033 (2015 Study forecast period extended to 2033). Correspondingly, annual water consumption levels for water and wastewater customers are 3% and 6% lower respectively.

These results are driven by the revisions to the residential customer growth forecast as non-residential (general) customers and consumption is greater under the revised forecast compared to the 2015 Study. Non-residential customers and consumption is greater in 2033

due to the larger 2017 non-residential customer base and estimated consumption compared to the 2015 Study forecast for 2017.

## **2.2 Capital Forecast**

The 2015 Study developed a capital program for the 20-year forecast period 2014-2033. As part of the Ad Hoc Committee process, the capital program was updated to adjust capital cost estimates and project timing to reflect the updated service demands of the water and wastewater systems, as described above. Furthermore, the capital program was extended to 2035 to maintain the 20-year forecast period. Table 2-4 summarizes the change in the capital needs forecast for the 2015 Study (2016-2033) and for the Ad Hoc Committee revisions (2017-2035). Capital costs are presented in 2017\$.

Revisions to the capital program decreased capital needs over the forecast period by approximately \$2.1 million annually. This reduction is primarily related to deferral of the Picton Water Treatment Plant project outside of the forecast period (i.e. after 2035), thereby reducing the amount of capital spending during the 20-year forecast period.

**Table 2-4  
Long-Term Capital Program**

<b>Long-Term Capital Program (2017\$)</b>				
	<b>2015 Study</b>		<b>Revised</b>	
	<b>2016-2033</b>	<b>Annual</b>	<b>2017-2035</b>	<b>Annual</b>
Water	70,210,000	3,900,000	35,370,000	1,860,000
Wastewater	20,270,000	1,130,000	21,110,000	1,110,000
Total	90,480,000	5,030,000	56,480,000	2,970,000

## **2.3 Existing Reserve Funds**

The County has established reserves funds for water and wastewater services. The reserve funds have been utilized for to fund incremental growth-related capital, existing infrastructure rehabilitation/replacement and to supplement operating costs (i.e. annual debt servicing costs).

Table 2-5 summarizes the updated 2016 closing balances for the water and wastewater reserve funds utilized in updating the rate forecasts. Water reserve fund balances are approximately \$1.1 million greater than projected 2016 balances in the 2015 Study. This is due in large part to the lower capital spending than previously forecast, and greater amounts of debt financing in 2016.

**Table 2-5  
Estimated Water and Wastewater Reserve/Reserve Fund Balances**

<b>Reserve/Reserve Fund</b>	<b>Estimated Dec 31, 2016 Balance (\$)</b>
Water Operations Reserve	(571,541)
Water Connection Charge Reserve	(91,675)
Water Capital Reserve	206,295
Wastewater Operations Reserve	2,246,774
Wastewater Connection Charge Reserve	459,479
Wastewater Capital Reserve	4,248

#### **2.4 Existing Water and Wastewater Debt**

Based on the information provided by the County, existing water and wastewater system debt payments were updated. Furthermore, the County identified capital projects which were completed during the 2014-2016 period that would be financed with future debt issuances in 2017. This additional debt financing totals \$5.6 million for the water system and \$3.4 million for the wastewater system. The additional debt is assumed to be issued at 3.42% interest for a 30-year term.

#### **2.5 Grant Funding**

In the 2015 Study, it was assumed that the County would receive \$325,000 (2015\$) annually in water and wastewater grant funding from the Ontario Community Infrastructure Fund (OCIF), as well as 50% grant funding for large facility replacement projects (e.g. Picton Water Intake Improvements and Wellington WPCP Expansions/Upgrades). Based on the recommendations of the Ad Hoc Committee, the OCIF funding has remained unchanged from 2015 Study assumptions. However, grant funding for large facility replacements have been reduced to 45% of gross project capital costs.

#### **2.6 Water and Wastewater Rate Scenarios**

The methods of capital expenditure funding and financing available to municipalities typically include; Development Charges (D.C.s), *Municipal Act* fees and charges (connection charges, impost fees, capital charges, etc.), grant funding, reserves/reserve funds, and debenture financing. The 2015 Study proposed the continued use of water and wastewater connection charges imposed under the authority of the *Municipal Act* as the source capital funding for growth-related capital costs. The Study provided for the funding of non-growth related capital requirements from rate based sources and grants. As noted above, in addition to updating rate forecasts, the 2015 Study also recommended updated connection charges to recover growth-related costs of service.

Through the Ad Hoc Committee process, rate forecast sensitivity scenarios were prepared to assess alternative connection charge calculation methodologies, assessing the impacts on forecast rates. The following connection charge and development charge methodologies were considered as part of the sensitivity analysis:

- Connection charges maintained at current levels;
- Connection charges imposed as per the 2015 Study calculation methodology, incorporating changes to the capital program;
- Connection charges calculated using depreciated asset value of existing infrastructure;
- Development charges calculation methodology, incorporating updated projects and capital cost estimates; and
- Connection Charges imposed at levels equal to that calculated using the development charges calculation methodology.

The County's preferred scenario is to maintain the use of connection charges, using the development charges calculation methodology to determine the rates. The schedule of recommended water and wastewater connection charges is presented in Table 2-6. The recommended connection charges and updated water and wastewater rate forecasts will be implemented on July 1, 2017, and as such Connection Charges are presented in 2017\$.

**Table 2-6  
Recommended Connection Charges  
Schedule of Charges (2017\$)**

	Uniform Residential Charge per Dwelling Unit					Uniform Non-Residential Charge per sq.ft. GFA
	Single and Semi-Detached (>2 bedrooms)	Single and Semi-Detached (<=2 bedrooms)	Apartment Units (>=2 bedrooms)	Apartment Units (<2 bedrooms)	Other Multiple Units	
Water	3,937	2,766	3,161	2,181	3,081	1.97
Wastewater	6,402	4,498	5,141	3,546	5,010	3.11
<b>Total</b>	<b>10,339</b>	<b>7,264</b>	<b>8,302</b>	<b>5,727</b>	<b>8,091</b>	<b>5.08</b>

Compared to the 2015 Study connection charges presented in Table 1-2, recommended connection charges for single and semi-detached dwelling units (greater than 2 bedrooms) are approximately \$9,100 lower (2015 charges adjusted for inflation). Recommended non-residential connection charges per sq.ft. of gross floor area are \$10.17 lower than those calculated in the 2015 Study.

### 3. Preferred Scenario Impacts

#### 3.1 Water and Wastewater Rate Forecast

Direction provided from the Ad Hoc Committee was to attempt to maintain total water and wastewater bill impacts within 5% annual increases. This limitation has been measured for a typical residential customer, assuming  $\frac{3}{4}$  inch water meter and annual water consumption of 124 m<sup>3</sup>.

Annual water and wastewater bills comprise two components: a monthly base charge (imposed based on meter size) and a consumptive charge per cubic metre. Consistent with the approach used in the 2015 Study, base charges revenues by 2035 approximates annual long-term capital funding requirements of the water and wastewater systems. Updated forecast water and wastewater base charges by meter size are presented in Table 3-1.

The forecast consumptive charge component of the water and wastewater rates have been calculated to maintain the objective of 5% annual bill impacts for typical residential customers. For further clarity, the recommended rate increases for July 1, 2017 and January 1, 2018 are such that the average annual residential bill that would be produced from those rates would represent a 5% increase over the annual bill at the previous rates.

Presented in Table 3-2 is the forecast water and wastewater consumptive rates and annual bill impacts for a typical residential customer. In the near term, combined water and wastewater bills for a typical residential customer will increase by as much as \$106 (\$8.83/month) in 2018. The rate of annual bill increases will then decline to average \$34 annually (\$2.83/month) between 2026 and 2035.

### ***3.2 Water and Wastewater System Sustainability***

Water and Wastewater system sustainability has been measured in terms of the sufficiency of reserve fund balances at the end of the forecast period and requirements for debt financing. The impact of debt financing requirements has been further measured as the peak utilization of the County's available debt capacity over the forecast period. Debt capacity limits are established by the Province at 25% of a municipality's net own source revenue.

To measure the impacts of forecast debt financing on the County's debt capacity, own-source revenues per household have been estimated for services other than water and wastewater services at 2015 and have been forecast to remain constant. As such, net own source revenues for these municipal services have been forecast to increase based on modeled water and wastewater residential customer growth and anticipated rural growth (based on the County's 2013 D.C. Background Study). For water and wastewater services, own source revenues reflect the increase in user fee revenues forecast herein. Based on the debt capacity assessment, debt capacity utilization has been forecast to increase from 7.9% in 2017 to a peak of 10.6% in 2027 and then decrease to 7.1% by 2035.

Table 3-3 summarizes the total capital expenditures, capital funding by source (transfers from reserves, debt, and grant funding), end of period reserve/reserve fund balances, and peak debt capacity utilization over the forecast period for water and wastewater services. These results are compared with the 2015 Study recommendations.

**Table 3-1  
Forecast Water and Wastewater Monthly Base Charges**

Base Charge - Water																				
Water	2017 (Jan-Jun)	2017 (July-Dec)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
<b>Monthly Base Charge by Meter Size:</b>																				
5/8" or 3/4"	\$ 27.46	\$ 28.36	\$ 29.30	\$ 30.26	\$ 31.26	\$ 32.29	\$ 33.35	\$ 34.45	\$ 35.58	\$ 36.75	\$ 37.96	\$ 39.21	\$ 40.50	\$ 41.84	\$ 43.21	\$ 44.64	\$ 46.11	\$ 47.62	\$ 49.19	\$ 50.81
1"	\$ 54.92	\$ 56.73	\$ 58.60	\$ 60.52	\$ 62.52	\$ 64.57	\$ 66.70	\$ 68.90	\$ 71.16	\$ 73.51	\$ 75.93	\$ 78.43	\$ 81.01	\$ 83.67	\$ 86.43	\$ 89.27	\$ 92.21	\$ 95.25	\$ 98.38	\$ 101.62
1 1/2"	\$ 82.38	\$ 85.09	\$ 87.89	\$ 90.79	\$ 93.78	\$ 96.86	\$ 100.05	\$ 103.34	\$ 106.75	\$ 110.26	\$ 113.89	\$ 117.64	\$ 121.51	\$ 125.51	\$ 129.64	\$ 133.91	\$ 138.32	\$ 142.87	\$ 147.58	\$ 152.43
2"	\$ 137.30	\$ 141.82	\$ 146.49	\$ 151.31	\$ 156.29	\$ 161.44	\$ 166.75	\$ 172.24	\$ 177.91	\$ 183.77	\$ 189.82	\$ 196.07	\$ 202.52	\$ 209.19	\$ 216.07	\$ 223.19	\$ 230.53	\$ 238.12	\$ 245.96	\$ 254.06
3"	\$ 247.14	\$ 255.28	\$ 263.68	\$ 272.36	\$ 281.33	\$ 290.59	\$ 300.15	\$ 310.03	\$ 320.24	\$ 330.78	\$ 341.67	\$ 352.92	\$ 364.54	\$ 376.54	\$ 388.93	\$ 401.73	\$ 414.96	\$ 428.62	\$ 442.73	\$ 457.30
4"	\$ 384.44	\$ 397.10	\$ 410.17	\$ 423.67	\$ 437.62	\$ 452.02	\$ 466.90	\$ 482.27	\$ 498.15	\$ 514.55	\$ 531.49	\$ 548.98	\$ 567.05	\$ 585.72	\$ 605.00	\$ 624.92	\$ 645.49	\$ 666.74	\$ 688.69	\$ 711.36
6"	\$ 549.20	\$ 567.28	\$ 585.95	\$ 605.24	\$ 625.17	\$ 645.75	\$ 667.00	\$ 688.96	\$ 711.64	\$ 735.07	\$ 759.27	\$ 784.26	\$ 810.08	\$ 836.75	\$ 864.29	\$ 892.74	\$ 922.13	\$ 952.49	\$ 983.84	\$ 1,016.23
Multi Unit	\$ 17.30	\$ 17.87	\$ 18.46	\$ 19.13	\$ 19.76	\$ 20.41	\$ 21.08	\$ 21.77	\$ 22.49	\$ 23.23	\$ 23.99	\$ 24.78	\$ 25.60	\$ 26.44	\$ 27.31	\$ 28.21	\$ 29.14	\$ 30.10	\$ 31.09	\$ 32.11

Base Charge - Wastewater																				
Wastewater	2017 (Jan-Jun)	2017 (July-Dec)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
<b>Monthly Base Charge by Meter Size:</b>																				
5/8" or 3/4"	\$ 39.51	\$ 40.34	\$ 41.19	\$ 42.05	\$ 42.94	\$ 43.84	\$ 44.76	\$ 45.70	\$ 46.66	\$ 47.64	\$ 48.64	\$ 49.66	\$ 50.70	\$ 51.77	\$ 52.86	\$ 53.97	\$ 55.10	\$ 56.26	\$ 57.44	\$ 58.64
1"	\$ 79.02	\$ 80.68	\$ 82.37	\$ 84.10	\$ 85.87	\$ 87.67	\$ 89.51	\$ 91.39	\$ 93.31	\$ 95.27	\$ 97.27	\$ 99.32	\$ 101.40	\$ 103.53	\$ 105.71	\$ 107.93	\$ 110.19	\$ 112.51	\$ 114.87	\$ 117.28
1 1/2"	\$ 118.53	\$ 121.02	\$ 123.56	\$ 126.16	\$ 128.80	\$ 131.51	\$ 134.27	\$ 137.09	\$ 139.97	\$ 142.91	\$ 145.91	\$ 148.97	\$ 152.10	\$ 155.30	\$ 158.56	\$ 161.89	\$ 165.29	\$ 168.76	\$ 172.30	\$ 175.92
2"	\$ 197.55	\$ 201.70	\$ 205.93	\$ 210.26	\$ 214.67	\$ 219.18	\$ 223.79	\$ 228.48	\$ 233.28	\$ 238.18	\$ 243.18	\$ 248.29	\$ 253.50	\$ 258.83	\$ 264.26	\$ 269.81	\$ 275.48	\$ 281.26	\$ 287.17	\$ 293.20
3"	\$ 355.59	\$ 363.06	\$ 370.68	\$ 378.47	\$ 386.41	\$ 394.53	\$ 402.81	\$ 411.27	\$ 419.91	\$ 428.73	\$ 437.73	\$ 446.92	\$ 456.31	\$ 465.89	\$ 475.67	\$ 485.66	\$ 495.86	\$ 506.28	\$ 516.91	\$ 527.76
4"	\$ 553.14	\$ 564.76	\$ 576.62	\$ 588.72	\$ 601.09	\$ 613.71	\$ 626.60	\$ 639.76	\$ 653.19	\$ 666.91	\$ 680.91	\$ 695.21	\$ 709.81	\$ 724.72	\$ 739.94	\$ 755.48	\$ 771.34	\$ 787.54	\$ 804.08	\$ 820.96
6"	\$ 790.20	\$ 806.79	\$ 823.74	\$ 841.04	\$ 858.70	\$ 876.73	\$ 895.14	\$ 913.94	\$ 933.13	\$ 952.73	\$ 972.73	\$ 993.16	\$ 1,014.02	\$ 1,035.31	\$ 1,057.05	\$ 1,079.25	\$ 1,101.92	\$ 1,125.06	\$ 1,148.68	\$ 1,172.81
Multi Unit	\$ 24.89	\$ 25.50	\$ 26.03	\$ 26.58	\$ 27.14	\$ 27.71	\$ 28.29	\$ 28.88	\$ 29.49	\$ 30.11	\$ 30.74	\$ 31.39	\$ 32.04	\$ 32.72	\$ 33.40	\$ 34.11	\$ 34.82	\$ 35.55	\$ 36.30	\$ 37.06

**Table 3-2**  
**Total Annual Water and Wastewater Bill Impacts for a Typical Residential Customer**

Annual Customer Water Bill - Based on 124 m <sup>3</sup> of usage and 1/2" or 3/4" meter																				
Description	2017 (Jan-Jun)	2017 (July-Dec)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Monthly Base Rate	\$27.46	\$28.36	\$29.30	\$30.26	\$31.26	\$32.29	\$33.35	\$34.45	\$35.58	\$36.75	\$37.96	\$39.21	\$40.50	\$41.84	\$43.21	\$44.64	\$46.11	\$47.62	\$49.19	\$50.81
Consumptive Rate	\$1.98	\$2.12	\$2.28	\$2.44	\$2.61	\$2.79	\$2.99	\$3.19	\$3.41	\$3.64	\$3.88	\$3.99	\$3.99	\$3.99	\$3.99	\$3.99	\$3.99	\$3.99	\$3.99	\$3.99
<b>Annual Base Rate Bill</b>	<b>\$335</b>		<b>\$352</b>	<b>\$363</b>	<b>\$375</b>	<b>\$387</b>	<b>\$400</b>	<b>\$413</b>	<b>\$427</b>	<b>\$441</b>	<b>\$456</b>	<b>\$471</b>	<b>\$486</b>	<b>\$502</b>	<b>\$519</b>	<b>\$536</b>	<b>\$553</b>	<b>\$571</b>	<b>\$590</b>	<b>\$610</b>
Consumption	124		124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
<b>Annual Consumption Bill</b>	<b>\$255</b>	<b>\$283</b>	<b>\$303</b>	<b>\$324</b>	<b>\$347</b>	<b>\$371</b>	<b>\$396</b>	<b>\$423</b>	<b>\$452</b>	<b>\$482</b>	<b>\$496</b>	<b>\$496</b>	<b>\$496</b>	<b>\$496</b>	<b>\$496</b>	<b>\$496</b>	<b>\$496</b>	<b>\$496</b>	<b>\$496</b>	<b>\$496</b>
<b>Total Annual Bill</b>	<b>\$590</b>	<b>\$635</b>	<b>\$666</b>	<b>\$700</b>	<b>\$735</b>	<b>\$771</b>	<b>\$810</b>	<b>\$850</b>	<b>\$893</b>	<b>\$938</b>	<b>\$966</b>	<b>\$966</b>	<b>\$966</b>	<b>\$966</b>	<b>\$966</b>	<b>\$966</b>	<b>\$966</b>	<b>\$966</b>	<b>\$966</b>	<b>\$966</b>
% Increase - Base Rate	0.0%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
% Increase - Consumption Rate	0.0%	7.3%	7.2%	7.1%	7.0%	6.9%	6.8%	6.8%	6.8%	6.7%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% Increase - Total Annual Bill	2.5%		7.6%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	3.1%	1.6%	1.6%	1.7%	1.7%	1.7%	1.7%	1.7%	1.8%	1.8%
<b>\$ Increase - Total Annual Bill</b>	<b>\$14</b>	<b>\$45</b>	<b>\$32</b>	<b>\$33</b>	<b>\$35</b>	<b>\$37</b>	<b>\$39</b>	<b>\$40</b>	<b>\$43</b>	<b>\$45</b>	<b>\$29</b>	<b>\$15</b>	<b>\$16</b>	<b>\$16</b>	<b>\$17</b>	<b>\$17</b>	<b>\$18</b>	<b>\$18</b>	<b>\$19</b>	<b>\$19</b>
Annual Customer Wastewater Bill - Based on 124 m <sup>3</sup> of usage and 1/2" or 3/4" meter																				
Description	2017 (Jan-Jun)	2017 (July-Dec)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Monthly Base Rate	\$39.51	\$40.34	\$41.19	\$42.05	\$42.94	\$43.84	\$44.76	\$45.70	\$46.66	\$47.64	\$48.64	\$49.66	\$50.70	\$51.77	\$52.86	\$53.97	\$55.10	\$56.26	\$57.44	\$58.64
Consumptive Rate	\$2.60	\$2.84	\$3.10	\$3.37	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58	\$3.58
<b>Annual Base Rate Bill</b>	<b>\$479</b>		<b>\$494</b>	<b>\$505</b>	<b>\$515</b>	<b>\$526</b>	<b>\$537</b>	<b>\$548</b>	<b>\$560</b>	<b>\$572</b>	<b>\$584</b>	<b>\$596</b>	<b>\$608</b>	<b>\$621</b>	<b>\$634</b>	<b>\$648</b>	<b>\$661</b>	<b>\$675</b>	<b>\$689</b>	<b>\$704</b>
Consumption	124		124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124	124
<b>Annual Consumption Bill</b>	<b>\$338</b>	<b>\$385</b>	<b>\$418</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>	<b>\$445</b>
<b>Total Annual Bill</b>	<b>\$817</b>	<b>\$879</b>	<b>\$923</b>	<b>\$960</b>	<b>\$971</b>	<b>\$982</b>	<b>\$993</b>	<b>\$1,005</b>	<b>\$1,016</b>	<b>\$1,028</b>	<b>\$1,041</b>	<b>\$1,053</b>	<b>\$1,066</b>	<b>\$1,079</b>	<b>\$1,092</b>	<b>\$1,106</b>	<b>\$1,120</b>	<b>\$1,134</b>	<b>\$1,148</b>	<b>\$1,162</b>
% Increase - Base Rate	0.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
% Increase - Consumption Rate	0.0%	9.3%	9.0%	8.7%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% Increase - Total Annual Bill	2.5%		7.6%	5.0%	4.0%	1.1%	1.1%	1.1%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.3%	1.3%	1.3%
<b>\$ Increase - Total Annual Bill</b>	<b>\$20</b>	<b>\$62</b>	<b>\$44</b>	<b>\$37</b>	<b>\$11</b>	<b>\$11</b>	<b>\$11</b>	<b>\$11</b>	<b>\$12</b>	<b>\$12</b>	<b>\$12</b>	<b>\$12</b>	<b>\$13</b>	<b>\$13</b>	<b>\$13</b>	<b>\$13</b>	<b>\$14</b>	<b>\$14</b>	<b>\$14</b>	<b>\$14</b>
Combined Water and Wastewater Annual Bill																				
<b>Total Annual Bill</b>	<b>\$1,407</b>	<b>\$1,514</b>	<b>\$1,589</b>	<b>\$1,660</b>	<b>\$1,705</b>	<b>\$1,753</b>	<b>\$1,803</b>	<b>\$1,855</b>	<b>\$1,909</b>	<b>\$1,966</b>	<b>\$2,007</b>	<b>\$2,035</b>	<b>\$2,064</b>	<b>\$2,093</b>	<b>\$2,124</b>	<b>\$2,155</b>	<b>\$2,187</b>	<b>\$2,220</b>	<b>\$2,254</b>	
% Increase - Total Annual Bill	2.5%		7.6%	5.0%	4.4%	2.8%	2.8%	2.8%	2.9%	2.9%	3.0%	2.1%	1.4%	1.4%	1.4%	1.5%	1.5%	1.5%	1.5%	1.5%
<b>\$ Increase - Total Annual Bill</b>	<b>\$34</b>	<b>\$106</b>	<b>\$76</b>	<b>\$70</b>	<b>\$46</b>	<b>\$48</b>	<b>\$50</b>	<b>\$52</b>	<b>\$54</b>	<b>\$57</b>	<b>\$41</b>	<b>\$28</b>	<b>\$29</b>	<b>\$30</b>	<b>\$30</b>	<b>\$31</b>	<b>\$32</b>	<b>\$33</b>	<b>\$34</b>	



**Table 3-3  
Water and Wastewater Capital Funding**

	Capital Expenditures	Transfers from Reserves			Debt			Grant Funding	2033/2035 Reserve/Reserve Fund Balance			Peak Debt Capacity %
		Incremental Growth-Related	Existing Infrastructure-Related	Total	Incremental Growth-Related	Existing Infrastructure-Related	Total		Incremental Growth-Related	Existing Infrastructure-Related	Total	
2015 Study	Water	88.2	5.1	13.5	18.5	5.5	31.4	36.9	32.7	7.8	2.6	10.4
2015-2033	Wastewater	23.8	0.5	2.2	2.7	8.9	4.9	13.8	7.3	6.9	0.2	7.1
	<b>Total</b>	<b>112.0</b>	<b>5.6</b>	<b>15.7</b>	<b>21.3</b>	<b>14.4</b>	<b>36.3</b>	<b>50.6</b>	<b>40.1</b>	<b>14.7</b>	<b>2.8</b>	<b>17.6</b>
Recommended	Water	43.7	1.0	7.1	8.1	7.2	20.0	27.2	8.4	0.0	9.8	9.8
2017-2035	Wastewater	30.3	7.8	5.8	13.6	6.5	5.6	12.1	4.6	-	-	-
	<b>Total</b>	<b>74.0</b>	<b>8.8</b>	<b>12.9</b>	<b>21.7</b>	<b>13.7</b>	<b>25.5</b>	<b>39.3</b>	<b>13.0</b>	<b>0.0</b>	<b>9.8</b>	<b>10.6%</b>

For the revised calculations (i.e. recommended), the total capital expenditures for the 2017-2035 period (\$74 million), 29% will be financed from reserve funds, 53% will be financed through debt, and 18% funded through grants. The end of period reserve fund balances will be \$9.8 million for the water system and \$0 for the wastewater system. Compared with the 2015 Study, end of period reserve fund balances are projected to be \$0.6 million lower for the water system and \$7.1 million lower for the wastewater system. Under the revised calculations, wastewater system reserves funds will be exhausted due to \$8.6 million (2017\$) in capital expenditures in 2035.

Although total debt financing required under the recommended scenario is \$11.3 million less than in the 2015 Study, peak debt capacity utilized has increased by only 0.1% of forecast net own source revenues. The decrease in future debt requirements is offset by lower future own-source revenues due to slower forecast growth, and the inclusion of future debt payments for unfunded 2014-2016 capital expenditures.

#### 4. Summary

Through the Ad Hoc Committee, changes have been recommended to the 2015 Water and Wastewater Rate Study and Connection Charges Update. These changes principally involved revisions to the connection charges calculation methodology, decreased forecast capital needs, and decreased water and wastewater customer growth assumptions. Recommended connection charges and water and wastewater rate forecasts have been prepared based on these inputs. Detailed financial plan forecasts and rate calculations for water and wastewater services are provided in Appendix A and B respectively.

The recommended rate forecast can be achieved without exceeding the Ad Hoc Committee's preference for 5% annual water and wastewater bill increases. The County's debt capacity limits are maintained over the forecast period, utilizing a maximum of 10.6% of own source revenues in 2027. Reserve fund balances are impacted by the decreases in total capital spending, and changes in capital project timing. Moreover, the 2015 Study incorporated greater revenues due to higher connection charges and customer growth.

Based on the above results, the recommended water and wastewater rates and connection charges would allow the County to provide water and wastewater services in a financially sustainable fashion in both the near and long-term.

We trust the foregoing sufficiently addresses the needs of the County to quantify the updated water and wastewater financial plan and rate forecasts based on the input received for the Ad Hoc Committee. Should further information or clarification be required in this regard, we would be glad to provide assistance.

Yours very truly,

WATSON & ASSOCIATES ECONOMISTS LTD.

A handwritten signature in blue ink, appearing to read 'AG', is positioned above the typed name and title.

Andrew Grunda, MBA, CPA, CMA  
Principal

# Appendix A

## Detailed Water Rate Calculations

**Table 1**  
**Prince Edward County**  
**Water Service**  
**Capital Budget Forecast**  
 Inflated \$

Description	Total	Forecast																		
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
<b>Capital Expenditures</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Picton</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Facilities</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Treatment Plant	5,518,000	1,181,000	243,000	732,000	95,000	122,000	126,000	-	-	1,062,000	108,000	-	332,000	-	330,000	1,187,000	-	-	-	-
Pumping Stations	315,000	214,000	-	-	-	-	-	-	-	-	101,000	-	-	-	-	-	-	-	-	-
Storage	1,119,000	615,000	-	-	-	24,000	-	-	-	-	-	448,000	32,000	-	-	-	-	-	-	-
<b>Linear</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mains	2,364,000	706,000	1,658,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meters	286,000	-	-	286,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Wellington</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Facilities</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Treatment Plant	2,173,000	593,000	243,000	257,000	195,000	-	13,000	-	115,000	42,000	238,000	97,000	108,000	-	25,000	-	88,000	27,000	132,000	-
Storage	2,115,000	160,000	-	-	-	1,955,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Linear</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mains	384,000	384,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrants, Valves, Services	84,000	32,000	17,000	17,000	18,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meters	187,000	187,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Ameliasburgh</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Facilities</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Treatment Plant	1,431,000	267,000	94,000	-	44,000	367,000	88,000	-	-	279,000	29,000	15,000	62,000	-	124,000	-	62,000	-	-	-
Storage	276,000	-	276,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Linear</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meters	32,000	-	-	32,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Peats Point</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Facilities</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Treatment Plant	547,000	-	105,000	-	41,000	24,000	19,000	-	-	147,000	43,000	-	93,000	-	20,000	-	26,000	-	-	29,000
<b>Linear</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mains	190,000	-	-	-	-	-	190,000	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Rossmore/Fenwood</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Facilities</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumping Stations	201,000	-	-	23,000	-	24,000	-	-	-	-	-	-	-	32,000	-	-	-	-	-	-
<b>Linear</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mains	27,000	27,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrants, Valves, Services	203,000	64,000	33,000	34,000	35,000	37,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meters	171,000	171,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Conceson/Carrying Place</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Facilities</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumping Stations	697,000	64,000	66,000	86,000	-	24,000	-	-	20,000	293,000	-	90,000	-	-	-	-	37,000	-	-	-
Storage	869,000	374,000	-	-	-	-	-	-	-	-	-	-	-	495,000	-	-	-	-	-	-
<b>Linear</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meters	107,000	107,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Overhead</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buildings	380,000	302,000	-	21,000	-	-	-	-	-	-	-	-	57,000	-	-	-	-	-	-	-
Equipment	161,000	83,000	10,000	-	-	7,000	-	-	-	-	13,000	-	-	10,000	20,000	-	-	-	-	18,000
Studies & Engineering	173,000	173,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Incremental Growth Related:</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Picton</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2 Water Tower/Booster Stn. (New Development - E of John St., N of Cty. Rd. 8)	1,277,000	-	1,277,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Intake Improvements	8,382,000	-	-	-	-	-	-	-	-	8,382,000	-	-	-	-	-	-	-	-	-	-
Watermain Replacement and Oversizing 6" to 10" (McFarland Dr. - Main St. to McDonald Dr.)	306,000	-	-	306,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Rossmore/Fenwood</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rossmore/Peats Point Water Storage	2,047,000	-	-	-	2,047,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Wellington</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Reservoir (location to be determined)	5,173,000	-	-	-	-	-	-	-	169,000	-	5,004,000	-	-	-	-	-	-	-	-	-
Watermain Extension 10" (WTP to Area 1)	1,355,000	-	-	-	-	-	-	-	-	-	1,355,000	-	-	-	-	-	-	-	-	-
WTP Expansion/Upgrades	160,000	160,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Lifecycle:</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mains	4,993,000	-	-	-	240,000	248,000	257,000	265,000	274,000	284,000	293,000	303,000	314,000	324,000	335,000	347,000	359,000	371,000	383,000	396,000
<b>Total Capital Expenditures</b>	<b>43,703,000</b>	<b>5,864,000</b>	<b>4,022,000</b>	<b>1,794,000</b>	<b>2,715,000</b>	<b>2,832,000</b>	<b>693,000</b>	<b>265,000</b>	<b>700,000</b>	<b>10,489,000</b>	<b>7,184,000</b>	<b>953,000</b>	<b>909,000</b>	<b>445,000</b>	<b>1,339,000</b>	<b>1,571,000</b>	<b>535,000</b>	<b>435,000</b>	<b>515,000</b>	<b>443,000</b>
<b>Capital Financing</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provincial/Federal Grants	8,379,042	245,738	179,645	185,753	192,068	198,599	205,351	212,333	219,552	3,998,917	234,736	242,717	250,969	259,502	268,325	277,448	286,881	296,635	306,721	317,150
Connection Charges Reserve Fund	1,676,115	-	-	-	229,176	91,875	185,816	52,667	192,709	368,294	555,578	-	-	-	-	-	-	-	-	-
Existing Infrastructure Related Debenture Requirements	19,970,338	5,530,262	2,565,355	1,547,047	2,293,755	2,541,526	301,833	-	-	5,190,559	-	-	-	-	-	-	-	-	-	-
Incremental Growth Related Debenture Requirements	7,229,622	88,000	1,277,000	61,200	-	-	-	-	-	-	5,803,422	-	-	-	-	-	-	-	-	-
Interim Funding	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reserve - Water	6,447,885	-	-	-	-	-	-	-	287,739	931,230	590,264	710,283	658,031	185,498	1,070,675	1,293,552	248,119	138,365	208,279	125,850
<b>Total Capital Financing</b>	<b>43,703,001</b>	<b>5,864,000</b>	<b>4,022,000</b>	<b>1,794,000</b>	<b>2,715,000</b>	<b>2,832,000</b>	<b>693,000</b>	<b>265,000</b>	<b>700,000</b>	<b>10,489,000</b>	<b>7,184,000</b>	<b>953,000</b>	<b>909,000</b>	<b>445,000</b>	<b>1,339,000</b>	<b>1,571,000</b>	<b>535,000</b>	<b>435,000</b>	<b>515,000</b>	<b>443,000</b>

**Table 2**  
**Prince Edward County**  
**Water Service**  
**Schedule of Existing Infrastructure Related Debenture Repayments**  
 Inflated \$

Debenture Year	Principal (Inflated)	Forecast																		
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
2017	5,530,262		297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681	297,681
2018	2,565,355			148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355	148,355
2019	1,547,047				89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466	89,466
2020	2,293,755					132,648	132,648	132,648	132,648	132,648	132,648	132,648	132,648	132,648	132,648	132,648	132,648	132,648	132,648	132,648
2021	2,541,526						146,977	146,977	146,977	146,977	146,977	146,977	146,977	146,977	146,977	146,977	146,977	146,977	146,977	146,977
2022	301,833							17,455	17,455	17,455	17,455	17,455	17,455	17,455	17,455	17,455	17,455	17,455	17,455	17,455
2023	-																			
2024	-																			
2025	5,190,559										300,171	300,171	300,171	300,171	300,171	300,171	300,171	300,171	300,171	300,171
2026	-																			
2027	-																			
2028	-																			
2029	-																			
2030	-																			
2031	-																			
2032	-																			
2033	-																			
2034	-																			
2035	-																			
<b>Total Annual Debt Charges</b>	<b>19,970,338</b>	<b>-</b>	<b>297,681</b>	<b>446,036</b>	<b>535,502</b>	<b>668,150</b>	<b>815,127</b>	<b>832,582</b>	<b>832,582</b>	<b>832,582</b>	<b>1,132,752</b>	<b>1,132,752</b>	<b>1,132,752</b>	<b>1,132,752</b>	<b>1,132,752</b>	<b>1,132,752</b>	<b>1,132,752</b>	<b>1,132,752</b>	<b>1,132,752</b>	<b>1,132,752</b>

**Table 3**  
**Prince Edward County**  
**Water Service**  
**Schedule of Incremental Growth Related Debenture Repayments**  
 Inflated \$

Debenture Year	Principal (Inflated)	Forecast																		
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
2017	88,000		4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737	4,737
2018	1,277,000			73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849	73,849
2019	61,200				3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539	3,539
2020	-																			
2021	-																			
2022	-																			
2023	-																			
2024	-																			
2025	-																			
2026	5,803,422																			
2027	-										335,612	335,612	335,612	335,612	335,612	335,612	335,612	335,612	335,612	335,612
2028	-																			
2029	-																			
2030	-																			
2031	-																			
2032	-																			
2033	-																			
2034	-																			
2035	-																			
<b>Total Annual Debt Charges</b>	<b>7,229,622</b>	<b>-</b>	<b>4,737</b>	<b>78,586</b>	<b>82,125</b>	<b>82,125</b>	<b>82,125</b>	<b>82,125</b>	<b>82,125</b>	<b>82,125</b>	<b>82,125</b>	<b>417,738</b>	<b>417,738</b>	<b>417,738</b>	<b>417,738</b>	<b>417,738</b>	<b>417,738</b>	<b>417,738</b>	<b>417,738</b>	<b>417,738</b>

**Table 4**  
**Prince Edward County**  
**Water Service**  
**Water Reserves/ Reserve Funds Continuity**  
 Inflated \$

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
<b>Water Operations Reserve Fund</b>																			
Opening Balance	(571,541)	(566,252)	(573,330)	(580,497)	(587,753)	(595,100)	(602,539)	(365,787)	-	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	12,280	-	-	-	-	-	241,268	365,787	-	-	-	-	-	-	-	-	-	-	-
Transfer from Water Capital Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Wastewater Operatiosn Reserve	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Closing Balance	(559,261)	(566,252)	(573,330)	(580,497)	(587,753)	(595,100)	(361,271)	-	-	-	-	-	-	-	-	-	-	-	-
Interest	(6,991)	(7,078)	(7,167)	(7,256)	(7,347)	(7,439)	(4,516)	-	-	-	-	-	-	-	-	-	-	-	-
<b>Water Connection Charges Reserve Fund</b>																			
Opening Balance	(91,675)	233,459	130,897	227,780	-	-	-	152,083	160,048	-	-	-	-	-	-	-	-	-	-
Transfer from Operating	-	-	-	-	-	-	-	-	337,459	107,286	98,636	86,612	75,354	63,713	51,676	39,685	11,542	-	-
Connection Charge Revenue	322,252	227,715	251,812	260,374	269,226	278,380	284,997	280,823	290,371	300,244	310,452	319,102	331,126	342,384	354,025	366,062	378,052	406,196	420,007
Transfer to Capital	-	-	-	-	91,875	185,816	52,667	192,709	368,294	555,578	-	-	-	-	-	-	-	-	-
Transfer to Operating (Incremental Growth-Related Debt)	-	4,737	78,586	87,920	82,125	82,125	82,125	82,125	82,125	82,125	417,738	417,738	417,738	417,738	417,738	417,738	417,738	417,738	417,738
Transfer to Operating	-	327,157	79,156	171,057	95,226	10,439	-	-	-	-	-	-	-	-	-	-	-	-	-
Closing Balance	230,577	129,281	224,968	-	-	-	150,205	158,072	-	-	-	-	-	-	-	-	-	-	2,269
Interest	2,882	1,616	-	-	-	-	1,878	1,976	-	-	-	-	-	-	-	-	-	-	28
Incremental Growth-Related Costs	88,000	1,277,000	61,200	162,054	-	-	-	169,000	420,763	6,359,000	-	-	-	-	-	-	-	-	-
<b>Water Capital Reserve/Reserve Fund</b>																			
Opening Balance	206,295	208,874	211,485	-	-	-	-	-	-	-	-	295,352	741,537	1,772,653	2,024,193	2,161,310	3,470,973	5,474,457	7,572,028
Transfer from Operating	-	-	-	-	-	-	-	287,739	931,230	590,264	1,001,989	1,095,061	1,194,730	1,297,224	1,403,986	1,514,931	2,074,263	2,212,368	2,338,474
Grant Funding	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Capital	-	-	-	-	-	-	-	287,739	931,230	590,264	710,283	658,031	185,498	1,070,675	1,293,552	248,119	138,365	208,279	125,850
Transfer to Water Operations Reserve Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Operating	-	-	211,485	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Closing Balance	206,295	208,874	-	-	-	-	-	-	-	-	291,706	732,382	1,750,769	1,999,202	2,134,627	3,428,122	5,406,871	7,478,547	9,784,652
Interest	2,579	2,611	-	-	-	-	-	-	-	-	3,646	9,155	21,885	24,990	26,683	42,852	67,586	93,482	122,308

<b>2035 Total Reserves</b>		<b>9,786,921</b>
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**Table 5**  
**Prince Edward County**  
**Water Services**  
**Operating Budget Forecast**  
 Inflated \$

Description	Forecast																		
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
<b>EXPENDITURES</b>																			
<b>Operating Costs</b>																			
<b>Water Treatment</b>																			
Pictou	550,100	561,700	573,500	585,500	597,800	610,400	623,200	636,300	649,700	663,300	677,200	691,400	705,900	720,700	735,800	751,300	767,100	783,200	799,600
Wellington	306,200	312,600	319,200	325,900	332,700	339,700	346,800	354,100	361,500	369,100	376,900	384,800	392,900	401,200	409,600	418,200	427,000	436,000	445,200
Ameliasburgh	165,800	169,300	172,900	176,500	180,200	184,000	187,900	191,800	195,800	199,900	204,100	208,400	212,800	217,300	221,900	226,600	231,400	236,300	241,300
Peats Point	166,900	170,400	174,000	177,700	181,400	185,200	189,100	193,100	197,200	201,300	205,500	209,800	214,200	218,700	223,300	228,000	232,800	237,700	242,700
<b>Water Distribution</b>																			
Pictou	484,400	494,600	505,000	515,600	526,400	537,500	548,800	560,300	572,100	584,100	596,400	608,900	621,700	634,800	648,100	661,700	675,600	689,800	704,300
Wellington	168,700	172,200	175,800	179,500	183,300	187,100	191,000	195,000	199,100	203,300	207,600	212,000	216,500	221,000	225,600	230,300	235,100	240,000	245,000
Ameliasburgh	16,300	16,600	16,900	17,300	17,700	18,100	18,500	18,900	19,300	19,700	20,100	20,500	20,900	21,300	21,700	22,200	22,700	23,200	23,700
Fenwood/Rossmore	104,100	106,300	108,500	110,800	113,100	115,500	117,900	120,400	122,900	125,500	128,100	130,800	133,500	136,300	139,200	142,100	145,100	148,100	151,200
Carrying Place/Consecon	129,200	131,900	134,700	137,500	140,400	143,300	146,300	149,400	152,500	155,700	159,000	162,300	165,700	169,200	172,800	176,400	180,100	183,900	187,800
Peats Point	23,200	23,700	24,200	24,700	25,200	25,700	26,200	26,800	27,400	28,000	28,600	29,200	29,800	30,400	31,000	31,700	32,400	33,100	33,800
<b>Water Overhead</b>																			
Overhead	530,200	541,300	552,700	564,300	576,200	588,300	600,700	613,300	626,200	639,400	652,800	666,500	680,500	694,800	709,400	724,300	739,500	755,000	770,900
<b>Bulk Water Purchases</b>																			
Fenwood/Rossmore	263,276	263,953	264,755	265,558	266,361	267,163	267,966	268,642	269,319	269,995	270,671	271,348	272,024	272,701	273,377	274,053	274,730	275,406	276,083
Carrying Place/Consecon	82,600	88,957	91,603	95,647	99,911	104,375	108,941	113,608	118,376	123,244	128,212	133,280	138,448	143,716	149,084	154,552	160,120	165,788	171,556
<b>Sub Total Operating</b>	<b>2,990,976</b>	<b>3,053,510</b>	<b>3,113,758</b>	<b>3,176,505</b>	<b>3,236,671</b>	<b>3,298,138</b>	<b>3,360,817</b>	<b>3,424,726</b>	<b>3,489,934</b>	<b>3,556,443</b>	<b>3,624,352</b>	<b>3,693,560</b>	<b>3,764,269</b>	<b>3,836,478</b>	<b>3,910,087</b>	<b>3,985,395</b>	<b>4,062,304</b>	<b>4,140,713</b>	<b>4,220,822</b>
<b>Capital-Related</b>																			
<b>Debentures</b>																			
Existing Debt (Principal) - Incremental Growth Related																			
Existing Debt (Interest) - Incremental Growth Related																			
New Incremental Growth Related Debt (Principal)	-	1,847	24,680	26,747	27,805	28,906	30,050	31,239	32,475	33,761	147,017	152,883	158,983	165,327	171,924	232,283	241,557	251,202	261,231
New Incremental Growth Related Debt (Interest)	-	2,889	53,906	55,378	54,320	53,219	52,075	50,886	49,650	48,364	270,721	264,855	258,755	252,411	245,814	185,455	176,181	166,536	156,506
Existing Debt (Principal) - As at Dec 31, 2016	395,289	410,896	432,219	446,781	461,837	475,045	484,707	492,889	500,528	507,675	514,372	520,655	526,572	532,072	537,200	541,900	546,220	550,110	553,530
Existing Debt (Interest) - As at Dec 31, 2016	234,460	218,853	197,530	175,778	160,722	145,157	129,558	115,965	104,426	92,479	80,108	67,299	54,036	40,305	26,087	11,366	-	-	-
New Debt (Principal) - Pre-2017 Capital	-	109,067	112,797	116,655	120,644	124,771	129,038	133,451	138,015	142,735	147,616	152,665	157,886	163,266	168,870	174,645	180,618	186,796	193,184
New Debt (Interest) - Pre-2017 Capital	-	190,042	186,312	182,454	178,465	174,339	170,072	165,659	161,094	156,374	151,493	146,444	141,223	135,824	130,239	124,464	118,491	112,314	105,925
New Existing Infrastructure Related Debt (Principal)	-	116,098	165,809	199,329	247,480	301,950	318,639	330,588	342,988	352,105	359,308	364,169	367,514	370,324	372,598	374,334	375,534	376,198	376,326
New Existing Infrastructure Related Debt (Interest)	-	181,583	280,227	336,173	420,670	513,177	513,943	501,994	489,594	480,647	463,444	445,583	427,039	407,785	387,795	367,039	344,488	320,113	294,881
<b>Transfers</b>																			
Transfer to Capital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Reserve - Water Operations	12,280	-	-	-	-	241,268	365,787	-	-	-	-	-	-	-	-	-	-	-	-
Transfer to Reserve - Connection Charges	-	-	-	-	-	-	-	-	-	337,459	107,286	98,636	86,612	75,354	63,713	51,676	39,685	11,542	-
Transfer to Reserve - Capital	-	-	-	-	-	-	287,739	931,230	590,264	1,001,989	1,095,061	1,194,730	1,297,224	1,403,986	1,514,931	2,074,263	2,212,368	2,338,474	-
<b>Sub Total Capital Related</b>	<b>642,029</b>	<b>1,231,277</b>	<b>1,453,481</b>	<b>1,539,296</b>	<b>1,671,944</b>	<b>1,816,563</b>	<b>2,049,349</b>	<b>2,309,195</b>	<b>2,586,900</b>	<b>2,883,564</b>	<b>3,400,728</b>	<b>3,485,150</b>	<b>3,572,795</b>	<b>3,664,031</b>	<b>3,759,152</b>	<b>3,858,060</b>	<b>3,963,548</b>	<b>4,073,509</b>	<b>4,188,073</b>
<b>Total Expenditures</b>	<b>3,633,005</b>	<b>4,284,787</b>	<b>4,567,239</b>	<b>4,715,801</b>	<b>4,908,615</b>	<b>5,114,701</b>	<b>5,410,166</b>	<b>5,733,921</b>	<b>6,076,834</b>	<b>6,440,007</b>	<b>7,025,080</b>	<b>7,178,710</b>	<b>7,337,064</b>	<b>7,500,509</b>	<b>7,669,238</b>	<b>7,843,455</b>	<b>8,025,852</b>	<b>8,214,222</b>	<b>8,408,895</b>
<b>Revenues</b>																			
<b>Operating Revenue</b>																			
Other Revenue	15,600	15,900	16,200	16,500	16,800	17,200	17,600	18,000	18,400	18,800	19,200	19,600	20,000	20,400	20,800	21,200	21,600	22,100	22,600
Taxation	9,600	9,800	10,000	10,200	10,400	10,600	10,800	11,000	11,200	11,400	11,600	11,800	12,000	12,300	12,600	13,000	13,200	13,500	13,800
Local Improvement Recovery	38,600	39,400	40,200	41,000	41,900	42,800	43,700	44,600	45,500	46,500	47,500	48,500	49,500	50,500	51,600	52,700	53,800	54,900	56,100
Miscellaneous Revenue	52,200	53,300	54,400	55,500	56,700	57,900	59,100	60,300	61,600	62,900	64,200	65,500	66,900	68,300	69,700	71,200	72,700	74,200	75,800
Transfer from Reserves / Reserve Funds Operating	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer from Reserves / Reserve Funds Capital	-	-	211,485	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfer from Reserves / Reserve Funds Connection Charges (Incremental Growth Debt Payments)	-	4,737	78,586	87,920	82,125	82,125	82,125	82,125	82,125	82,125	417,738	417,738	417,738	417,738	417,738	417,738	417,738	417,738	417,738
Transfer from Reserves / Reserve Funds Connection Charges	-	327,157	79,156	171,057	95,226	10,439	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Sub Total Operating Revenue</b>	<b>116,000</b>	<b>450,293</b>	<b>490,026</b>	<b>382,178</b>	<b>303,151</b>	<b>221,064</b>	<b>213,325</b>	<b>216,025</b>	<b>218,825</b>	<b>221,725</b>	<b>560,238</b>	<b>563,138</b>	<b>566,138</b>	<b>569,238</b>	<b>572,438</b>	<b>575,738</b>	<b>579,038</b>	<b>582,438</b>	<b>586,038</b>
<b>Billing Revenue</b>																			
Base Charge	1,730,010	1,836,211	1,918,504	2,003,315	2,091,629	2,183,588	2,278,586	2,377,380	2,480,210	2,587,233	2,698,616	2,814,493	2,934,982	3,060,353	3,190,799	3,326,516	3,468,629	3,616,494	3,770,335
Consumptive Charge	1,658,179	1,859,244	2,012,333	2,176,254	2,351,706	2,539,432	2,738,697	2,951,559	3,178,962	3,421,825	3,550,590	3,582,305	3,613,927	3,645,550	3,677,172	3,708,795	3,742,104	3,775,413	3,808,722
Bulk Water Charge	128,816	139,039	146,375	154,055	162,129	170,617	179,558	188,957	198,837	209,223	215,637	218,775	222,018	225,368	228,830	232,407	236,081	239,878	243,800
<b>Sub Total Billing Revenue</b>	<b>3,517,005</b>	<b>3,834,494</b>	<b>4,077,212</b>	<b>4,333,623</b>	<b>4,605,464</b>	<b>4,893,637</b>	<b>5,196,841</b>	<b>5,517,896</b>	<b>5,858,009</b>	<b>6,218,282</b>	<b>6,464,842</b>	<b>6,615,573</b>	<b>6,770,927</b>	<b>6,931,271</b>	<b>7,096,801</b>	<b>7,267,718</b>	<b>7,446,814</b>	<b>7,631,785</b>	<b>7,822,857</b>
<b>Total Revenue</b>	<b>3,633,005</b>	<b>4,284,787</b>	<b>4,567,239</b>	<b>4,715,801</b>	<b>4,908,615</b>	<b>5,114,701</b>	<b>5,410,166</b>	<b>5,733,921</b>	<b>6,076,834</b>	<b>6,440,007</b>	<b>7,025,080</b>	<b>7,178,710</b>	<b>7,337,064</b>	<b>7,500,509</b>	<b>7,669,238</b>	<b>7,843,455</b>	<b>8,025,852</b>	<b>8,214,222</b>	<b>8,408,895</b>

**Table 6**  
**Prince Edward County**  
**Water Services**  
**Water Rate Forecast**  
 Inflated \$

Description	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Total Water Billing Recovery	1,658,179	1,859,244	2,012,333	2,176,254	2,351,706	2,539,432	2,738,697	2,951,559	3,178,962	3,421,825	3,550,5								

# **Appendix B**

## **Detailed Wastewater Rate Calculations**









**Prince Edward County**  
**Water & Wastewater Ad-Hoc Committee**  
**Document Listing - Staff Report to Council**  
**As at June 15, 2017**

<b>Meeting Date:</b>	<b>Document Name:</b>	<b>Document Date:</b>	<b>Document Author:</b>
Background Document	By-Law 2701-2010: A By-law to Impose Water and Sanitary Sewer Connection Charges upon the Owners and Occupants of Land Within the County of Prince Edward for all Connections to Munnipally Operated Water and Sanitary Works. Amendments 2812-2011; 3209-2013.	September 14, 2010	Council
Background Document	By-law 3008-2012: A By-law to Enact Use Rates, Rules and Regulations for the Supply of Water and Sanitary Sewage in the County of Prince Edward. Amendments 3700-2015 (Consolidated version)	February 14, 2012	Council
Background Document	By-law 3205-2013: A By-law for the imposition of Development Charges. Amendments 3609-2015; 3759-2016.	March 5, 2013	Council
Background Document	Water and Wastewater Rate and Study and Connection Charges Update	December 16, 2015	Watson and Associates
Background Document	Water Ontario Regulation 453/07 Financial Plan	March 7, 2016	Watson and Associates
Jan 28, 2016 (COW mtg)	Terms of Reference Staff Report	January 22, 2016	Staff
May 18, 2016	Terms of Reference	March 22, 2016	Approved by Council
June 22, 2016	Presentation: Background, 2010 Financial Plan Analysis, 2015 Rate Study and Financial Plan Update	June 22, 2016	Watson and Associates
June 22, 2016	Presentation: Risk Assessments	June 22, 2016	R.V. Anderson Associates Limited
July 6, 2016 (initial), July 20, 2016	Committee Work Plan	July 20, 2016	Committee
August 25, 2016	Long Term Population, Housing and Employment Forecast and Capital Needs Assessment	January 14, 2013	Watson and Associates
August 25, 2016	Official Plan Review - Growth 2031 People Make the Difference	July 1, 2011	PEC Planning Department
August 25, 2016	Water & Wastewater Customer and Consumption Forecasts	August 25, 2016	Staff Report
October 11, 2016	W&WW Capital Works Review	October 11, 2016	Staff
October 11, 2016	Water and Wastewater 20 Year Capital Needs Forecast Summary	October 11, 2016	Staff
November 22, 2016	Water and Wastewater Debt Analysis	November 22, 2016	Staff Report
November 22, 2016	Review of 20 yr. Capital Program with Revised 5 Year Rolling Average Growth Projections	November 22, 2016	Staff Report
November 22, 2016	2017 Water and Wastewater Rate and Connection Charges	November 22, 2016	Staff Report

**Prince Edward County  
Water & Wastewater Ad-Hoc Committee  
Document Listing - Staff Report to Council  
As at June 15, 2017**

<b>Meeting Date:</b>	<b>Document Name:</b>	<b>Document Date:</b>	<b>Document Author:</b>
January 10, 2017	Government Grants	January 10, 2017	Staff Report
January 10, 2017	Bulk Water and Septage Rate Calculations	January 10, 2017	Watson and Associates
January 10, 2017	Fire Hydrant Usage Rates for Sample Municipalities	January 10, 2017	Watson and Associates
January 10, 2017	Financial Assistance Programs Background Information & Discussion	January 10, 2017	Andrew Bowers, Committee Member
January 25, 2017	Presentation: Connection Charges, Water and Wastewater Rates (Methodology and Alternative Rate Structures)	January 25, 2017	Watson and Associates
February 8, 2017	Report on Ontario Communities (Charges Applied to Developers)	August 12, 2016	Ben Farella Group
February 8, 2017	Connection Charge Calculation - Prince Edward County	August 19, 2016	Collins Barrow
February 8, 2017	Water and Sanitary Sewer Connection Charges	August 22, 2016	Loopstra Nixon LLP
February 8, 2017	Prince Edward County Connection Charges	November 8, 2016	Watson and Associates
March 14, 2017	Wastewater Connection Charges (Legal Opinion)	March 6, 2017	Templeman Menninga LLP
March 14, 2017	Alternative Water and Wastewater Rate Scenarios	March 6, 2017	Watson and Associates
March 14, 2017	Operating Efficiencies Background Information & Discussion	February 2, 2017	Andrew Bowers, Committee Member
March 28, 2017	Water and Wastewater Operating Results (2011 thru 2016 Actual, 2017 Budget)	March 28, 2017	Staff
March 28, 2017	Water and Wastewater Cash Flow Projections	March 28, 2017	Graham Shannon, Committee Member
April 19, 2017	Suggested Operating Cost Savings Measures	April 19, 2017	Staff
April 19, 2017	Water and Wastewater Rate Scenarios	April 19, 2017	Staff Report
April 19, 2017	Bulk Water Rates for Rossmore/Fenwood Water System	April 11, 2017	City of Belleville
May 23, 2017	Water and Wastewater Water and Wastewater Rates and Connection Charges Ad Hoc Committee Analysis	May 12, 2017	Watson and Associates
May 23, 2017	Alternate Rate Scenario	May 12, 2017	Watson and Associates